VOLUME 2
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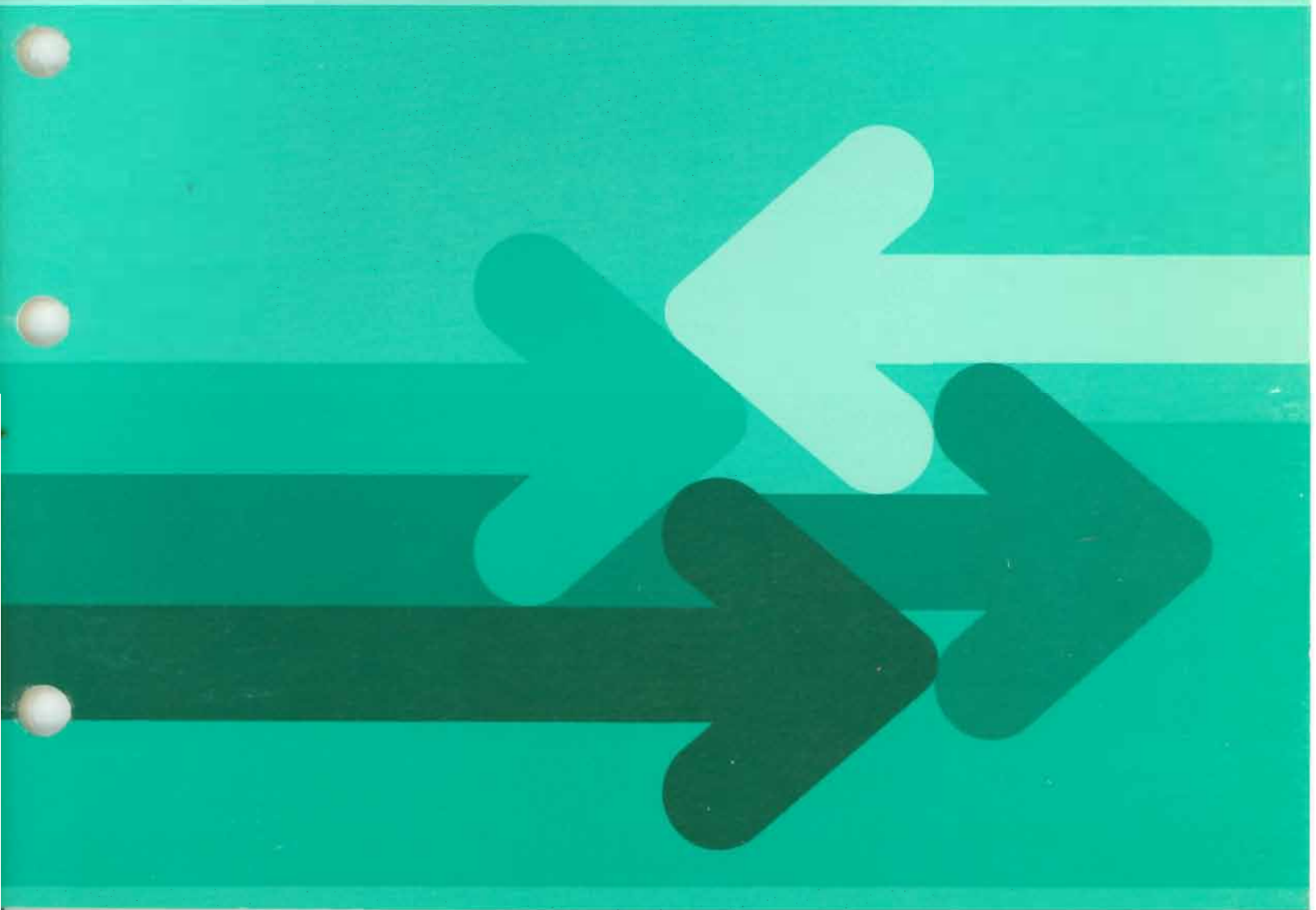
HEWLETT PACKARD

COMMUNICATOR 3000



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HP 3000 Computer Systems

COMMUNICATOR 3000

HEWLETT PACKARD

19447 PRUNERIDGE AVENUE, CUPERTINO, CA 95014

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CONVENTIONS USED IN THIS MANUAL

NOTATION	DESCRIPTION
COMMAND	Commands are shown in CAPITAL LETTERS. The names must contain no blanks and be delimited by a non-alphabetic character (usually a blank).
KEYWORDS	Literal keywords, which are entered optionally but exactly as specified, appear in CAPITAL LETTERS.
parameter	Required parameters, for which you must substitute a value, appear in ***bold italics***.
parameter	Optional parameters, for which you may substitute a value, appear in *standard italics*.
[ ]	An element inside brackets is optional. Several elements stacked inside a pair of brackets means the user may select any one or none of these elements. Example: [A] [B] user may select A or B or neither. When brackets are nested, parameters in inner brackets can only be specified if parameters in outer brackets or comma place-holders are specified. Example: [*parm1*[,*parm2*[,*parm3*]]] may be entered as: *parm1*,*parm2*,*parm3* or *parm1*,,*parm3* or ,,*parm3* , etc.
{ }	When several elements are stacked within braces the user ***must*** select one of these elements. Example: { A } { B } user must select A or B.
...	An ellipsis indicates that a previous bracketed element may be repeated, or that elements have been omitted.
user input	In examples of interactive dialog, user input is underlined. Example: NEW NAME? ALPHA1
superscript^{C}	Control characters are indicated by a superscript^{C}. Example: Y^{C}. (Press Y and the CNTL key simultaneously.)
RETURN	RETURN indicates the carriage return key.
<<COMMENT>>	Programmer's comments in listings appear within << >>.
** Comment **	Editor's comments appear in this form.

CONTENTS

PREFACE

We at HP are enthusiastic about MPE V/P Delta-1 (E/F.00.01), a general distribution HP 3000 software release. MPE V/P Delta-1 offers you the latest versions of HP 3000 software while retaining the MPE IV-based tables structure. As with MPE V/P, MPE V/P Delta-1 supports disc caching on a High Performance Series 39, and on Series 42, 48, and 68 systems.

This issue of the Communicator 3000 highlights specific MPE and subsystem changes that have occurred since MPE V/E (version G.00.00), released in July 1984. For easy referencing, the manual has been divided into two different sections.

The first section contains articles relating only to this software release. Leading off is an introductory article, followed by an article that references information from the MPE V/E Communicator 3000 which also pertains to MPE V/P Delta-1. Next, you will find articles on the Native Language Support and the Application Message Facility, two products added to the ever growing feature set of MPE. At the end of the section you will find an article on the size of the directory (of concern for the installation), an article on SNA NRJE and SNA Link, and articles discussing SPL/3000 and RPG/3000 enhancements.

The second section contains general information articles, which many of you have requested in your reader comment sheets from past Communicators. Included is an article on joining Interex (the International Association of Hewlett-Packard Computer Users), and one on ordering the Communicator 3000. This section also contains a list of customer publications for the HP 3000 that are new or recently revised, and the catalog of customer publications.

We hope that you enjoy reading this manual.

Larry S. Lodovisi, Editor

SECTION I:

REGARDING THIS RELEASE

Introduction to MPE V/P Delta-1

By Larry Russell, Computer Systems Division

MPE V/P Delta-1 is a general distribution HP 3000 software release supported on Series 39, 40, 40SX, 42, 44, 48, 64, and 68. This release has been engineered and tested to allow self installation by customers, thereby improving flexibility and convenience. MPE V/P Delta-1 retains the underlying system tables structure of MPE IV-based system software releases, and supports disc caching on a High Performance Series 39, and on Series 42, 48, and 68 systems.

In Hewlett-Packard's continuing drive to improve product quality, MPE V/P Delta-1 has been extensively tested on numerous HP 3000s prior to its general release. These tests have been run on systems in Hewlett-Packard lab and production environments, as well as on machines at customer sites around the world. Hewlett-Packard increased the engineering time and resources it applies to HP 3000 software integration and testing to ensure that customer satisfaction will continue to increase.

