



NOS VERSION 2 MANUAL ABSTRACTS

**A GUIDE TO NOS
OPERATING SYSTEM
AND PRODUCT SET
SOFTWARE MANUALS**

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Publication Number	Page Number	Publication Number	Page Number
19265358	8	60471200	8
19983900	3	60471400	30
60387700	47	60471700	30
60388100	45	60472200	51
60388300	44	60474500	31
60429800	13	60474600	31
60436100	55	60480000	35
60449800	13	60480300	27
60449900	57	60480500	36
60450000	57	60480600	33
60450100	28	60481000	48
60450200	28	60481300	24
60454000	2	60481400	12
60454010	2	60481500	34
60454020	3	60481600	1
60454200	43	60481800	10
60454730	56	60481900	18
60455730	58	60482000	18
60456030	44	60482100	18
60456380	27	60482200	20
60456970	48	60482300	14
60457800	29	60482500	4
60457810	29	60482600	51
60459270	41	60482700	11
60459300	41	60482900	50
60459310	38	60483000	22
60459320	38	60483100	23
60459360	37	60483200	17
60459370	42	60483300	16
60459380	42	60483700	45
60459390	37	60483900	23
60459500	54	60484110	11
60459510	53	60484120	12
60459520	55	60484400	26
60459660	39	60484500	26
60459670	39	60484800	50
60459680	40	60492600	7
60459690	40	60492800	7

Continued on inside back cover



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PREFACE

The Network Operating System (NOS) was developed by Control Data Corporation to provide network capabilities for interactive and transaction processing, in addition to local and remote batch processing, on CDC® CYBER 170 Computer Systems, CDC CYBER 70 Computer Systems Models 71, 72, 73, and 74, and CDC 6000 Computer Systems.

This document contains abstracts of the manuals available for NOS Version 2 and its product set. Included in each abstract are brief descriptions of the manual and its intended audience. The following are the types of manuals described in this guide.

- Reference Manual - A reference manual contains a detailed description of the user interface to the operating system or product. The interface consists of commands, macros, language specifications, statements, or directives. The reader is assumed to be familiar with the operating system or product.
- User's Guide - A user's guide is a tutorial description of the most commonly used portion of the user interface described in the associated reference manual. It makes extensive use of examples and illustrations. It is written for the user who has little or no familiarity with the operating system or product.
- Instant or Summary Card - An instant or summary card is a pocket-sized document containing a brief description of the user interface described in the associated reference manual. It is written for the reader who is familiar with the operating system or product.
- Installation Handbook - The installation handbook describes the procedures the user is to follow in installing NOS and its products. It is written for the systems analyst who has working knowledge of the software and hardware involved.

- Operator's Guide - The operator's guide describes procedures for operating the computer, assigning equipment, entering commands, and using status displays. It is written for the central site console operator who does not have detailed knowledge of the operating system or its products.
- Operator/Analyst Handbook - The operator/analyst handbook describes procedures for operating the computer, assigning equipment, entering commands, and using status displays. It is written for both the operator who has little detailed knowledge of NOS and the analyst who is familiar with NOS.
- General Information Manual - A general information manual gives a brief overview of a product. It lists the basic features of the product and explains its advantages. It is written for the manager who is a prospective customer.
- System Overview - A system overview gives a brief overview of a product. It lists the basic features of the product and explains its advantages. It is written for the new or prospective user of the product.

The manuals described in this guide are available through the nearest Control Data Corporation Sales Office or through Literature Distribution Services, 308 North Dale Street, St. Paul, Minnesota 55103.

CONTENTS

The following is an alphabetical list of the titles of the manuals described in this guide. Refer to the inside covers of this guide for a cross-reference to the abstracts by manual publication number.

<u>Manual Title</u>	<u>Page Number</u>
ALGOL-60 Version 5 Reference Manual	1
APEX IV Reference Manual	1
APL Version 2 Files FORTRAN Utilites Reference Manual	2
APL Version 2 Reference Manual	2
APL Version 2/TOTAL Version 2 Interface Reference Manual	3
BASIC Version 3 Reference Manual	3
COBOL Version 5 Diagnostic Handbook	4
COBOL Version 5 Instant Manual	4
COBOL Version 5 Reference Manual	5
COBOL Version 5 Report Writer User's Guide	5
COBOL Version 5 User's Guide	6
Common Memory Manager Version 1 Reference Manual	6
COMPASS Version 3 Instant Manual	7
COMPASS Version 3 Reference Manual	7
Conversion Aids System Version 2 Reference Manual	8
CYBER Cross System Version 1 Build Utilities Reference Manual	8
CYBER Cross System Version 1 Macro Assembler Reference Manual	9
CYBER Cross System Version 1 Micro Assembler Reference Manual	9
CYBER Cross System Version 1 PASCAL Compiler Reference Manual	10
CYBER Database Control System Version 2 Reference Manual	10
CYBER Interactive Debug Version 1 Guide for Users of BASIC Version 3	11
CYBER Interactive Debug Version 1 Guide for Users of FORTRAN Extended Version 4	11
CYBER Interactive Debug Version 1 Guide for Users of FORTRAN Version 5	12

<u>Manual Title</u>	<u>Page Number</u>
CYBER Interactive Debug Version 1 Reference Manual	12
CYBER Loader Version 1 Instant Manual	13
CYBER Loader Version 1 Reference Manual	13
CYBER Loader Version 1 User's Guide	14
CYBER Record Manager Advanced Access Methods Version 2 Reference Manual	14
CYBER Record Manager Advanced Access Methods Version 2 User's Guide	15
CYBER Record Manager Basic Access Methods Version 1 Reference Manual	15
CYBER Record Manager Basic Access Methods Version 1 User's Guide	16
Data Catalogue 2 Data Administrator's Reference Manual	16
Data Catalogue 2 Reference Manual	17
DDL Version 3 Reference Manual	18
DMS-170 Data Base Utilities Version 1 Reference Manual	19
FORM Version 1 Reference Manual	19
FORTRAN Data Base Facility Version 1 Reference Manual	20
FORTRAN Extended Version 4 Common Library Mathematical Routines Reference Manual	20
FORTRAN Extended Version 4 Instant Manual	21
FORTRAN Extended Version 4 Reference Manual	21
FORTRAN Extended Version 4 to FORTRAN Version 5 Conversion Aids Program	
Version 1 Reference Manual	22
FORTRAN Extended Version 4 User's Guide	22
FORTRAN Version 5 Common Library Mathematical Routines Reference Manual	23
FORTRAN Version 5 Instant Manual	23
FORTRAN Version 5 Reference Manual	24
General Purpose Simulation System V (GPSS) General Information Manual	24
GTSTRU DL User's Manual	25
Information Management Facility Version 1 Application Programming Reference Manual	26
Information Management Facility Version 1 Schema Definitions Reference Manual	26

<u>Manual Title</u>	<u>Page Number</u>
International Mathematical and Statistical Library Version 7 General Information Manual	27
Message Control System Version 1 Reference Manual	27
Modify Version 1 Instant Manual	28
Modify Version 1 Reference Manual	28
MSSI Version 2 Installation Handbook	29
MSSI Version 2 Reference Manual	29
Network Products Communications Control Program (CCP) Version 3 Operator's Guide	30
Network Products Communications Control Program (CCP) Version 3 Reference Manual	30
Network Products Communications Control Program (CCP) Version 3 System Programmers Reference Manual	31
Network Products Communication Control Program (CCP) Version 3 Terminal Interface Program (TIP) Writer's Guide Reference Manual	31
Network Products Network Access Method Version 1 Reference Manual	32
Network Products Network Access Method Version 1 Terminal Interface Guide	33
Network Products Network Access Method Version 1 User's Guide	34
Network Products Network Definition Language Version 1 Reference Manual	35
Network Products Remote Batch Facility Version 1 Reference Manual	35
Network Products Stimulator Version 1 Reference Manual	36
NOS Version 2 Application Installation Handbook	36
NOS Version 2 Applications Programmer's Instant	37
NOS Version 2 Diagnostic Index	37
NOS Version 2 Installation Handbook	38
NOS Version 2 Operator/Analyst Handbook	38
NOS Version 2 Reference Set, Volume 1, Introduction to Interactive Usage	39
NOS Version 2 Reference Set, Volume 2, Guide to System Usage	39
NOS Version 2 Reference Set, Volume 3, System Commands	40

<u>Manual Title</u>	<u>Page Number</u>
NOS Version 2 Reference Set, Volume 4, Program Interface	40
NOS Version 2 System Maintenance Reference Manual	41
NOS Version 2 System Overview	41
NOS Version 2 Systems Programmer's Instant	42
NOS Version 2 Network Terminal User's Instant	42
On-Line Maintenance Software Reference Manual	43
PDS/MaGen Information Manual	43
PERT/Time Version 2 Reference Manual	44
PL/I Version 1 General Information Manual	44
PL/I Version 1 Instant Manual	45
PL/I Version 1 Reference Manual	45
Query Update Version 3 Programmer's User's Guide	46
Query Update Version 3 Reference Manual	46
Query Update Version 3 User's Guide	47
SIMSCRIPT II.5 User Information Manual	47
Site Performance Analyzer Version 1 User's Guide	48
Software Publications Release History	48
Sort/Merge Versions 4 and 1 Instant Manual	49
Sort/Merge Versions 4 and 1 Reference Manual	49
Sort/Merge Versions 4 and 1 User's Guide	50
Sort/Merge Version 5 Reference Manual	50
State Programming Language Reference Manual	51
SYMPL Version 1 Instant Manual	51
SYMPL Version 1 Reference Manual	52
SYMPL Version 1 User's Guide	52
TAF/CRM Data Manager Version 1 Reference Manual	53
TAF Version 1 Reference Manual	54
TAF Version 1 User's Guide	55
Text Editor Version 1 Reference Manual	55
TOTAL-CDC Reference Manual	56

<u>Manual Title</u>	<u>Page Number</u>
UNIPLLOT Version 3.1 User Guide/Reference Manual	56
Update Version 1 Instant Manual	57
Update Version 1 Reference Manual	57
 XEDIT Version 3 Reference Manual	 58
 8-Bit Subroutines Reference Manual	 58

MANUAL: ALGOL-60 Version 5 Reference Manual

PUBLICATION NUMBER: 60481600

PAGES: 140

This manual describes the ALGOL-60 language as defined in Modified Report on the Algorithmic Language ALGOL 60, Computer Journal, Volume 19, Number 4, November 1976, and in A Proposal for Input-Output Conventions in ALGOL 60, Communications of the ACM, Volume 7, Number 5, May 1964. It discusses ALGOL system descriptions, language syntax, input/output criteria, and channel statements. The ALGOL control statement, debugging aids, overlays, and run time options are presented. This manual offers descriptions rather than illustrative examples. A complete summary of the ALGOL Version 5 syntax in BNF notation is included as an appendix; BNF notation is not used in the manual.

The reader is assumed to be a programmer who has knowledge of the ALGOL language and of the operating system under which programs are to be run.

MANUAL: APEX IV Reference Manual

PUBLICATION NUMBER: 84002550

PAGES: 330

This manual describes APEX IV, the linear programming (LP) system that provides a streamlined and flexible approach for solving linear programming problems. Use of disk, extended core storage or large core memory allows APEX-IV to solve LP problems which are too large to solve in core. Basically, APEX-IV is an optimization system. Its main function is to optimize linear models to either maximize gains or minimize losses.

The reader is assumed to be a high-level language applications programmer who is familiar with the operating system under which programs are to be run.

MANUAL: APL Version 2 Files FORTRAN Utilities
Reference Manual

PUBLICATION NUMBER: 60454010

PAGES: 46

This manual describes the APL Version 2 File FORTRAN Utilities (FUTIL). FUTIL is a set of routines that can be called from a FORTRAN Extended program to create and manipulate APL files.

The manual is intended for experienced programmers who are familiar with FORTRAN Extended, APL, and NOS.

MANUAL: APL Version 2 Reference Manual

PUBLICATION NUMBER: 60454000

PAGES: 195

This manual describes the external features of the APL Version 2 system, an implementation of the APL language available under NOS. This version of APL, formerly known as APLUM, was developed under the direction of James H. Burrill at the University Computing Center of the University of Massachusetts.

The reader is assumed to be familiar with APL and the operating system under which programs are to be run.

MANUAL: APL Version 2/TOTAL Version 2 Interface
Reference Manual

PUBLICATION NUMBER: 60454020

PAGES: 70

This manual defines the APL/TOTAL interface, a set of APL functions that access the TOTAL-Universal data base management system. The manual contains complete descriptions of interface usage and all the interface functions. An example of an APL program which uses the interface functions to access a data base is also included.

It is assumed the reader is familiar with the APL language and the TOTAL data base management system.

MANUAL: BASIC Version 3 Reference Manual

PUBLICATION NUMBER: 19983900

PAGES: 170

This manual describes BASIC Version 3, an extension to the BASIC language implemented at Dartmouth College, and is compatible with the minimal BASIC language standard (ANSI X3.60-1978). The manual describes the features of the BASIC language and Control Data extensions to it, such as the use of the CYBER Interactive Debug facility to aid in the debugging of BASIC programs.

The manual includes a BASIC summary card as a tearout. Prior to revision G and version 3.5, the manual did not document an ANSI minimal BASIC language and did not incorporate a summary card.

This manual documents BASIC language features for the experienced applications programmer or BASIC user. The reader is assumed to have some knowledge of the operating system.

MANUAL: COBOL Version 5 Diagnostic Handbook

PUBLICATION NUMBER: 60482500

PAGES: 90

This handbook lists all diagnostic messages produced by COBOL Version 5. It is recommended that no more than one copy be ordered for a site.

The handbook duplicates the execution diagnostic explanations given in the COBOL Version 5 Reference Manual and documents the self-explanatory compilation diagnostics which can be extracted from the product library.

MANUAL: COBOL Version 5 Instant Manual

PUBLICATION NUMBER: 60497300

PAGES: 80

This pocket-sized, quick-reference document provides the user with a summary of many of the important elements of the language, such as statement formats for each of the divisions within a COBOL program, sample deck structures, picture specification characters, and standard character sets. For further details, the user should consult the COBOL Version 5 Reference Manual.

The reader is assumed to be familiar with the COBOL Version 5 language and the operating system in use.

MANUAL: COBOL Version 5 Reference Manual

PUBLICATION NUMBER: 60497100

PAGES: 260

This manual describes the syntax of the ANSI-74 COBOL language. Within specific elements of the source program, clauses and statements are presented in alphabetic order for ease of reference. Clauses and statements related to a special COBOL facility are presented in separate sections: Report Writer, Sort/Merge, Segmentation, Library, Sub-Schema, and Inter-Program Communication. The reference manual also describes debugging aids, product interfaces, and source program compilation.

The reader is assumed to be a programmer familiar with the COBOL Version 5 language and the operating system in use.

MANUAL: COBOL Version 5 Report Writer User's Guide

PUBLICATION NUMBER: 60496900

PAGES: 80

This guide describes the Report Writer feature of ANSI-74 COBOL language (Report Writer offers a concise means of structuring and generating printed reports.) Only those clauses and statements specifically related to Report Writer are described. For other aspects of COBOL Version 5, the reader should refer to the COBOL Version 5 Reference Manual and the COBOL Version 5 User's Guide.

The reader is assumed to be an experienced COBOL programmer familiar with the operating system in use.

MANUAL: COBOL Version 5 User's Guide

PUBLICATION NUMBER: 60497200

PAGES: 250

This guide describes the use of the COBOL Version 5 language and the interfaces to other CDC products. Specific features of COBOL Version 5 are described and illustrated by examples and format specifications. Sample programs are included at the end of each section; each program illustrates a specific feature.

The reader is assumed to be a programmer familiar with the COBOL language and the operating system in use.

MANUAL: Common Memory Manager Version 1 Reference Manual

PUBLICATION NUMBER: 60499200

PAGES: 40

This manual describes the Common Memory Manager (CMM), a product that provides dynamic memory management for advanced COMPASS or FORTRAN programmers.

The reader is assumed to be a programmer with a knowledge of FORTRAN or COMPASS, and the loader and operating system in use.

MANUAL: COMPASS Version 3 Instant Manual

PUBLICATION NUMBER: 60492800

PAGES: 95

This pocket-sized, quick-reference instant contains a summary of the COMPASS language. All applicable format specifications are given, along with programming efficiency hints, coding formats, and required notations. Pseudo instructions and symbolic machine instructions are presented in table format.

The reader is assumed to be a programmer familiar with the COMPASS language and the operating system in use.

MANUAL: COMPASS Version 3 Reference Manual

PUBLICATION NUMBER: 60492600

PAGES: 370

This manual describes the principles and rules for producing a COMPASS language program. Language and program structure are discussed, along with pseudo and symbolic machine instructions and program execution. Examples of central processor unit and peripheral processor unit handling of pseudo and symbolic machine instructions are given.