MPE V/P Delta-1 Supports the Latest Software

MPE V/P Delta-1 offers customers the latest versions of HP 3000 software. Major new enhancements and software fixes are documented in this issue of the Communicator 3000, if they have not already been described in the Communicator 3000 for MPE V/E (Volume 2, Issue 1). The article entitled "A Reference to Other Articles Concerning MPE V/P Delta-1" in this issue explains which articles from the MPE V/E Communicator 3000 also apply to MPE V/P Delta-1.

Native Language Support

MPE V/P Delta-1 adds Native Language Support (NLS) to the large and growing feature set of MPE. NLS allows application programs to be easily designed and written so that end users will experience a natural, local language interface. With NLS, two users from different countries can access the same program on the same system, yet communicate with that program in their respective native languages! NLS will greatly enhance the productivity of applications programmers, because NLS intrinsics handle the idiosyncrasies of languages, such as collating sequences, character sets, and formatting conventions.

This first release of NLS supports fifteen languages. NLS is offered to HP 3000 customers free-of-charge as a part of the Fundamental Operating Software. In addition to MPE, the following software has been enhanced to support NLS: SORT-MERGE, VPLUS, KSAM, IMAGE, QUERY, FCOPY, and COBOLII. The article entitled "NATIVE LANGUAGE SUPPORT" describes the major features of NLS.

The Application Message Facility

As a part of the Native Language Support engineering effort, the Application Message Facility is also provided to give applications developers additional design flexibility. Customers who do not require the NLS features may still wish to make use of the Application Message Facility, because it allows applications programmers to easily define and build message catalogs. These catalogs may contain text or messages that would normally have been hard coded into the application program. The article entitled "APPLICATION MESSAGE FACILITY" describes this product's functionality.

A Reference to Other Articles Concerning MPE V/P Delta-1

By Larry Lodovisi, Computer Systems Division

MPE V/P Delta-1 has many of the same features and enhancements that are offered by MPE V/E. Consequently, many of the articles in the MPE V/E Communicator (5955-1770; Volume 2, Issue 1) also pertain to the MPE V/P Delta-1 software release.

Refer to the MPE V/E Communicator articles listed below for information on the other features and enhancements that pertain to MPE V/P Delta-1:

SECTION/ARTICLE **PAGE**

NON-MPE SPECIFIC

Native Language Support

By Harry Kellogg, Computer Systems Division

HP 3000 Native Language Support (NLS) allows application programs to be designed and written so that their end users have a natural, local-language interface and locally correct internal processing. For example, two users from different countries can access a program on the same computer and communicate in their respective native languages.

The first release of NLS contains 15 supported "languages": there are 14 "real" languages and an artificial language, called "NATIVE-3000". (NATIVE-3000 may be thought of as "the way it used to work, before NLS".) Each language is identified by a unique language name and corresponding language identification number, as shown below:

0 NATIVE-3000	8 GERMAN
1 AMERICAN	9 ITALIAN
2 CANADIAN-FRENCH	10 NORWEGIAN
3 DANISH	11 PORTUGUESE
4 DUTCH	12 SPANISH
5 ENGLISH	13 SWEDISH
6 FINNISH	41 KATAKANA
7 FRENCH	

Each supported native language has been "defined", in the sense that the following characteristics are known and available with MPE V/P Delta-1:

- Character set supporting the language (includes attribute of each character).
- Upshift and downshift tables.
- EBCDIC translation tables (to and from).
- Collating sequence table.
- Decimal and thousands separators.
- Currency sign and position.
- Month names and abbreviations.
- Weekday names and abbreviations.
- External date and time formats.
- External custom (short) date format.
- Words for "YES" and "NO".
- Additional language-specific information, if necessary.

By running the utility program NLUTIL, you may obtain a complete printout that gives the definition of all languages configured on your system.

This article attempts only to give a brief overview of the new facilities available. For more detailed information, refer to the Native Language Support Reference Manual (32414-90001).

Native Language Support in MPE

The MPE portions of NLS consist of three utility programs and eighteen system intrinsics. These can be conveniently divided into two major facilities: a native language facility and an application message catalog facility. The latter is discussed in a separate article, entitled "APPLICATION MESSAGE FACILITY".

The Native Language Facility consists of two utility programs, LANGINST and NLUTIL, and fifteen intrinsics. LANGINST is used by System Managers for selecting the native languages to be supported on particular systems. NLUTIL, which can be accessed by anyone, is used for obtaining the details of languages installed on a system.

The 15 "NL" intrinsics can be called to provide the various language-dependent functions and information for any language installed on a system. These intrinsics are:

ALMANAC	Returns numeric year, month, day of month, and day of week.
NLAPPEND	Constructs a file name from a specified string and a specified language number (used for VPLUS forms files, application catalogs, etc).
NLGETLANG	Returns "current" languages (system, user, data).
NLINFO	Returns all configured information for a language.
NLFMTCLOCK	Formats a time of day into a string, according to the requirements of a specified native language (e.g., "12:27 PM").
NLFMTCALENDAR	Formats a specified date into a string (e.g., "FRI, OCT 15, 1982").
NLFMTDATE	Formats a specified date and time into a string (e.g., "FRI, OCT 15, 1982, 12:27 PM").
NLFMTCUSTDATE	Formats a specified date into the "custom" or "short" date form (e.g., "10/15/82").
NLCONVCLOCK	Converts the external time of day string for a language into the HP 3000 internal CLOCK format.
NLCONVCUSTDATE	Converts the external custom (short) date format for a language into the internal HP 3000 CALENDAR format.
NLREPCHAR	Replaces any nondisplayable characters in a string with a substitute character.
NLSCANMOVE	Moves, scans, upshifts, or downshifts the characters in a string according to the definitions for a language and the nature of the characters (alphabetic, numeric, etc).

NLCOLLATE	Determines the order of two character strings, according to the collating sequence for a specified language.
NLKEYCOMPARE	Compares a partial key to a whole key to determine chance of match (used with KSAM for generic retrieval).
NLTRANSLATE	Performs conversions between national EBCDIC character sets and HP 8-bit character sets.

Native Language Support in the Subsystems

In addition to providing new utilities and intrinsics in MPE, HP 3000 NLS offers capabilities in the following subsystem products: KSAM, SORT-MERGE, VPLUS, FCOPY, IMAGE, QUERY, and COBOLII. As with MPE NLS, the features in these products are intended to provide application designers and programmers with the tools needed to design local language applications. Thus, it is the application end user, and not the programmer or subsystem user, who sees the localized interface.

The NLS features in HP 3000 subsystems are, for the most part, implemented through the capabilities provided by the MPE NLS intrinsics, or internal variants of these intrinsics. Because of this, aspects of a native language definition within MPE NLS will be consistently reflected across all of the subsystems. Perhaps the best example of this is collating. The collating sequence defined for a particular native language is directly usable by application programs via the NLCOLLATE and NLKEYCOMPARE intrinsics. The same collating sequence is used by SORT-MERGE in ordering records, by KSAM in ordering keys, and by IMAGE in ordering sorted chains when these products are dealing with character strings that have been associated with the same native language.

The NLS features of each subsystem must be explicitly requested to be invoked. Here is a brief list of the major capabilities:

SORT-MERGE	A new key type, CHARACTER, is introduced; keys of this type are sorted or merged according to a native language collating sequence, if one is specified. This capability is available programmatically, and from the stand-alone SORT and MERGE utilities.
VPLUS	Several run-time VPLUS functions are native language dependent: date formatting, numeric formatting, character upshifting, and range checking. These functions are performed relative to the rules of a native language, if one has been associated with the forms file in FORMSPEC. Alternatively, VPLUS allows a forms file to be "international"; at run time, the application program must call a new intrinsic, VSETLANG, to establish the native language to be used in processing the forms.
KSAM	If a language attribute has been assigned to a KSAM file (through FOPEN or by using KSAMUTIL), that language's collating sequence is used in ordering any keys of type BYTE.
IMAGE	If a language attribute has been assigned to a data base (in the schema or by using DBUTIL), internal comparisons of type U and X data items will use the corresponding language's collating sequence. This specifically affects two areas: the way sorted chains are ordered by DBPUT, and the way concurrent entry-level lock requests are compared in DBLOCK.