The reader is assumed to be a programmer with a knowledge of Control Data computer systems and the operation of assemblers in general.

MANUAL: Conversion Aids System Version 2 Reference
Manual

PUBLICATION NUMBER: 19265358

PAGES: 135

This manual describes the differences between 3000 Series MASTER ANSI COBOL Version 3 and NOS COBOL Version 5 and the differences between 3000 Series MASTER ANSI FORTRAN Version 2 and FORTRAN Extended Version 4. It explains how to use the COBOL Language Conversion Processor to convert MASTER COBOL programs, the FORTRAN Language Conversion Processor to convert MASTER FORTRAN programs, and the File Conversion Processor to convert data files.

This manual is intended for the experienced analyst who is converting MASTER COBOL or MASTER FORTRAN programs to run on CYBER 170, CYBER 70, or 6000 Series Computer Systems under NOS.

MANUAL: CYBER Cross System Version 1 Build
Utilities Reference Manual

PUBLICATION NUMBER: 60471200

PAGES: 90

This manual describes the CYBER Cross System Expand, Automatic, Link, Editor, and Library Maintenance utilities. These software tools generate software systems for the 255x Network Processing Unit.

The reader is assumed to be familiar with the operation of the 255x Network Processing Unit and the operating system in use.

MANUAL: CYBER Cross System Version 1 Macro
Assembler Reference Manual

PUBLICATION NUMBER: 96836500

PAGES: 90

This manual describes the general operation of the macro assembler and provides the necessary instructions to prepare programs for assembly. The macro assembler, called CLASS (COMPASS-like assembler), converts source language input, including macro instructions, into relocatable binary output.

This is not a programmer's guide; examples are limited. The reader is assumed to be a systems programmer familiar with the operation of the 255x Network Processing Unit and the operating system in use.

MANUAL: CYBER Cross System Version 1 Micro
Assembler Reference Manual

PUBLICATION NUMBER: 96836400

PAGES: 85

This manual describes the general operation of the micro assembler and provides the necessary instructions to prepare programs for assembly.

This is not a programmer's guide; examples are limited. The reader is assumed to be familiar with the operation of the 255x Network Processing Unit and the operating system in use.

MANUAL: CYBER Cross System Version 1 PASCAL
Compiler Reference Manual

PUBLICATION NUMBER: 96836100

PAGES: 90

This manual is both an introduction to and a reference for the PASCAL programming language for the 255x Network Processing Unit.

The reader is assumed to be familiar with the operation of the 255x Network Processing Unit and the operating system in use.

MANUAL: CYBER Database Control System Version 2
Reference Manual

PUBLICATION NUMBER: 60481800

PAGES: 190

This manual describes the CYBER Database Control System (CDCS) Version 2. CDCS is the control interface between an application program and a DMS-170 data base.

This manual is intended for use by a data administrator responsible for defining, creating, controlling, and monitoring data bases. Sections covering programming considerations are of use to the applications programmer.

The reader is assumed to be familiar with both systems and applications programming, data management concepts, and Control Data equipment.

MANUAL: CYBER Interactive Debug Version 1 Guide for
Users of BASIC Version 3

PUBLICATION NUMBER: 60484110

PAGES: 80

This manual provides the BASIC programmer with assistance in debugging BASIC programs under control of CYBER Interactive Debug (CID). This manual describes a subset of CID features intended specifically for use by BASIC programmers.

This manual is intended for novice or intermediate BASIC programmers who are familiar with interactive processing under the NOS Interactive Facility. No knowledge of CID is assumed.

MANUAL: CYBER Interactive Debug Version 1 Guide for
Users of FORTRAN Extended Version 4

PUBLICATION NUMBER: 60482700

PAGES: 120

This guide takes a tutorial approach to CYBER Interactive Debug (CID), beginning with basic features and proceeding through more advanced features. It is not comprehensive in its approach to CID; only those features considered useful to FORTRAN programmers are described. Most features are illustrated by use of on-line examples.

The reader is assumed to be a novice or intermediate FORTRAN programmer with little or no knowledge of CID.

MANUAL: CYBER Interactive Debug Version 1 Guide for
Users of FORTRAN Version 5

PUBLICATION NUMBER: 60484120

PAGES: 76

This manual presents tutorial information on the use of CYBER Interactive Debug (CID) from the viewpoint of the COBOL programmer. The manual describes a subset of CID features, with emphasis on those features intended specifically for use by COBOL programmers. Numerous examples of interactive debug sessions are included.

This manual is intended for novice or intermediate COBOL programmers who are familiar with interactive processing under the NOS Interactive Facility. No knowledge of CID is assumed.

MANUAL: CYBER Interactive Debug Version 1 Reference
Manual

PUBLICATION NUMBER: 60481400

PAGES: 110

This manual describes CYBER Interactive Debug (CID), the supervisory program designed to assist users in the debugging of object programs. CID is intended primarily for use by interactive terminal users, although it has limited features for use by batch users.

The reader is assumed to be an experienced programmer who is familiar with the compiler or assembler languages used to produce the program requiring debugging and who has a working knowledge of the operating system and the terminal being used.

MANUAL: CYBER Loader Version 1 Instant Manual

PUBLICATION NUMBER: 60449800

PAGES: 70

This pocket-sized, quick-reference document contains information on control statements, user requests, overlays, segmentation, debugging aids, and binary table formats.

The reader is assumed to be a programmer familiar with the CYBER Loader and the operating system in use.

MANUAL: CYBER Loader Version 1 Reference Manual

PUBLICATION NUMBER: 60429800

PAGES: 170

This manual describes CYBER Loader Version 1. It explains loader terms, control statements, user requests, capsules, overlays, segmentation, debugging aids, and binary table formats.

The reader is assumed to be an experienced programmer who is familiar with the operating system in use.

MANUAL: CYBER Loader Version 1 User's Guide

PUBLICATION NUMBER: 60482300

PAGES: 126

This manual presents tutorial information for the user of the CYBER Loader. The manual describes a subset of the features documented in the CYBER Loader Reference Manual. Only features considered most useful to a wide variety of users are described. The manual also provides an understanding of the internal functions of the loader. Introductory information is presented first, followed by more advanced information.

The manual is intended for the reader who is unfamiliar with the CYBER Loader, but who has at least six months programming experience with any Control Data compiler product operating under NOS.

MANUAL: CYBER Record Manager Advanced Access
Methods Version 2 Reference Manual

PUBLICATION NUMBER: 60499300

PAGES: 150

This manual describes the Advanced Access Methods (AAM) processor of CYBER Record Manager. It describes the indexed sequential, actual key, and direct access file organizations and related input/output capabilities. Although primarily intended for COMPASS users, programmers using COBOL Version 5, FORTRAN Version 5, FORTRAN Extended Version 4, PL/I, and Sort/Merge can also use AAM capabilities. User COMPASS program interfaces with AAM are discussed.

The reader is assumed to be an applications programmer familiar with the operating system in use.

MANUAL: CYBER Record Manager Advanced Access
Methods Version 2 User's Guide

PUBLICATION NUMBER: 60499400

PAGES: 140

This guide is an introduction to the Advanced Access Methods (AAM) routines that handle the processing of files with indexed sequential, direct access, or actual key organization. Emphasis is on the issuing of direct calls to AAM.

This guide is written for FORTRAN programmers; the material presented, however, can be used by programmers using COMPASS or any of the languages that provide indirect access to AAM.

The reader is assumed to be either a systems programmer writing execution-time routines for higher level languages or an intermediate programmer writing FORTRAN applications.

MANUAL: CYBER Record Manager Basic Access Methods
Version 1 Reference Manual

PUBLICATION NUMBER: 60495700

PAGES: 100

This manual describes the Basic Access Methods (BAM) routines that handle the processing of files with sequential or word addressable organization. Emphasis is on the input and output facilities available to users of the COMPASS assembly language through macro calls; COBOL, FORTRAN, and Sort/Merge programmers, however, can use this manual as a source for BAM terminology and concepts. It also describes magnetic tape label processing.

The reader is assumed to be familiar with the operating system in use and with file organization and manipulation.

MANUAL: CYBER Record Manager Basic Access Methods
Version 1 User's Guide

PUBLICATION NUMBER: 60495800

PAGES: 100

This guide is an introduction to the Basic Access Methods (BAM) routines that handle the processing of files with sequential or word addressable organization. The emphasis is on the issuing of direct program calls to BAM.

This guide is written for FORTRAN programmers; the material presented, however, can be used by programmers using COMPASS or any of the languages that provide indirect access to BAM.