QUERY	If a language is specified by the user, several functions of QUERY are affected. For type U data items, upshifting of user entered data will follow native language rules; value comparisons for type U and X items in the retrieval command FIND and other such commands use the appropriate collating sequence. In output reports, sorting of type U and X data items and formatting of dates and numeric data follow the appropriate language definition. The language chosen by the QUERY user is independent of the language (if any) of the underlying IMAGE data base.
FCOPY	A new "LANG=" parameter influences three functions: upshifting, conversions to and from EBCDIC, and display of characters (the CHAR option). Upshifting and conversions will follow the appropriate native language definition; FCOPY will use the corresponding character set definition to decide which characters are printable, and which must be replaced by a ".".
COBOLII	The syntax and the compiler have been enhanced to give the COBOLII programmer access to the native language capabilities of SORT-MERGE; this is accomplished in COBOLII using extensions to the COLLATING SEQUENCE phrase of the SORT and MERGE verbs. Although only COBOLII has specific enhancements for NLS in this release, most other programming languages can also use NLS to produce localizable programs.

8-Bit Character Sets

The code assignments for the characters of USASCII are densely packed into the range of 0 to 127. For this reason, USASCII is referred to as a "7-bit" code, although USASCII characters (on the HP 3000) are always encoded with 8 bits, the eighth (high-order) bit being set to zero. The following two new character sets have been built on USASCII, adding new characters with code values in the range of 161 to 254:

- ROMAN8 (for Western European-based languages).
- KANA8 (for Katakana, or phonetic Japanese).

These character sets are referred to as "extended character sets" or "8-bit character sets".

NLS supports USASCII peripherals as well as a wide variety of peripherals configured for 8-bit operation with ROMAN8 or KANA8. Peripherals configured for any of the 7-bit substitution sets are not supported by NLS. (These substitution sets are similar to USASCII, but differ from it, in that up to twelve characters that contain replacement characters needed for a particular local language.)

Appendix C, "PERIPHERAL SUPPORT", in the Native Language Support Reference Manual (32414-90001) contains information on supported terminals and printers, including how to change the configuration (if necessary) from 7-bit to 8-bit. Appendix D, "CONVERTING 7-BIT TO 8-BIT DATA", documents a set of conversion utilities available for the one time conversion of 7-bit (European) data to 8-bit ROMAN8 data in a variety of file types.

Application Message Facility

By Larry Cargnoni, Computer Systems Division

Native Language Support's Application Message Facility gives the applications designer the versatility to create message catalogs. These catalogs enable users to run a single application in different countries, with no need to have multiple copies of the application and no need to modify hard-coded messages and recompile code. Message catalogs can contain text/messages (prompts, error messages, etc) that are hard-coded into application programs; several message catalogs can be created, each containing identical messages that are translated into several languages.

There are two major components to the Native Language Support (NLS) Application Message Facility:

- The GENCAT utility program for creating and maintaining application message catalogs.
- The CATOPEN, CATREAD, and CATCLOSE intrinsics for accessing application message catalogs.

A message catalog is an MPE ASCII file, called a "source catalog", that contains character strings (messages). It is created with EDIT/3000 or a compatible editor, and it may contain 8-bit characters. A source catalog is identifiable by a set number and message number within each set, as shown below in the examples of English and Spanish catalogs:

```
$SET 1  Prompts and Commands      $SET 1  Mandatos
1 ENTER FIRST NAME                1 ENTRE SU NOMBRE DE PILA
2 ENTER LAST NAME                 2 ENTRE SU APELLIDO
3 ENTER STREET ADDRESS            3 ENTRE SU DIRECCION

$SET 2  Error Messages            $SET 2  Avisos de errores
1 UNKNOWN COMMAND                 1 MANDATO DESCONOCIDO
2 NAME NOT FOUND                  2 NOMBRE NO ENCONTRADO
3 DEVICE UNAVAILABLE              3 DISPOSITIVO INACCESIBLE
```

As you can see, the message sets and their respective messages are delimited by various directives (i.e. $SET) and identifying numbers. The GENCAT utility program reads the source catalog, and GENCAT creates the actual "formatted" catalog using these directives and numbers. GENCAT formats the catalog so that it requires minimal disc space (for example, trailing blanks are deleted) for efficient storage. (See Figure 1-1, next page.) GENCAT also formats the catalog so that it has the ability to locate and retrieve any given message with minimal disc accesses via an internal directory. (Significant formatting improvements were achieved over the existing MPE message facility.)

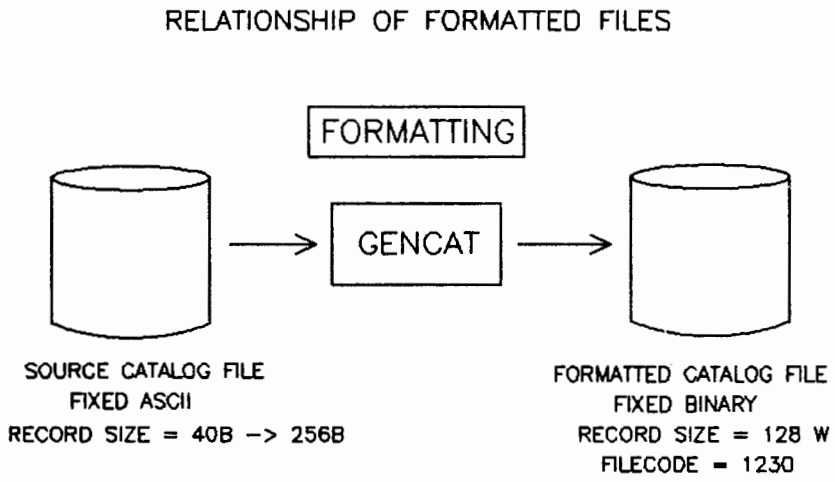

Figure 1-1. Formatting an application message catalog

The GENCAT program also has a facility for merging a "master" source file and a "maintenance" source file. (The maintenance source file is a file that contains changes to the master source file.) One uses this facility when updating a version of the "master" source file. For example, by translating the maintenance file and then using GENCAT to merge the resulting local-language maintenance file with the local-language master file, the update would be performed.

Application programs access the catalog messages via the CATOPEN, CATREAD, and CATCLOSE intrinsics: CATOPEN opens a catalog, CATREAD reads the catalog (this may be done by optionally specifying one to five message parameters with CATREAD; these parameters are inserted into the retrieved text), and CATCLOSE closes the catalog originally opened. (See Figure 1-2, below.) The message itself contains special characters that control the locations and order in which the message parameters from CATREAD are substituted, before routing the catalog to its destination. Each intrinsic is readily callable from COBOLII, FORTRAN, Pascal, and SPL.

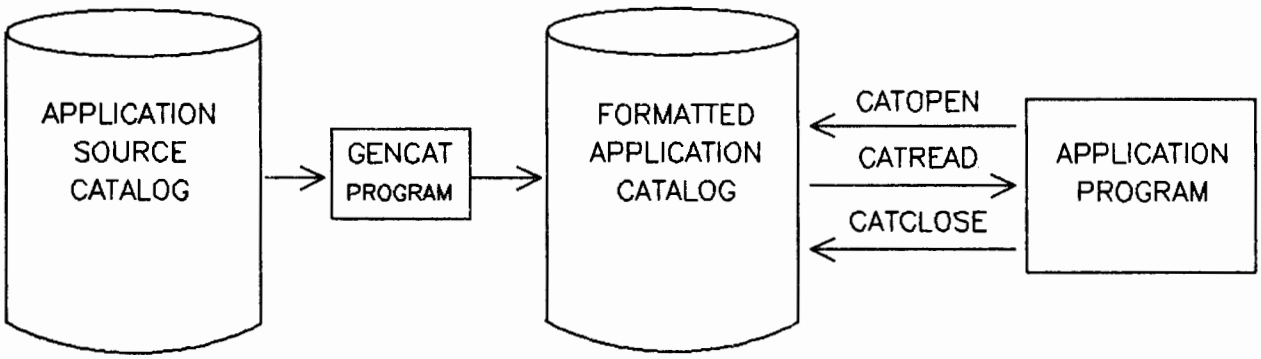

Figure 1-2. Accessing an application message catalog

It should be pointed out that NLS does not explicitly link application message catalogs to configured native languages. The catalogs are merely MPE files that are known to applications and accessible through the "CAT" intrinsics. It is likely that an application localized for several languages will have a separate message catalog for each of these languages.