The reader is assumed to be either a systems programmer writing execution-time routines for higher level languages or an intermediate programmer writing FORTRAN applications.

MANUAL: Data Catalogue 2 Data Administrator's
Reference Manual

PUBLICATION NUMBER: 60483300

PAGES: 50

This manual describes the utility function of Data Catalogue. It contains information that should be restricted to the data administrator who is responsible for the Data Catalogue dictionary. Topics discussed include system initiation, maintenance facilities, and operating requirements.

The reader is assumed to be familiar with Data Catalogue and with the operating system in use.

MANUAL: Data Catalogue 2 Reference Manual

PUBLICATION NUMBER: 60483200

PAGES: 215

This manual describes the features of Data Catalogue, a product used to create and maintain a computerized dictionary of data, procedures, and users. It presents an overview of the product and describes in detail the categories of information that can be stored for each type of entity. Five functions are provided to access and maintain the dictionary: Update, Query, Report, Generate, and Convert. Each function is described in detail in a separate section.

The reader is assumed to be an experienced programmer who is familiar with the operating system in use.

MANUAL: DDL Version 3 Reference Manual

- Volume 1: Schema Definition for Use With:
COBOL, FORTRAN, Query Update
- Volume 2: Sub-Schema Definition for CYBER
Database Control System Use
With: COBOL, Query Update
- Volume 3: Sub-Schema Definition for CYBER
Record Manager Use With: COBOL,
Query Update

PUBLICATION NUMBER: 60481900 (Volume 1)
60482000 (Volume 2)
60482100 (Volume 3)

PAGES: 110 (Volume 1)
110 (Volume 2)
100 (Volume 3)

This manual describes version 3 of the Data Description Language (DDL). Volume 1 discusses system organization, schema organization, CYBER Database Control System (CDCS) Version 2 schema, programming conventions, DDL statements, and schema compilation. A sample schema source program illustrates the text. Character sets and diagnostics are provided in appendix format.

Volume 2 discusses CDCS Version 2 subschema organization, subschema programming conventions, COBOL/DDL and Query Update Version 3 statements, and subschema compilation. Examples of a payroll subschema and an invoice subschema illustrate the types of programs that are possible using the COBOL and Query Update subschema.

Volume 3 describes the CYBER Record Manager version of the COBOL Version 5 and Query Update (QU) Version 3 subschema. This volume covers subschema organization, QU/DDL and COBOL/DDL statements for CYBER Record Manager database mode, programming conventions, and subschema compilation. It is illustrated by sample subschema source programs.

The reader is assumed to be a data administrator who is responsible for administering a data base and who is familiar with Control Data software products.

MANUAL: DMS-170 Data Base Utilities Version 1
Reference Manual

PUBLICATION NUMBER: 60498800

PAGES: 65

This manual describes the DMS-170 data base utilities for use with CYBER Database Control System Version 1. It discusses system organization, utilities, logging, and data base recovery. Appendixes provide standard character sets, diagnostic message formats and explanations, control statement requisites, and field length requirements.

The information in this manual is intended primarily for the data administrator who is responsible for defining, creating, controlling, and monitoring a data base.

The reader is assumed to be familiar with data management concepts and Control Data software products.

MANUAL: FORM Version 1 Reference Manual

PUBLICATION NUMBER: 60496200

PAGES: 100

This manual describes the use of the File Organizer and Record Manager (FORM) system, a comprehensive, general purpose utility. FORM capabilities in manipulating records and reorganizing files are described in detail. CYBER Record Manager facilities are discussed, as are the four file organizations that can be created through FORM.

The reader is assumed to be a programmer familiar with the source language and the operating system in use.

MANUAL: FORTRAN Data Base Facility Version 1
Reference Manual

PUBLICATION NUMBER: 60482200

PAGES: 110

This manual describes the FORTRAN interface to a DMS-170 data management system. The FORTRAN Data Base Facility consists of the Data Description Language for the FORTRAN subschema and the Data Manipulation Language, which enables FORTRAN programs to access a data base; this manual describes both features.

This manual is written for the data administrator responsible for describing FORTRAN subschemas and for the FORTRAN application programmer writing programs that access the data base.

MANUAL: FORTRAN Extended Version 4 Common Library
Mathematical Routines Reference Manual

PUBLICATION NUMBER: 60498200

PAGES: 220

This manual describes and illustrates the mathematical routines that compose part of the FORTRAN Common Library. The Mathematical Routines compute four number types: integer, single (precision floating point), double (precision floating point), and complex (floating point). This manual presents an overview of the mathematical routines available and describes each routine in detail. It also discusses classification of routines and calls, terminology, error graphs, and description of plots.

The reader is assumed to be a programmer familiar with FORTRAN Extended Version 4 and the operating system in use.

MANUAL: FORTRAN Extended Version 4 Instant Manual

PUBLICATION NUMBER: 60497900

PAGES: 45

This pocket-sized, quick-reference document contains a summary of FORTRAN language elements, statement forms, FORTRAN library subprograms, debugging statements, overlays, and sample deck structures.

The reader is assumed to be a programmer familiar with FORTRAN Extended and the operating system in use.

MANUAL: FORTRAN Extended Version 4 Reference Manual

PUBLICATION NUMBER: 60497800

PAGES: 545

This manual describes the FORTRAN Extended Version 4 language, which complies with the 1968 ANSI standard. It describes FORTRAN Extended language elements, expressions, and statements. Also discussed are overlays, debugging facilities, and program compilation and execution. Sample deck structures and programming examples are included to assist the novice user in preparing programs in the FORTRAN language.

This manual is written for a programmer who is familiar with the FORTRAN language and the operating system in use.

MANUAL: FORTRAN Extended Version 4 to FORTRAN
Version 5 Conversion Aids Program Version 1
Reference Manual

PUBLICATION NUMBER: 60483000

PAGES: 65

This manual describes the features and operational characteristics of the Conversion Aids product and discusses the differences between the two FORTRAN compilers.

This manual is written for programmers involved in the conversion of source programs from FORTRAN Extended Version 4 to FORTRAN Version 5. The reader is assumed to have a working knowledge of FORTRAN Extended Version 4 and some familiarity with FORTRAN Version 5.

MANUAL: FORTRAN Extended Version 4 User's Guide

PUBLICATION NUMBER: 60499700

PAGES: 110

This guide is a supplement to the FORTRAN Extended Version 4 Reference Manual, with minimal duplication of information. It is not an introduction to the FORTRAN language. In addition to providing information on the interface between FORTRAN Extended Version 4 and other Control Data products, this guide contains information on programming, debugging, and optimization techniques of particular interest to the FORTRAN programmer.

The reader is assumed to be an experienced FORTRAN programmer who is unfamiliar with Control Data operating systems.

MANUAL: FORTRAN Version 5 Common Library
Mathematical Routines Reference Manual

PUBLICATION NUMBER: 60483100

PAGES: 195

This manual describes and illustrates the mathematical routines that compose part of the FORTRAN Version 5 Common Library. It presents an overview of the mathematical routines available, describes each routine in detail, discusses algorithms and round-off error, and includes error graphs for some routines.

The reader is assumed to be a programmer familiar with FORTRAN Version 5 and with some knowledge of the operating system in use.

MANUAL: FORTRAN Version 5 Instant Manual

PUBLICATION NUMBER: 60483900

PAGES: 50

This pocket-sized, quick-reference document provides the user with a summary of the major elements of the FORTRAN Version 5 language, including specification statements, assignment statements, intrinsic functions, and input/output statements. The user should consult the FORTRAN Version 5 Reference Manual for further detail.

This instant is intended for users familiar with the FORTRAN Version 5 language and the operating system in use.

MANUAL: FORTRAN Version 5 Reference Manual

PUBLICATION NUMBER: 60481300

PAGES: 300

This manual describes the FORTRAN Version 5 language, which complies with the 1978 ANSI standard language known as FORTRAN 77. The manual describes language elements, expressions, and statements. Also discussed are input/output statement processing, program units and procedures, product interfaces, overlays, debugging aids, and compilation and execution. FORTRAN-supplied intrinsic function and utility subprogram procedures are listed and explained, and numerous samples of deck structures and executable programs are provided.

This manual is intended for use by application programmers already familiar with an existing FORTRAN language and the operating system in use.

MANUAL: General Purpose Simulation System V (GPSS)
General Information Manual

PUBLICATION NUMBER: 84003900

PAGES: 125

This manual describes the differences between GPSS V and GPSS V/6000; it does not explain how to use GPSS V/6000.