A naming convention can be followed for catalogs containing identical messages that translate into several languages. The convention allows the catalog name to be composed of a string, one to five characters long, appended with a three-digit language identification number specific to each native language. For example, the original, unlocalized messages might be stored in a catalog named APCAT000; the catalog APCAT008 would contain the same messages in German, and the catalog APCAT012 would contain the same messages in Spanish. This makes it possible for the application program to determine which catalog to open at run time. (If this naming convention is followed, the NLAPPEND intrinsic may be used to form the catalog file name once the language number is determined.)

One final note: application message catalogs are tools provided for the support of readily localizable messages. There may be some information (such as time and date skeletons accessible through NLS intrinsics) that might be more appropriately stored in other formats. An application can use whatever file structure(s) is suitable to store language-dependent information. An application program may also use the same naming conventions for these files. The important principle is that these data should be stored external to the application code itself.

Directory Expanded?

Rob Fisher, Computer Systems Division

To ensure that the installation of MPE V/P Delta-1 will be successful, customers must verify one of two items:

- Check to see if the latest version of the directory expansion patch is installed on the system. You may verify this with your SE.

or

- If the latest version of the directory expansion patch has not been installed, then verify that the directory size is less than 6112 sectors.

To verify that the directory size is less than 6112 sectors, follow this procedure:

1. The current size of the directory can be verified by performing a "SYSDUMP $NULL". When the question "ANY CHANGES? " is displayed, enter:

   YES

2. Press RETURN for each additional question until "DISC ALLOCATION CHANGES? " is displayed. Enter:

   YES

   SYSDUMP will output:

   DIRECTORY USED = *xxxx*, MIN = *yyyyy*, MAX = *zzzz*.?

3. If the MAX=*zzzz* value is more than 6112 sectors, do not update to MPE V/P Delta-1. If you have any questions please call your SE or AEO (Application Engineering Organization). If the value is 6112 sectors or less, you can proceed to update to MPE V/P Delta-1.

SNA NRJE and SNA Link

By Bob Stassen, Information Networks Division

Two new data communication products, SNA NRJE and SNA Link, together allow the HP 3000 to emulate the functions of an IBM 8100 DPPX/RJE workstation. Architecturally, this workstation is an SNA Physical Unit Type 2, Logical Unit Type 1 network node. SNA NRJE works concurrently with DS networking and other HP applications software to provide an integrated, multivendor network solution.

SNA Link includes an INP, cable, and the software to implement the lower three layers of SNA (which roughly corresponds to the lower four layers of the ISO Open Systems Interconnect Model.) SNA NRJE performs batch communications over the SNA Link. The new Network Configuration Checkout (NCC) process enables an SE to analyze the host and HP 3000 configurations before the installation, to ensure successful multivendor communications. Through interaction with the On-Line Support Group, the SE can evaluate the customers host communication requirements and provide the support needed to maintain the environment necessary for SNA communication between the host and the HP 3000.

Features

SNA NRJE and SNA Link provide the following features:

- The ability for the HP 3000 to communicate into the SNA environment, via emulation of an IBM 8100 DPPX/RJE workstation.
- Support for line speeds of up to 56 Kbps.
- Support for concurrent communication to multiple hosts or multiple lines to a single host.
- Intrinsics for most SNA NRJE user and operator commands.
- A gateway between HP networks and IBM SNA networks.
- The ability to run concurrently with other HP 3000 applications and support all HP peripheral equipment.

Functional Description

SNA NRJE communicates to an IBM SNA network by emulating and IBM 8100 DPPX/RJE workstation. Once an SNA session has been established, input and output data may traverse the network. "Virtual readers", which are MPE spooled output devices, hold submitted jobs until they are transmitted to the host. Work stations receive output data sets from the host via "logical writers". When communications with the host exist, job input spool files are transmitted to a host system as logical card reader data streams. Job output data is received from the host system in logical printer and punch data streams and formatted into spool files for output at the workstation.

A workstation and host communicate with each other in an "LU-LU session". The job entry system at the host, JES2, is also an LU. In an LU-LU session between a workstation and a host, NRJE retrieves job input data, translates and compresses it when requested, prefixes SNA format headers,

and passes it to SNA Link on the HP 3000. SNA Link transmits the data to the host. A spool file containing job input data is retained until it is successfully transmitted.

NRJE uses the console command and message stream between a workstation and JES2. An NRJE Operator uses the console to send commands and receive messages. All JES2 commands configured for a workstation are permitted.

NRJE can be accessed two ways, interactively and programmatically. Interactive access is through the NRJE subsystem command interpreter. Programmatic access is through a user-written program that calls NRJE intrinsics. Most NRJE commands correspond with intrinsics.

Product Requirements

The hardware and software requirements for both the HP 3000 and the host are discussed below.

HP 3000 HARDWARE AND SOFTWARE REQUIREMENTS. The hardware requirements are as follows:

- An HP 3000 Series 39, 4X, or 6X with at least 2 Mb of main memory.
- A leased or switched communications line.
- An external clock signal must be provided for operation at 56 Kbps.
- The following modems are supported:

HP37230A	up to 9600 bps
Bell 201C	2400 bps
Bell 208A/B	4800 bps
Bell 209A	9600 bps
Bell 2024A	2400 bps

The software requirements are as follows:

- The MPE Operating System: HP32033E/F.00.01 or later.
- SNA Link: HP30246A.00.0 or later for SNA NRJE to communicate with the host job entry subsystems in the SNA environment. SNA Link consists of the following:

  1. Node Management Services (which includes the Link Manager and NMDUMP).
  2. The SNA Transport Subsystem, which includes the NRJEOUT utility that is part of SNA NRJE (it calls the NRJEOUTDATA procedure to perform job management). It also includes CS, HP30131A.05.20 or later (refer to the SNA Link Node Management for NRJE Reference Manual (30246-90001)).

HOST HARDWARE AND SOFTWARE REQUIREMENTS. The hardware requirements are as follows:

- An IBM mainframe, such as System/370, 433X, 434X, 303X, or 308X, or a 370 compatible host.
- An IBM 3705 Communications Controller that support an RJE 8100 SNA line and a 370X port.

Software requirements are such that SNA NRJE requires certain versions, releases, and PTF levels of the following software:

- The MVS/SP operating system.
- The JES2 job entry subsystem.
- The ACF/VTAM telecommunications access method.
- The ACF/NCP, IBM's network control program.

Consult the SNA NRJE Network Remote Job Entry User/Programmer Reference Manual (30245-90001) for a current list of host MVS/SP, JES2, ACF/VTAM, and ACF/NCP supported versions and PTF levels.

Support Summary

CSD offers four levels of support for each customer with an HP 3000 system: Custom Support Plan (CSP), Account Management Support (AMS), Response Center Support (RCS), and Software Materials Subscription (SMS). In addition to the overall level of system support, customers need to order SMS support for each product:

30245A+S00	SMS for SNA NRJE
30245A+W00	Extended SMS for SNA NRJE
30246A+S00	SMS for SNA Link
30246A+W00	Extended SMS for SNA Link

SNA Link also requires SMMC or BMMC hardware support in addition to SMS software support.

(AMS and RCS customers also need to order the appropriate data communications category support, if it has not already been purchased. A given category only needs to be purchased once for all products in that category.)