The reader is assumed to be an applications programmer experienced in GPSS programming.

MANUAL: GTSTRU DL User's Manual (4 Volumes)

PUBLICATION NUMBER: 84002710 (Volume 1)
84002750 (Volume 2)
84002730 (Volume 3)
84002740 (Abstract of Commands)

PAGES: 660 (Volume 1)
734 (Volume 2)
744 (Volume 3)
272 (Abstract of Commands)

This set of manuals describes GTSTRU DL, a computer software system for assisting an engineer in structural analysis and design. GTSTRU DL is a sophisticated information processing system capable of supplying an engineer with accurate and complete technical data for structural design decision making. GTSTRU DL does the following:

- Provides a highly user-oriented, comprehensive, state-of-the-art, and integrated general purpose structural analysis and design information processing system as a practical structural engineering design tool.
- Provides more cost-effective utilization of structural engineering personnel, as well as less costly and more reliable structural designs.
- Permits engineering users to retain and exercise their overall role as decision makers.
- Permits engineers to concentrate on results rather than methodology.

GTSTRU DL provides the engineer with the ability to specify characteristics of structural problems, perform analyses, reduce and combine results, perform design, and output any or all of the information stored in the structural problem data base on a selective basis.

The reader is assumed to be a structural engineer without any prior knowledge of computer software or operations.

MANUAL: Information Management Facility Version 1
Application Programming Reference Manual

PUBLICATION NUMBER: 60484500

PAGES: 102

This manual describes the Information Management Facility (IMF) Version 1 as used by application programs. IMF is a data modeling tool in support of information analysis.

This manual is designed for use by the application programmers using the COBOL, FORTRAN, and Query Update interfaces with IMF. The programmers are assumed to have basic knowledge of the concepts of the IMF external schema. In addition, the programmers are assumed to be experienced in the programming languages to be used with IMF. This manual is also designed for use by the information base administrator, who is responsible for writing information base procedures.

MANUAL: Information Management Facility Version 1
Schema Definitions Reference Manual

PUBLICATION NUMBER: 60484400

PAGES: 111

This manual describes the Information Management Facility (IMF) Version 1. IMF is a data modeling tool in support of information analysis.

The manual is designed for use by three different types of individuals. The information base administrator is responsible for the conceptual schema and is assumed to understand information analysis. The information base engineer is responsible for the internal schema and is assumed to be knowledgeable in internal structuring. The application administrator is responsible for the external schemas and is assumed to be experienced with the applicable programming languages (COBOL, FORTRAN, and Query Update).

MANUAL: International Mathematical and Statistical
Library Version 7 General Information Manual

PUBLICATION NUMBER: 60456380

PAGES: 30

The International Mathematical and Statistical Library (IMSL) is a collection of FORTRAN subroutines and function subprograms in the areas of mathematics and statistics. It is one of the most widely used scientific and statistical packages and is becoming an accepted industry standard.

This manual contains general information concerning the contents of the library. It describes all subroutines and function subprograms available. Detailed descriptions of these routines are given in the three-volume IMSL Reference Manual, which is supplied with orders for the product.

This manual is intended for mathematicians, statisticians, scientists, and engineers who are programming in ALGOL, FORTRAN, PASCAL, PL/I, and other programming languages capable of calling a FORTRAN subroutine.

MANUAL: Message Control System Version 1 Reference
Manual

PUBLICATION NUMBER: 60480300

PAGES: 145

The Message Control System (MCS) Version 1 Reference Manual describes a method of queuing, routing, and journaling messages passed between COBOL Version 5 programs and the communication network. The manual discusses the Application Definition Language that allows tailoring of an MCS application to specific needs, special user and application operator commands, copying of application status information, and facilities for specifying under what circumstances copying is to be performed. The manual explains message concepts and queues, covers access and disconnect procedures, and describes the system operator interface for controlling MCS operation.

This manual is intended for use by programmers familiar with the COBOL language, the Network Operating System, and network host products.

MANUAL: Modify Version 1 Instant Manual

PUBLICATION NUMBER: 60450200

PAGES: 45

This pocket-sized, quick-reference document contains condensed descriptions of the Modify control statement parameters and input directives. Its contents are a subset of the information contained in the Modify Version 1 Reference Manual.

The reader is assumed to be familiar with the Modify utility.

MANUAL: Modify Version 1 Reference Manual

PUBLICATION NUMBER: 60450100

PAGES: 80

This manual describes the program library maintenance utility, Modify, with which the user can organize collections of line-oriented files (symbolic program text or data files) into a compressed library file that can be edited on a line-by-line basis. The introduction describes additional features of Modify and presents an overview of its operation. The remaining sections describe the directives that the user supplies to control library creation and editing. Wherever possible, Modify usage is illustrated through examples.

This manual is written for the experienced applications or systems programmer.

MANUAL: MSSI Version 2 Installation Handbook

PUBLICATION NUMBER: 60457810

PAGES: 15

This manual describes installation procedures for the MAP Subsystem Software and Interface (MSSI).

MSSI, including all operator commands and error diagnostics, is described in the MSSI Version 2 Reference Manual.

The reader is assumed to be an MSSI installer.

MANUAL: MSSI Version 2 Reference Manual

PUBLICATION NUMBER: 60457800

PAGES: 65

This manual describes the MAP Subsystem Software and Interface (MSSI) used to control and communicate with the Matrix Algorithm Processor (MAP III). MAP III is a microprogrammable array processor used to process lengthy array calculations for FORTRAN programs running on a CDC CYBER 170, CYBER 70, or 6000 Computer System.

This manual describes MAP III macros, MSSI FORTRAN calls, and MAP III operator commands and messages.

The reader is assumed to be a FORTRAN programmer or system operator at sites having a MAP III device.

MANUAL: Network Products
Communications Control Program (CCP)
Version 3 Operator's Guide

PUBLICATION NUMBER: 60471700

PAGES: 28

This manual describes the operating procedures needed to control the Communications Control Program (CCP).

The reader is assumed to be a 255X Host Communications Processor (HCP) operator who has neither a detailed knowledge of the system hardware and its internal functions nor a familiarity with the CCP software. The information in the book may also be useful to system analysts who use the 255X console.

MANUAL: Network Products
Communications Control Program (CCP)
Version 3 Reference Manual

PUBLICATION NUMBER: 60471400

PAGES: 175

This manual describes the use of CCP as a message processing node in a network. It contains external descriptions of base software, message multiplexing, the network communications protocol, and the interface packages to a host (HIP), to another CCP node (LIP) or an x.25 public data network, to a teletype terminal (ASync TIP), to a teletype terminal connected through a Public Data Network, to a mode 4 terminal (Mode 4 TIP), and to a HASP workstation (HASP TIP). It describes message priorities and message regulation and contains loading and dumping information.

This manual is written for use by administrators and systems analysts.

MANUAL: Network Products
Communications Control Program (CCP)
Version 3 System Programmers Reference
Manual

PUBLICATION NUMBER: 60474500

PAGES: 500

This manual describes CCP programs to aid the reader in making minor changes to standard CCP software. The manual also describes standard programs that interface with terminal interface packages (TIPs) to help the reader in writing or modifying a TIP.

The reader is assumed to be a systems programmer with a working knowledge of network communications, CYBER Cross macroassembler, and CYBER Cross PASCAL compiler.

MANUAL: Network Products
Communications Control Program (CCP)
Version 3 Terminal Interface Program (TIP)
Writer's Guide Reference Manual

PUBLICATION NUMBER: 60474600

PAGES: 100

This guide describes writing or altering terminal interface packages (TIPs) for the CCP system. It describes the data structures used by a TIP to the bit, word, and field level; specifies the required TIP interfaces to CCP; and describes the installation methods for a new TIP.

This manual is written for use by a systems programmer/analyst.

MANUAL: Network Products
Network Access Method Version 1 Reference
Manual

PUBLICATION NUMBER: 60499500

PAGES: 215

This manual describes the Network Access Method (NAM), which operates in conjunction with the network supervisor and the communication supervisor, under control of NOS. It discusses NAM operations, communication components and protocol, Queued Terminal Record Manager statements for COBOL users, Application Interface Program statements for FORTRAN or COMPASS users, and interface descriptions. Sample application programs illustrate subsets of described features.

The reader is assumed to be a programmer experienced in subsystem applications programming, the use of compilers and assemblers, and other network software products.