ORDERING INFORMATION. The following products are available for all HP 3000 series 4X and 6X processors with MPE V/P Delta-1 (the PASCAL SL must be installed; note that 30245A SNA NRJE requires ordering and installation of 30246A SNA Link):

Product Number	Description
30245A	SNA NRJE (license to use).
30245R	SNA NRJE (right to copy with sublicense).
30245M	SNA NRJE (right to copy without sublicense).
30246A	SNA Link (license to use). Option 035: substitute 30221D cable for 30221A cable (for operation up to 56 Kbps). Option 100: delete SNA Link hardware (SMMC or BMMC for 30246A is not required if this option is ordered).

NOTE

SNA NRJE and SNA Link should be ordered and used together. Neither product is supported on a standalone basis. SNA Link does not support user access to its intrinsics. Contact your local HP office for information about an HP special product for this purpose.

DOCUMENTATION. The manuals are: the SNA NRJE Network Remote Job Entry User/Programmer Reference Manual (30245-90001) and the SNA Link Node Management for NRJE Reference Manual (30246-90001).

SPL/3000 Enhancements

By Larry Dino, Computer Language Lab

Several enhancements have been made to version A.08.04 of the SPL compiler. Version A.08.04 is released on MPE V/E (G.00.00) and MPE V/P Delta-1 (E/F.00.01). Most of the enhancements are privileged mode instructions that are used to move data between data segments. These instructions are MOVEX, SPLIT, NOSPLIT, WITH, and DATASEG. Following is a brief description of each of these statements; for more detail, refer to version E0284 of the Systems Programming Language Reference Manual (30000-90024):

MOVEX — Depending on the move, one of three machine instructions is generated:

- MFDS Move from extra data segment to stack.
- MTDS Move from stack to extra data segment.
- MDS Move between extra data segments.

SPLIT — Option SPLIT or the compiler directive $SPLIT allows the DB register to point to the base of the extra data segment (versus the user process stack), while the DL register and all other data registers remain associated with the user stack.

NOSPLIT — The compiler directive $NOSPLIT can be used to reset $SPLIT.

WITH — WITH is intended specifically for users running in split-stack mode. The WITH statement is used to reference a particular data segment.

DATASEG — The DATASEG declaration is used to define an extra data segment.

An enhancement to the MOVE and SCAN statements returns the number of bytes/words that have been moved to the user. All the enhancements are fully downward compatible, which means that existing programs will continue to compile as before.

Enhancements to RPG/3000

By Nancy Lucas, Computer Language Lab

Enhancements have been made to increase RPG/3000's compatibility with System/34 RPG II. When these enhancements are released, RPG/3000 will be over 99 percent compatible with System/34 RPG II. Documentation of these enhancements will be distributed via the update for the RPG Utilities Reference Manual (32104-90006). These enhancements will appear in RPG/3000 version A.06.04, available with MPE V/P Delta-1 (E/F.00.01).

The System/34 compatibility enhancements are as follows:

Data Structures
Hierarchical Data Definitions
Nested Data Structures

Local Data Area (LDA)
RPG Initializer Utility (RPGINIT)
LDAFILE: temporary 256-byte record

SET Operator
Enables Function Keys
Function Key Indicators (F1-F8)
Soft Key Labeling

DSPLM Operator
Replaces KEY Operator
DSPLY, using the Message Catalog
Formal File Designator is CATALOG
Detects hitting Function Keys

MSG Operator:
For User Message Catalog Access
Retrieves data from Message Catalog
Formal File Designator is CATALOG

RPG Screen Interface: For SDA Screens
WORKSTNR on File Description specs
Non-VPLUS Screen Interface
RPG Screen Interface Generator
Utility (RPGSIG)

Allow Field and Tag Same Names

User Data Structure (UDS)
Data structure to define LDA fields

CONSOLE Files
WORKSTNC on File Description specs
Creates Library file from Input specs
Uses RPGSIG and RPG Screen Interface
Quick creation of Data Entry programs

Command Key Indicators (KA-KN, KP-KY)

SORTA Operator
In-program array sorting

Shorthand Arithmetic
Blank Factor-1 for ADD, SUB, MULT, DIV

Figurative Constants
*BLANK, *BLANKS
*ZERO, *ZEROS

Relative End Positions on Output
Blank End Position on Output specs
$CONTROL RSPACE=*nn* for field spacing

Allow Non-Numerical Data in Numerical Fields

Build New KSAM Files
KEYFL Continuation specification

Other enhancements are:

Forms Downloading on 2624B Terminals

Buffer Integrity Checking

SECTION II:

GENERAL INFORMATION

Become a Part of the Interex HP 3000 Users' Network

By Tom Hamilton, Interex

Interex, the International Association of Hewlett-Packard Computer Users, is one of the industry's oldest, largest, and most effective HP computer users' associations.

Memberships start at $50 and include subscriptions to Interact magazine and Interrupt newsletter, special interest group membership, voting privileges, and discounts on various Interex activities and services.

Installation memberships, which cost $425, include all of the basic services listed above PLUS a new release of the Contributed Software Library tape, one of the most useful and effective library of programs on the market for the HP 3000 (one use of this tape alone will pay for your investment). Also included in this fee are the conference proceedings, and discounts on additional software, conference registration, training seminars, and much more!

Interex also offers services through CompuServe, the electronic information network. Users can access this Forum and exchange ideas, conduct on line conferences, read Interex communications, and more. This service is only available in North America (please see the address below).

Whatever your involvement with HP 3000 computers, a membership in Interex provides you with an autonomous voice to Hewlett-Packard through surveys, round table discussions at conferences, and other cooperative projects.

For more information on Interex memberships, please contact the appropriate address below:

Interex
2570 El Camino Real West, Fourth Floor
Mountain View, CA 94040-1314
(415) 941-9960

European residents:

Mr. Willy Bergstrom
c/o Elkraft Power Company Ltd.
Lautruphoej 5
DK-2750 Ballerup, Denmark
Telex: 35158 EK DK

Also remember, ALL membership fees with Interex are tax deductible.

General Membership .....$ 50 US
Installation Membership .....$425 US

Ordering the Communicator 3000

By Larry S. Lodovisi, Computer Systems Division
Mary Ann Nyenhuis, Software Distribution Center

The Communicator 3000, published with every MPE software release, is a news publication primarily geared toward the System Operator/System Manager of the HP 3000. Its purpose is to explain MPE/subsystem enhancements, user interface changes, and new capabilities that directly affect these users.

A subscription to the Communicator 3000 is included in each of the following support services:

- Account Management Support (AMS)
- Response Center Support (RCS)
- Software Materials Subscription (SMS)
- Software Support Service (SSS)
- Customer Support Service (CSS)

If you wish to receive the Communicator 3000, the Software Release Bulletin (SRB), which is published with every MPE software release, and the Software Status Bulletin (SSB), published twice a month, you may purchase an individual Software Notification Service (SNS), order number 32499A+N00.

A separate subscription service for just the Communicator 3000 is not presently available.

To order one of these support services:

- Customers: Contact your local sales office. (If you inadvertently did not receive the Communicator 3000 via the correct support service, you should also contact your local sales office.)

- SEs: Contact your Application Engineering Administrator (AEA) and ask to have 32499A+N00 added to your contract.

- CEs and TSEs: Contact your Installed Base Systems (IBS) data base administrator and ask to have 32499A+N00 added to your contract.

- Other field personnel: Contact the local AEA.

- HP factory personnel: Have your Purchasing Department follow the procedure used to order your support contracts for other HP systems in your division.

To order back issues of Volume 2 of the Communicator 3000, contact:

Computer Supplies Operation (CSO)
1326 Kifer Road
Sunnyvale, CA 94086
(800) 538-8787
(408) 738-4133 (In California, Alaska, or Hawaii)

New or Changed Documentation

This section contains a list of customer publications for the HP 3000 that are new or recently revised.

NOTE

Material that is unavailable at Computer Supplies Operation (CSO) is flagged with a "+" after the part number.