MANUAL: Network Products
Network Access Method Version 1 Terminal
Interface Guide

PUBLICATION NUMBER: 60480600

PAGES: 140

This guide is an introduction to the network products that provide terminal access and remote processing capability. It describes the features of and explains the operation of portions of Network Access Method Version 1 and Communications Control Program Version 3 from a terminal user's viewpoint.

This guide covers aspects of network terminal operation that are independent of the host application program. Topics covered include network structure, general concepts and operations, terminal-dependent notes and cautions, access and disconnection procedures, terminal interface program commands, and use of the Terminal Verification Facility.

This guide should be used with the reference manual for a terminal service facility program, such as the Remote Batch Facility, the Transaction Facility, or the Interactive Facility. Sites that do not run any of these Control Data-produced applications can refer to this guide for a description of those features of the network software available to any terminal user.

This guide does not assume that readers have a programming background in network communications. Readers are assumed to be familiar with the hardware operation of and possible communication uses of the terminals in which they are interested.

MANUAL: Network Products
Network Access Method Version 1 User's Guide

PUBLICATION NUMBER: 60481500

PAGES: 270

This guide takes a tutorial approach to Network Access Method (NAM) use through programs written in FORTRAN Extended Version 4. It describes the design, development, debugging, and installation of two network application programs and traces the evolution of these programs from earlier variants.

This guide is not comprehensive. Topics are limited to use of the interactive virtual terminal interface with terminals in selected terminal classes; application-to-application connections are discussed, but use of the batch terminal interface is not illustrated.

Administrative personnel are given examples of the correlation needed between Network Definition Language input, system file contents, and application program execution requirements.

The reader is assumed to be a beginning or intermediate FORTRAN programmer with general knowledge of NOS and ready access to the Network Products NAM Version 1 Reference Manual. As some material in this guide is oriented toward systems analysts and site administrative personnel, the reader is assumed to be working with one of those individuals.

MANUAL: Network Products
Network Definition Language Version 1
Reference Manual

PUBLICATION NUMBER: 60480000

PAGES: 125

This manual describes the Network Definition Language, providing a sample network program and explaining program structure, language specifications, and file structures. The Network Definition Language Processor, a compiler used by a network administrator to create and maintain files that define the physical and logical structure of the network for the other network software, is described in detail. Error processing, language summary, and reserved words are presented in appendices.

The reader is assumed to be a site administrator, who as an experienced compiler-language programmer, is familiar with NOS and other standard software products of the network product set.

MANUAL: Network Products
Remote Batch Facility Version 1 Reference
Manual

PUBLICATION NUMBER: 60499600

PAGES: 100

This manual describes terminal features of the Network Products Remote Batch Facility (RBF). It provides a reference to the commands used in performing specific operations at the terminal. It discusses such topics as access and disconnect procedures, RBF operation, RBF commands, and job processing. Standard character sets, diagnostic messages, RBF command summary, and terminal characteristics are presented in appendix format.

The reader is assumed to be familiar with the hardware features of the terminal being used for remote batch operations.

MANUAL: Network Products
Stimulator Version 1 Reference Manual

PUBLICATION NUMBER: 60480500

PAGES: 70

This manual describes the use of the Network Products Stimulator (NPS) evaluation package for testing the Network Access Method (NAM) and the applications using NAM. Sample programs are included for all three NPS utilities, SCRIPT, STIM, and REPORTR.

The manual is intended for use by subsystem programmers or network administrative personnel familiar with Network Products and NOS.

MANUAL: NOS Version 2 Application Installation
Handbook

PUBLICATION NUMBER: 84002760

PAGES: 68

This handbook contains information on the installation of applications software products under NOS Version 2, and where applicable, the Network Access Method/Interactive Access Facility (NAM/IAF). Applications included in this revision of the handbook are APEX-IV V1.0, APT IV V2, GPSS V V1.1.3.1, GTICES/STRUDEL, GTTABLE, ISML 8.1, PDS/MaGen V1.385, PERT/TIME V2.1, SIMSCRIPT 11.5 V4.5.1, TOTAL Universal 2.1, TOTAL Universal Extended 2.1, UNIPLOT V3.1, and UNISTRUC II.

Control Data assumes that the installation of applications software will be performed by an analyst experienced on CYBER 70 or CYBER 170 Computer Systems.

MANUAL: NOS Version 2 Applications Programmer's
Instant

PUBLICATION NUMBER 60459360

PAGES: 200

This manual is a pocket-sized condensation of the NOS 2 Reference Set, Volume 3, System Commands. It also contains condensed documentation of the command formats of the following: CYBER Loader, ALGOL5, APL, BASIC, COBOL5, COMPASS, DEBUG, FTN, FTN5, MERGE5, PL1, SORTMRG, and SORT5. Also included are the character set tables and a description of the exchange package dumps.

MANUAL: NOS Version 2 Diagnostic Index

PUBLICATION NUMBER: 60459390

PAGES: 230

This manual provides a sorted listing of diagnostic messages issued by the operating system and its product set. It directs users to the manuals that contain complete documentation of the diagnostic messages received from job processing. The abbreviated title and publication number of the manual in which the message appears is listed after each message.

This manual is a reference source for all NOS users.

MANUAL: NOS Version 2 Installation Handbook

PUBLICATION NUMBER: 60459320

PAGES: 260

This handbook is written for the analyst who will install NOS and its products. It describes the general installation procedure for all system software, details the contents of operating system and product set release materials, and describes installation parameters needed to modify system operation for particular site requirements.

The reader is assumed to be a systems analyst who is familiar with the COMPASS assembly language, the Update and Modify source file maintenance utilities, and the hardware configuration on which NOS is installed.

MANUAL: NOS Version 2 Operator/Analyst Handbook

PUBLICATION NUMBER: 60459310

PAGES: 315

This manual describes the commands, procedures, console displays, and utilities used by the central site operator to initiate and control job processing, peripheral equipment, subsystems, permanent files, and overall system performance. It specifies which commands could adversely affect the performance or integrity of the system and should be used only under the direction of a systems analyst. An appendix lists all status and error messages with the originating routine, explanation of the message, and a suggested response.

This manual is written for both the operator with little knowledge of NOS, who can use this manual as reference material in conjunction with a set of procedures defined by the site installation, and the systems analyst who is familiar with NOS.

MANUAL: NOS Version 2 Reference Set, Volume 1,
Introduction to Interactive Usage

PUBLICATION NUMBER: 60459660

PAGES: 60

This manual is written for the applications user and the casual programmer. It gives a simple introduction to the interactive use of NOS, including logging in and out. It describes in tutorial manner a subset of the commands that allow a beginning user to enter, run, and correct programs and create, retrieve, and maintain permanent files. This manual makes extensive use of examples and illustrations.

MANUAL: NOS Version 2 Reference Set, Volume 2,
Guide to System Usage

PUBLICATION NUMBER: 60459670

PAGES: 120

This manual describes the concepts of job processing, magnetic tape processing, procedures, files, source file maintenance, and file execution. Included are descriptions on how to use XEDIT, Modify, and the CYBER Loader. Although many commands are described, not all parameters for each command are shown.

This manual is oriented toward the applications or systems programmer who is new to NOS. It is assumed that the reader understands the material presented in Volume 1, Introduction to Interactive Usage, and also that the reader will use Volume 3, System Commands, as a primary resource once the material in Volume 2 is mastered.

MANUAL: NOS Version 2 Reference Set, Volume 3,
System Commands

PUBLICATION NUMBER: 60459680

PAGES: 580

This manual is written for the applications programmer. The first five sections of the manual describe the structure of the system. However, much of the general information covered in Volumes 1 and 2 is not repeated in Volume 3. All system commands are documented fully rather than presented in a tutorial manner as in Volumes 1 and 2.

The reader is assumed to understand the concepts described in the NOS Reference Set Volumes 1 and 2.

MANUAL: NOS Version 2 Reference Set, Volume 4,
Program Interface

PUBLICATION NUMBER: 60459690

PAGES: 400

This manual is written for the COMPASS applications programmer. It contains information about system macros and requests, and communications between COMPASS user programs and NOS. A majority of the concepts covered in Volumes 1 through 3 and in the COMPASS Reference Manual are not repeated in Volume 4.

It is assumed the reader understands the concepts described in the COMPASS Reference Manual and the NOS Reference Set Volumes 1 through 3.

MANUAL: NOS Version 2 System Maintenance Reference
Manual

PUBLICATION NUMBER: 60459300

PAGES: 516

This manual contains information needed by analysts who perform the day-to-day maintenance activities required in the normal production environment of NOS. The first four sections describe the utilities and files with which the analyst maintains the NOS permanent file system, queued files, and system, account, and error log dayfiles; reformats the 881/883 disk packs; and operates the network and interactive subsystems of NOS. The fifth section describes the user validation and user accounting capabilities of NOS. The sixth and seventh sections describe the commands with which the user modifies the system library and initializes fast-attach files. The eighth section describes the multimainframe environment. The remaining sections describe methods by which the analyst provides for spacing and format control on 580 line printers, interprets the express deadstart dump file, and tests error logging and error recovery procedures. Section 15 documents the TRACER and PROBE utilities, which provide data for statistical analysis regarding the system's activity.

This manual is written for administrative personnel and site analysts who are thoroughly familiar with NOS.

MANUAL: NOS Version 2 System Overview

PUBLICATION NUMBER: 60459270

PAGES: 60

The System Overview introduces NOS Version 2 and its associated software products. The overview is written for the new or prospective NOS user and includes many examples of interactive use. While intended for a person with limited computer experience, management and operation personnel will also find useful background information concerning NOS. This overview is printed in full-color format.

MANUAL: NOS Version 2 Systems Programmer's Instant

PUBLICATION NUMBER: 60459370

PAGES: 300

This manual is a pocket-sized, quick-reference document for systems programmers who have a thorough knowledge of NOS.

Section 1 presents console commands and 026 file editor commands. Many of the console commands have been changed as a result of system reorganization.

Section 2 describes the commands used in various system utilities. Permanent file and queued file utilities have been changed extensively.

Section 3 shows the organization of central memory. Central memory resident has been reorganized for NOS Version 2. The following areas of memory are new or have been extensively revised: channel interlock tables, subsystem tables, L display buffer, family ordinal table, system file name table, entry point directory, system sector format, negative field length, local file name table, and 819 mass storage subsystem data organization.

Section 4 describes PP monitor functions and system function processors. PP monitor functions have been changed extensively, and documentation of the QAC interface has been added.

MANUAL: NOS Version 2 Network Terminal User's
Instant

PUBLICATION NUMBER: 60459380

PAGES: 80

This manual is a pocket-sized, quick-reference document for all users who use NOS at an interactive terminal. Brief descriptions of IAF, RBF, and MCS subsystem commands are provided, along with descriptions of application switching, logout sequence, and network communication commands for each of these subsystems.

Descriptions of character sets, terminal classes, and interactive status commands are included in this manual. Also the format of each system command is given.

MANUAL: On-Line Maintenance Software Reference
Manual

PUBLICATION NUMBER: 60454200

PAGES: 70

This manual presents the philosophy of on-line maintenance, contains detailed descriptions of the maintenance features, and describes the deadstart diagnostic sequencer.

It is written for customer engineers and other maintenance personnel.

MANUAL: PDS/MaGen Information Manual

PUBLICATION NUMBER: 84009900

PAGES: 184

This manual describes the Problem Descriptor System/MaGen Language (PDS/MaGen). The PDS/MaGen system provides a versatile, comprehensive, and easily used matrix generator and report writer for linear programming users. It also provides for the description and solution of other substructure-decomposable problems. To provide for the linear programming user, the MaGen language exists as a compatible subset of the PDS language; PDS contains a bidirectional interface to the APEX linear programming system. In particular, PDS/MaGen provides the capability to describe and solve problems in the field of operations research. PDS's design is based on the principle that operations research systems have a definable structure in which related activities and restrictions can be put into natural groupings.

The reader is assumed to be familiar with PDS/MaGen and the operating system in use.

MANUAL: PERT/Time Version 2 Reference Manual

PUBLICATION NUMBER: 60456030

PAGES: 45

This manual describes the program statements necessary to track the progress through a PERT network and to generate the necessary reports.

The reader is assumed to be familiar with the operating system in use.

MANUAL: PL/I Version 1 General Information Manual

PUBLICATION NUMBER: 60388300

PAGES: 20

This manual presents an overview of the Control Data implementation of PL/I and lists the more important differences between Control Data implementation of PL/I and ANSI PL/I. The PL/I Version 1 Reference Manual fully describes PL/I.

This manual is written for Control Data customers interested in using the CYBER implementation of PL/I.

MANUAL: PL/I Version 1 Instant Manual

PUBLICATION NUMBER: 60483700

PAGES: 60

This pocket-sized, quick-reference document provides a brief description of the major PL/I language features. PL/I Version 1 is a subset of the language defined by the American National Standard Programming Language PL/I, X3.53-1976, document. For further detail, the user should consult the PL/I Version 1 Reference Manual.

The reader is assumed to be familiar with the PL/I language.

MANUAL: PL/I Version 1 Reference Manual

PUBLICATION NUMBER: 60388100

PAGES: 310

This manual describes the Control Data implementation of the PL/I language, which is a subset of the language defined by ANSI document X3.53-1976. The manual describes PL/I data elements, attributes, declarations, references, and data manipulation. It also discusses the built-in functions and the CYBER Record Manager interface and statements. The manual also includes sample deck structures and programming examples.

The reader is assumed to be a programmer familiar with the PL/I language and the operating system in use.

MANUAL: Query Update Version 3 Programmer's User's Guide

PUBLICATION NUMBER: 60499000

PAGES: 100

This guide describes selected Query Update language components and optional syntax. Query Update is designed to accommodate a wide variety of applications, ranging from simple data file inquiry to complex report production. It discusses file concepts and directives, data access and manipulation, report writing capabilities, multiple-file data base operations, and Query Update utility operations. Examples of each type of Query Update directive illustrate the text.

The reader is assumed to be an experienced programmer familiar with business programming languages, as well as the operating system in use.

MANUAL: Query Update Version 3 Reference Manual

PUBLICATION NUMBER: 60498300

PAGES: 170

This manual describes the Query Update language which is designed for data storage and retrieval operations. It describes all Query Update directives, along with the elements of the language and operating system interface. Applications range from simple report preparation and generation to complex file manipulations.

The reader is assumed to be an experienced programmer familiar with the operating system and data management software in use.

MANUAL: Query Update Version 3 User's Guide

PUBLICATION NUMBER: 60387700

PAGES: 80

This guide is designed to introduce nontechnical personnel to the advantages offered by the Query Update language. It is a self-instructional document structured to enable the reader to step through a selected portion of the basic Query Update procedures. Procedures include data base access, data manipulation, and report generation. All operations apply to a sample data base. NOS and NOS/BE program listings for the data base are supplied in the appendix.

The novice as well as the experienced programmer can use the basic elements of Query Update to access data base files and produce simple reports. It is assumed that an experienced data base administrator is available to offer assistance to the reader who may be unfamiliar with computer operation.

MANUAL: SIMSCRIPT II.5 User Information Manual

PUBLICATION NUMBER: 84000460

PAGES: 218

This manual describes the concepts and instructions necessary to program in the SIMSCRIPT language. The SIMSCRIPT II.5 programming language is a powerful language for both simulation and nonsimulation problems. It offers many data processing features as well as all the elements of a scientific programming language. SIMSCRIPT is extremely machine independent, and it is relatively easy to transfer existing programs from one implementation of a language to another.

This manual is intended for both inexperienced and experienced SIMSCRIPT programmers. Therefore, it is formatted to serve as a teaching guide as well as a reference manual.

MANUAL: Site Performance Analyzer Version 1 User's
Guide

PUBLICATION NUMBER: 60456970

PAGES: 40

This manual describes the Site Performance Analyzer (SPA) program, which is a management tool used to create and edit system history files, generate detail and analysis reports for site management use, and prepare transmittal files to be sent to Control Data.

The reader is assumed to be in operational management or a CDC support level person. The reader should be familiar with CYBER configurations and the operating system in use.

MANUAL: Software Publications Release History

PUBLICATION NUMBER: 60481000

PAGES: 35

This manual provides the titles and revision levels of software documents available at certain Programming System Report (PSR) levels for the following Control Data operating systems: NOS, NOS/BE, KRONOS, and SCOPE.

This release history is intended for readers who wish to determine which revision of a manual is relevant to a particular PSR level of the NOS, NOS/BE, KRONOS, or SCOPE operating system.

MANUAL: Sort/Merge Versions 4 and 1 Instant Manual

PUBLICATION NUMBER: 60497600

PAGES: 35

This pocket-sized, quick-reference manual contains the Sort/Merge directives and macro calls and the FORTRAN Extended and FORTRAN Version 5 calls that can be used to initiate Sort/Merge processing. Own code exit routines are presented, as are the standard character sets used with Sort/Merge.

The reader is assumed to be familiar with the Sort/Merge utility and the operating system in use.