HP 3000 Computer Systems Fundamental Data Communications Handbook (5957-4634)
First Edition, June 1984

The Communication Handbook (30000-90105) has been reorganized with additional material added to develop this new Communications Handbook. Those sections pertinent to all products (previously Sections A, B, C, I, and K) have been combined into a "Fundamental" handbook (5957-4634) of five sections:

1. General Information
2. Asynchronous Controllers
3. Synchronous Controllers
4. CS Trace Facility and Error Messages
5. Datacomm Troubleshooting Guide

The product specific sections are now "appendices" to the base handbook:

A. RJE/3000
B. MRJE/3000
C. DS/3000
D. DS/3000 TO 1000
E. MTS/3000
F. IMF/3000
G. X.25 for the 3000
H. NRJE/3000
I. SNA/Link Node Manager
J. Workstation Configurator

The product sections will not be packaged with the handbook. Instead, they will be packaged with their respective reference manuals. For example, each NRJE/3000 manual will include a copy of Section H from the Communications Handbook for you to use as a quick reference. Each product section will have a unique part number. For further information on the product sections, refer to the next section, entitled "Catalog of Customer Publications For HP 3000 Computer Systems".

HP 3000 Site Preparation and Planning Guide (30000-90206)
Update 2, January 1983

Updated to include changes for Series 39. (Included (30000-60029)).

Point-To-Point Workstation I/O Reference Manual (30000-90250)
First Edition, February 1984

This new manual describes the operation of point-to-point workstations and how they interface with each of the HP 3000 Asynchronous Port Controllers (the Advanced Terminal Processor (ATP), the Asynchronous Data Communication Channel (ADCC) and the Asynchronous Terminal Controller (ATC)).

The ATP is designed to control low- and medium-speed bit-serial asynchronous devices attached to the HP 3000 Series 44/48/64/68. The ADCC controls low-speed bit-serial asynchronous devices attached to the Series 40/44/48.

This manual is divided into five parts:

PART 1	Presents an introduction to point-to-point mode operations.
PART 2	Discusses both terminal and printer operation.
PART 3	Provides a guide to programming for terminals and printers attached to an Asynchronous Port Controller.
PART 4	Discusses the functions of the ATP, ADCC, and ATC, and defines the characteristics of each terminal and/or printer port.
PART 5	Describes how to prepare the peripheral device for HP 3000 operation.

Terminal (TERMDSM) On-line Diagnostic/Support Reference Manual (30144-90013) +
First Edition, February 1984

This manual contains information for using the HP Advanced Terminal Processor and Asynchronous Data Communications Controller (ADCC) Online Diagnostic/Support Monitor (TERMDSM). TERMDSM can be used for both verification testing and for more detailed troubleshooting. The most valuable and critical use for the TERMDSM utility is to handle terminal port failures. By doing so, the necessary portions of the MPE V tables can be dumped onto a disc file, and the problem port can be reset without the need to halt system operation for a memory dump and WARMSTART. TERMDSM runs in an MPE session, invoked either locally or through a dial-up port. TERMDSM will perform the following:

- Run diagnostics on one or more ports.
- Abort jobs or I/O.
- Reset one or more ports and associated tables.
- Display tables and dump (to a disc file) tables for later analysis.
- Format failure information dumped by the ATP/ADCC software.
- Identify ports considered to be broken by the ATP/ADCC software.

HP 3000 Series 39/40/42 Installation Manual (30170-90002)
Update 1, April 1984

Updated to include changes for Series 39.

Workstation Configurator Reference Manual (30239-90001)
First Edition, February 1984

This new manual describes how the Workstation Configurator utility program allows you to define your own terminal types on any HP 3000 that uses the MPE V operating system. The manual leads you through the process of executing the utility, creating or modifying a terminal type file, and configuring the terminal type on the HP 3000 system.

SNA/NRJE User/Programmer's Reference Manual (30245-90001)
Edition 1, February 1984

The Systems Network Architecture/Network Remote Job Entry (SNA/NRJE) User/Programmer's Reference Manual documents the NRJE subsystem. SNA/NRJE allows HP 3000 users to submit batch jobs to a remote host system for processing. The host system operates in an SNA environment. SNA is a comprehensive specification for distributed data processing developed by IBM.

SNA/NRJE can be used two ways: with commands or with programmatically callable intrinsics. Commands are processed by an NRJE user interface. Intrinsics are located in SL.PUB.SYS.

There are two kinds of NRJE users:

- NRJE Operators with a Node Manager (NM) user capability. An NRJE Operator is responsible for day-to-day operations of NRJE.
- Users without an NM user capability. An NRJE user submits jobs to a host system for processing.

The NRJE Reference Manual describes:

- How to get started using NRJE.
- User and NRJE Operator commands.
- User and NRJE Operator intrinsics.
- How to direct and manage job output.
- How NRJE Operators manage NRJE.
- Command messages and intrinsic results, their meaning, and suggested action.
- NRJE and selected SNA terms.

A selected bibliography of related IBM documents is included.

SNA Link Node Management Reference Manual (30246-90001)
Edition 1, February 1984

This new manual is available to support the SNA/Network Remote Job Entry data communications product. SNA/NRJE allows HP 3000 users to submit batch jobs for processing at a remote host that operates at an SNA network environment. The Node Manager's manual describes the responsibilities of the Node Manager for configuring, starting, stopping, and monitoring the operation of the SNA/NRJE subsystem.

Configuration services are provided by an interactive interface operating in block mode via VPLUS/3000 screens. This interface provides configuration services for the communications link and SNA Transport, as well as SNA/NRJE. The manual provides examples and explanations of all the configuration screens for each subsystem. It also includes information for configuring the host system.

Workstation control for starting and stopping workstations and for tracing is managed through NRJE operator commands and MPE control commands. Logging capabilities are also provided through MPE commands. The manual defines the use of these commands and provides samples of formatted trace and logging records.

Appendices provide information on error messages and recovery, sample HP and host configurations, modem strapping, and related IBM reference manuals.

Communicating With IBM, An HP-to-IBM Communications Primer (5957-4623)
Edition 1, February 1984

This new manual is one of a series of HP primers on data communications. The first book in this series, entitled "Touring Datacomm", presented a broad overview of computers and data communications. The new primer builds on that base and focuses on HP-to-IBM communications.

The information covered in the primer includes:

- An overview of HP-to-IBM networks.
- An introduction to IBM host systems, operating systems, and mainframe communications hardware and software.
- IBM networks, including a summary of System Network Architecture (SNA).
- IBM remote devices that run on HP systems (which include the HP 250, 1000, 3000 and 9000).

MPE V System Operation and Resource Management Reference Manual (32033-90005)
Edition 1, July 1984

This new MPE V edition combines two manuals, the System Manager/System Supervisor Reference Manual and the Console Operator's Guide, into one comprehensive source. In addition to being updated, this manual has been extensively rewritten and reorganized to provide clear, concise information for System Managers, System Supervisors, Account Managers, and System Operators. An all-new glossary of terms has been added, and the manual is extensively indexed.

MPE V Commands Reference Manual (32033-90006)
First Edition, July 1984

This new MPE V edition reflects all corrections and enhancements resulting from service requests, as well as E.00.00 release changes (including the three new COBOLII commands for the Cobol '74 compiler). The manual now includes a useful cross-reference table for System Operation and Resource Management commands in Section I. The section on User-Defined Commands (Section III) has been rewritten and reorganized to provide more information on the effective use of these commands. The information on the Details of Program Execution (Appendix C) has been removed, and will be included on the next update to the MPE File System Reference Manual (30000-90236).

MPE V Intrinsics Temporary Supplement (32033-90007)
First Edition, July 1984

This temporary supplement to the MPE IV Intrinsics Reference Manual (30000-90010) describes the new intrinsics available with the MPE V/E Operating System. It will be replaced by the MPE V Intrinsics Reference Manual (32033-90007) this fall.

MPE V Utilities Reference Manual (32033-90008)
First Edition, July 1984

This manual describes the utilities for MPE V. It has been completely rewritten, restructured, and tabbed for convenience and clarity.

Native Language Support Reference Manual (32414-90001)
First Edition, September 1984

This new manual introduces eight-bit character sets for the HP 3000.

The eight-bit character sets make it possible for the applications designer/programmer to design localized applications for the end user.

RPG/3000 Reference Manual (32104-90001)
Update, August 1984

This manual was updated to include many corrections and enhancements for compatibility with IBM System/34 RPG II.

RPG Utilities Reference Manual (32104-90006)
Update 1, February 1983

The Extra Function Sort for the RPG/3000 portion of this manual was updated to include many corrections.

HPMenu Reference Manual (32112-90000) +
New manual, date 1983

Programmatic Access to HPWORD Documents (32119-90001)
Edition 1, October 1983 (Rear cover shows E0983 in error)

This manual describes the HPWORD intrinsics that allow programmatic read or write access to HPWORD documents. This facility enables conversion to or from other document formats. This manual fits any standard binder (to take 11"x 8.5") that can be ordered from CSO (9940-4192).

HPWORD Reference Guide (32120-90001)
Edition 2, September 1983

This new edition replaces Edition 1 and its update. It reflects changes to the product through the A.02.00 release of HPWORD, and is substantially revised.

HPWORD Quick Reference Guide (32120-90002)
Edition 2, September 1983

This new edition replaces Edition 1 and reflects changes to the product up to the A.02.00 release of HPWORD. No binder is required.

Learning HPWORD - Part 1 (32120-90020)
- Part 2 (32120-90021)
Edition 1, September 1983 (Erroneously shown as Edition 3 on Page ii)

Learning HPWORD is self-paced training for HPWORD users, and replaces Using HPWORD (22839A). "Stand-up" binders are provided. Part 1 describes basic features of HPWORD. Part 2 describes advanced features. Part 1 and Part 2 reflect changes up to the A.02.00 release of HPWORD.

HPWORD Administration (32120-90022)
Edition 1, October 1983 (Rear cover shows E0983 in error)

This new edition describes administrative tasks associated with running HPWORD on the HP 3000. This manual fits any standard binder (to take 11" x 8.5") that can be ordered from CSO (e.g.: 9940-4192).

DSN/DS HP 3000 to HP 3000 User/Programmer Reference Manual (32189-90001)
Edition 1, April 1984

DSN/DS HP 3000 to HP 3000 Network Administrator Manual (32189-90002)
Edition 1, April 1984

The Hewlett-Packard Distributed System Network (HP-DSN) is a set of hardware and software data communications products. One of these data communications products is DSN/Distributed Systems (DSN/DS), which is an integrated software package that provides the capability of communications between HP computer systems.

This manual documents DSN/DS as it applies to an HP 3000 network. The manual explains how an HP 3000 user can communicate with another (or several other) HP 3000 computer systems by

establishing a DSN/DS communications link. (Other manuals in the DSN/DS series document the other network combinations of computer types.)

This manual explains the basic use of DS/3000 to users and programmers. A companion manual, the HP DSN/DS HP 3000 to HP 3000 Network Administrator Manual, explains more advanced concepts such as configuring a system, and using TRACE for debugging.

DSN/DS HP 3000 to HP 1000 Reference Manual For HP 3000 Users (32189-90005)
Edition 1, February 1984

The purpose of this manual is to describe the capabilities of HP 3000 to HP 1000 communications using the Hewlett-Packard Distributed Systems Network, DSN/DS. These capabilities include using remote RTE commands to the HP 1000, using remote EXEC calls to the HP 1000, performing Remote File Access to files at the HP 1000, and performing Program-to-Program communications between the HP 3000 and HP 1000.

DSN/X.25 For the HP 3000 Reference Manual (32191-90001)
Edition 1, January 1984

X.25 is a communications standard defined by the CCITT (Comite Consultatif International pour Telegraphique et Telephonique -- International Advisory Committee for Telegraphy and Telephony). According to the CCITT, X.25 defines the "interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminals operating in the packet mode on public data networks".

DSN/MTS Multipoint Terminal Software Reference Manual (32193-90002)
Update 1, November 1982
Update 2, February 1984

Since the last Communicator, two updates have occurred. Update #1 introduced the HP 2333A cluster controller on a Multipoint network. It allows the attachment of up to 16 point-to-point devices to communicate with the host computer (either with the HP Data Link or with modems and leased lines).

Update #2 allows 32 HP 3081A terminals to be attached to the HP 2333A cluster controller. Modifications have been made in the MPCONFIG and MPLINE syntax to allow for these changes. Serial printers can be connected either to the HP 2624B terminals that are configured in printer pass-through mode or to the HP 2333A cluster controller. The line can now be configured to run as either odd parity (same as older versions), or as no parity. When configured as no parity, 8-bit codes can be sent to the HP terminals that refuse to recognize 8-bit data when configured for anything but parity=none. The user can now specify in the MPCONFIG generated configuration file a timeout to be used when waiting for a response to a poll or selection of a device.

VPLUS/3000 Reference Manual (32209-90001)
Update 1, May 1983
Update 2, September 1984

Since the last Communicator, two updates have occurred. Update #1 describes using FORMSPEC in batch mode.

Update #2 describes the Native Language Support enhancements, the ADJUST menu, the RELATE command, and additional supported terminals.

IMAGE/3000 Reference Manual (32215-90003)
Update 3, March 1983

COBOLII/3000 Reference Manual (32233-90001)
New Edition, April 1983

INFORM/3000 User's Guide (32246-90001)
New Edition, June 1984

This update describes the stacking options, the online training, and the arithmetic functions.

HP 3000 Transact Reference Manual (32247-90001)
Update 1, June 1983

This update corrects errors in the manual and describes the local form storage, SHOW option, and INIT option enhancements.

DSG/3000 Manual (32250-90002)
New Edition, February 1984

This update reflects the enhancements made to the product in the August, 1982 release. These include the creation of figure files, greater text control, additional type fonts, and support of new devices.

HPToolset Reference Manual (32350-90001)
New Edition, January 1984

This is a new edition of the HPToolset Reference Manual for COBOL and Pascal programmers. It includes information on the Workspace, User Interface, Editor, COBOL Copy Library Keys and Commands, Code Generation Facility, Program Translation Manager, Symbolic Debug for COBOLII and Pascal, and the Help Facility.

HPSPELL Handbook (36561-90001)
Edition 1, October 1983

This handbook provides information on the HPSPELL spelling package. The size of the handbook is 8.5 "x 5.5" and will fit a standard American binder.

HPSPELL Administration (36561-90002)
Edition 1, October 1983

This manual describes administrative tasks associated with running HPSPELL on the HP 3000. This manual fits any standard binder (to take 11 "x 8.5") that can be ordered from CSO (e.g.: 9940-4192).

Learning HPDESKMANAGER (36570-90001)
Edition 1, April 1983

HPDESKMANAGER replaces HPMAIL. It should be noted that the part number of Learning HPDESKMANAGER was previously assigned to a pack of 10 HPMAIL REFERENCE GUIDES.

HPMAIL documentation is no longer being printed. It has been superseded by HPDESKMANAGER documentation. The purpose of Learning HPDESKMANAGER is to introduce the user to the interactive online training that is supplied with the HPDESKMANAGER product. No binder is required.

HPDESKMANAGER Reference Guide (36570-90002)
Edition 2, April 1983

This manual reflects the changes that result from enhancing the HPMAIL product, which is now known as HPDESKMANAGER. The original binder should be used; however, if ordered through CSO, binder part number 9320-4503 should also be ordered. The paperback version of the HPMAIL Reference Guide is no longer available.

HPDESKMANAGER Administration Manual (36570-90004)
Edition 2, April 1983

This manual reflects the changes that result from enhancing the HPMAIL product, which is now known as HPDESKMANAGER. The original binder should be used; however, if ordered through CSO, binder part number 9320-4503 should also be ordered.

HPDESKMANAGER Trainer's Notes (36570-90029)
Edition 1, April 1983

This manual provides information for training users to use HPDESKMANAGER. If ordered through CSO, binder part number 9940-4192 should also be ordered.

HPTELEX Reference Guide (36572-90001)
Edition 2, November 1983

This new edition reflects changes up to release A.01.00. No binder is required.

HPTELEX Quick Reference Guide (36572-90002)
Edition 2, November 1983 (Rear cover shows E0483 in error)

This new edition reflects changes up to release A.01.00. No binder is required.

Learning HPSLATE (36576-90002)
Edition 4, April 1984

This new edition of the self-paced training reflects functional changes to the product up to release A.04.00. If ordered through CSO, binder part number 9320-4503 should also be ordered.

HPSLATE Reference Guide (36576-90001)
Edition 4, April 1984

This new edition reflects functional changes in the product up to release A.04.00. If ordered through CSO, binder part number 9320-4503 should also be ordered.

Catalog of Customer Publications For HP 3000 Computer Systems

HEWLETT PACKARD

September 1984

This section contains a comprehensive list of customer publications for the HP 3000.

The "Subscription Services" column indicates all services that provide updates to a particular manual, including both old and new subscription services offered with the new Software Support Program. In this column, "FOS" indicates that the manual is available on all of the Fundamental Operating Software subscription services. New subscription services are identified with a "+" sign as part of the number (for example, 30248A+S00). Each subscription service entry summarizes the level of support that provides updates; for example, in the number 30130Q,S,T, "Q" stands for Manual Update Service (MUS), "S" is Software Support Service (SSS), and "T" is Customer Support Service (CSS). Subscription services beginning with a "99" indicate a category MUS service.

NOTE

Material that is unavailable at Computer Supplies Operation (CSO) is flagged with a "+" after the part number.

Material that is new since the MPE IV Communicator (Issue 30, published in December, 1982), or material that has never appeared in this list, is flagged with an "*" after the date.

All Manufacturing Productivity Division (MPD) manuals are no longer included in this list; instead, they are listed in the Customer Information Bulletin (CIB), which is distributed quarterly by MPD.

DATA COMMUNICATIONS MANUALS

Manual Title	Part Number	Latest Edition	Current Update	Subscription Services
Fundamental 3000 Data Communication Handbook	5957-4634	6/84*		FOS
DSN/RJE 2780/3780 Emulator Reference Manual	30000-90047	2/82	7/83*	30130Q,S,T 30248Q,S,T 30248A+S00,W00 30130E+S00,W00 99086B+Q00
Point-To-Point Workstation I/O Reference Manual	30000-90250	2/84*		30239Q,S,T 30239A+S00,W00 99084B+Q00
DSN/ATP On-Line Diagnostic Manual	30144-90004	3/82		
Terminal (TERMDSM) Online Diagnostic/Support Reference Manual	30144-90013+	2/84*		30144Q,S,T
Workstation Configurator Reference Manual	30239-90001	2/84*		30239Q,S,T 30239A+S00 99084B+Q00
Workstation Configurator (Quick Reference (Sec. J)	30239-90006+	6/84*		30239Q,S,T 30239A+S00,W00
SNA NRJE Network Remote Job Entry User/Programmer Reference Manual	30245-90001	2/84*		30245Q,S,T
SNA NRJE Quick Reference (Sec. H)	30245-90006+	6/84*		30245Q,S,T 30245A+S00,W00
SNA Link Node Management Reference Manual	30246-90001	2/84*		30246Q,S,T
SNA/LINK Node Quick Reference (Sec. I)	30246-90006+	6/84*		30246Q,S,T 30246A+S00,W00
DSN/RJE Quick Reference (Sec. A)	30248-90006	6/84*		30248Q,S,T 30248A+S00,W00
MRJE Quick Reference (Sec. E)	30249-90006+	8/84*		30249Q,S,T 30249A+S00,W00
DSN/DS HP 3000 to HP 3000 User/Programmer Reference Manual	32189-90001	4/84*		32189Q,S,T 32189A+S00,W00 99086B+Q00

Manual Title	Part Number	Latest Edition	Current Update	Subscription Services
IMF Quick Reference	30250-90006+	6/84*		30250Q,S,T 30250A+S00,W00
DS/3000 Network Administrator Manual	32189-90002	4/84*		32189Q,S,T 32189A+S00,W00 99086B+Q00
DS/3000 Quick Reference Manual (Sec. C)	32189-90003+	6/84*		32189Q,S,T
DSN/DS HP 3000 to HP 1000 Reference Manual for HP 3000 Users	32189-90005	2/84*		32189Q,S,T 32189A+S00 99086B+Q00
DS/3000 - 1000 Quick Reference Manual (Sec. D)	32189-90006+	6/84*		32189Q,S,T
DSN/X.25 For The HP 3000 Reference Manual	32191-90001	1/84*		32191Q,S,T
X.25/3000 Quick Reference Manual (Sec. G)	32191-90006+	6/84*		32191Q,S,T
DSN/MRJE Multileaving Remote Job Entry	32192-90001	3/82	7/83*	32192Q,S,T 30249Q,S,T 30249A+S00,W00 32192A+S00,W00 99086B+Q00
DSN/MTS Multipoint Terminal Software Reference Manual	32193-90002	8/82	2/84*	32193Q,S,T 32193A+S00,W00 99086B+Q00
MTS Quick Reference (Sec. E)	32193-90006	6/84*		32193Q,S,T
DSN/IMF Interactive Mainframe Facility Reference Manual	32229-90001+	2/82	11/83*	32229Q,S,T 30250Q,S,T 32229A+S00,W00 30250A+S00,W00 99087B+Q00

SYSTEM MANUALS

Manual Title	Part Number	Latest Edition	Current Update	Subscription Services
Using the HP 3000: An Introduction to Interactive Programming	03000-90121	4/79		FOS 22801Q,S,T 22970Q,S,T
MPE IV Commands Reference Manual	30000-90009	12/82		FOS
MPE IV Intrinsics Reference Manual	30000-90010	1/81	12/81	FOS
MPE IV Segmenter Reference Manual	30000-90011	11/82		FOS 30093Q,S,T
MPE IV Debug/Stack Dump Reference Manual	30000-90012	10/83		FOS 30093Q,S,T 30093A+Q00
MPE IV System Manager/ System Supervisor Reference Manual	30000-90014	12/81	12/83	FOS
MPE IV System Utilities Reference Manual	30000-90044	11/82	5/83	FOS
Software Pocket Guide	30000-90049	1/81	4/81	FOS 30093Q 30093A+Q00
Using Files	30000-90102	4/78		FOS 30093Q 30093A+Q00
MPE File System Reference Manual	30000-90236	2/82		FOS 30093Q 30093A+Q00
MPE IV Console Operator's Guide	32002-90004	5/83		FOS
MPE V System Operation and Resource Management Reference Manual	32033-90005	7/84*		FOS
MPE V Commands Reference Manual	32033-90006	7/84*		FOS
MPE V Intrinsics Reference Manual	32033-90007	7/84*		FOS
MPE V Utilities Reference Manual	32033-90008	7/84*		FOS

Manual Title	Part Number	Latest Edition	Current Update	Subscription Services
Native Language Support Reference Manual	32414-90001	9/84		FOS

SUBSYSTEM MANUALS

EDIT Reference Manual	03000-90012	8/80		FOS 30093Q 30093A+Q00
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Flexible Disccopy/3000	32199-90001	8/80		FOS
SORT/MERGE Reference Manual	32214-90002	9/81		FOS,30093Q 30093A+Q00
OPT/3000 Reference Manual	32238-90001	8/81		32238Q,S,T 33238A+S00,W00 99084B+Q00

EDUCATIONAL APPLICATION MANUALS

Student Information System Reference Manual	32900-90001	9/74	8/76	32900Q,S,T 32900A+Q00 32900A+S00,W00
Student Information System Technical Manual	32900-90005	3/75		32900Q,S,T 32900A+Q00 32900A+S00,W00

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FORTRAN Reference Manual	30000-90040	6/76	5/79	32102Q,S,T
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