MANUAL: Sort/Merge Versions 4 and 1 Reference Manual

PUBLICATION NUMBER: 60497500

PAGES: 160

This manual describes the operations of the Sort/Merge utility under NOS Version 1 and NOS/BE Version 1 (Sort/Merge Version 4) and under SCOPE Version 2 (Sort/Merge Version 1). The manual describes the Sort/Merge Versions 4 and 1 interface with FORTRAN Extended and FORTRAN Version 5. The manual contains the Sort/Merge directives and macro calls used to manipulate and rearrange records into an order prescribed by user specifications.

The reader is assumed to be familiar with the operating system and source language in use.

MANUAL: Sort/Merge Versions 4 and 1 User's Guide

PUBLICATION NUMBER: 60482900

PAGES: 60

This guide is an introduction to the sorting and merging processes performed by the Control Data Sort/Merge utility. The guide complements the Sort/Merge Versions 4 and 1 Reference Manual. Practice examples are presented to promote familiarity with the operating system in addition to Sort/Merge.

The reader is assumed to be an entry-level applications programmer.

MANUAL: Sort/Merge Version 5 Reference Manual

PUBLICATION NUMBER: 60484800

PAGES: 92

This manual documents Sort/Merge Version 5, which is a generalized sorting and merging utility. The manual describes how to use Sort/Merge through commands, an interactive dialog, a directive file, and procedure calls.

The user is assumed to be an applications programmer who is familiar with both the operating system and the calling language used for the procedure calls to Sort/Merge.

MANUAL: State Programming Language Reference Manual

PUBLICATION NUMBER: 60472200

PAGES: 75

This manual describes the state programs that are used by the Network Processing Unit (NPU) input processor and the text processor to convert message codes and to handle demultiplexing at a Communication Control Program (CCP) or Communication Control INTERCOM (CCI) network node. It describes the function of the input state program, the text processing state programs, and the modem state programs. It also defines each state instruction (macro) used by the language.

This manual is intended for use by systems analysts and programmers.

MANUAL: SYMPL Version 1 Instant Manual

PUBLICATION NUMBER: 60482600

PAGES: 35

This pocket-sized manual, intended for quick reference only, contains a summary of the SYMPL language elements, compiler directives, and program structure.

The reader is assumed to be a programmer familiar with the SYMPL language and the operating system in use.

MANUAL: SYMPL Version 1 Reference Manual

PUBLICATION NUMBER: 60496400

PAGES: 125

This manual presents the semantics and rules for writing programs in the SYMPL language. It describes the ability of the SYMPL compiler to simultaneously compile several programs. Sufficient information is included to enable the reader to write programs in the SYMPL language. Examples illustrate the necessary steps in the programming process. The structure of SYMPL word forms and their mutual relations appears in an appendix.

The reader is assumed to be a programmer with knowledge of the operating system in use and scientific language compilers.

MANUAL: SYMPL Version 1 User's Guide

PUBLICATION NUMBER: 60499800

PAGES: 65

This guide is an introduction to the SYMPL Version 1 language and its use. Topics covered include language elements, program structure, data declarations, SYMPL language features, multiword and part-word arrays, IF and FOR statements, interprogram communication, and output facilities.

The reader is assumed to be familiar with the FORTRAN language as used on the installation's operating system.

MANUAL: TAF/CRM Data Manager Version 1 Reference
Manual

PUBLICATION NUMBER: 60459510

PAGES: 74

This manual describes one of the data managers offered with the Transaction Facility (TAF); the others are the TAF data manager and TOTAL.

TAF CYBER Record Manager (CRM) data manager provides an Advanced Access Methods interface to CRM indexed sequential and direct access files. This manual explains the features of TAF CRM, indexed sequential and direct access files, file and record locking, and the COBOL and FORTRAN interfaces (TAF CRM does not have a COMPASS interface). It also provides installation information useful to both the data base administrator and the applications programmer.

This manual also includes documentation of data base recovery, actual key file organization support, multiple key (MIP) file support, and batch concurrency. Data base recovery ensures the integrity of the data base even if a hardware or software failure occurs during execution of a transaction. The TAF/CRM Reference Manual explains both the automatic and batch component of the data base recovery process and provides a section on recovery from multiple failures. Actual key support gives TAF users access to all the advanced CRM file types available to non TAF users. MIP support enables TAF/CRM users to access records on any of several keys. The description of the TAF/CRM requests have been updated to reflect these new capabilities. With TAF/CRM batch concurrency, validated batch jobs have access to data files while they are being used in transaction processing. The TAF/CRM Reference Manual describes the requirements which must be met in order to use this capability.

The reader is assumed to be an applications programmer familiar with CRM and FORTRAN Extended Version 4, FORTRAN Version 5, or COBOL Version 5.

MANUAL: TAF Version 1 Reference Manual

PUBLICATION NUMBER: 60459500

PAGES: 160

This manual describes the Transaction Facility (TAF), an executive routine used to implement on-line transaction processing under NOS. On-line transaction processing is implemented by writing programs (called tasks) to user terminals. Users of these terminals do no programming. Instead, tasks written for their particular needs, tell them what data to enter and then responds to the user's input with the appropriate information.

This manual tells the user how to write tasks and interface with the terminals through the TAF executive routine. Recovery features are described, as are interfaces to multiplexers and communications processors (2550).

This manual also includes documentation of the TAF Automatic Recovery feature. This feature ensures that transactions which have been designated recoverable will be completed even if a hardware or software failure occurs during execution. TAF Automatic Recovery works in conjunction with data base recovery provided by the TAF/CRM and CDCS data managers.

The TAF Reference Manual presents:

- An overview of the entire recovery process
- A detailed explanation of the transaction recovery portion of the process
- Skeleton tasks showing applications programmers the placement of recovery requests in recoverable transaction for various types of updating situations

The TAF/CRM and CDCS Reference Manuals provide detailed information on the data base recovery portion of the recovery process.

Readers are assumed either to be NOS systems analysts or applications programmers receiving assistance from a systems analyst.

MANUAL: TAF Version 1 User's Guide

PUBLICATION NUMBER: 60459520

PAGES: 110

This manual provides entry level TAF programmers with an introduction to the transaction subsystem. Basic TAF requests are explained in detail, and examples are provided showing their use. Procedures are given for creating and updating a task library. The reader is shown how to set up a simple application using each of three data managers: CDCS, CRM, and TOTAL. All example tasks are written in COBOL 5.

MANUAL: Text Editor Version 1 Reference Manual

PUBLICATION NUMBER: 60436100

PAGES: 70

This manual describes how to use the NOS interactive Text Editor. It gives a detailed explanation of each command and provides many examples. By using Text Editor, the reader can make changes to a file. These changes include replacing characters, deleting lines, and adding lines to a file.

The reader is assumed to be familiar with general file structures and NOS interactive procedures.

MANUAL: TOTAL-CDC Reference Manual

PUBLICATION NUMBER: 76070300

PAGES: 90

This manual describes the features of a TOTAL data base management system and how to design and implement such a system. Two versions of TOTAL are documented: TOTAL Universal is a batch data manager, and TOTAL Universal Extended is used with the Transaction Facility (TAF). The data manager information is the same for both versions. Only the interfaces to the system and the TAF executive differ.

TOTAL can be used with FORTRAN Extended Version 4, COBOL Version 5, and COMPASS Version 3. The reader is assumed to be familiar with one of these languages and the operating system in use.

MANUAL: UNIPLOT Version 3.1 User Guide/Reference Manual

PUBLICATION NUMBER: 60454730

PAGES: 60

This manual describes the Universal Plotting Software (UNIPLOT). UNIPLOT is a general purpose plotting system that provides device independence to application users. It is composed of two software components: a neutral plot library (a set of CalComp call-compatible neutral picture subroutines) that application programs can use as a plotting subsystem and a postprocessor that contains device-dependent software. When a user provides a FORTRAN Extended 4 or FORTRAN 5 application program that uses the neutral picture subroutines, the program creates a neutral picture file. This intermediate file contains a sequence of pictures that may be separately accessed and plotted by the postprocessor on a selected graphics display device.

The reader is assumed to be an applications programmer who is familiar with standard CalComp routines, FORTRAN, and the operating system in use.

MANUAL: Update Version 1 Instant Manual

PUBLICATION NUMBER: 60450000

PAGES: 50

This pocket-sized, quick-reference manual contains information on directives, modes, files, and the UPDATE statement. It shows sample deck structures, source decks and source files, and examples of how to format the files.

The reader is assumed to be a programmer who has knowledge of Update and the operating system in use.

MANUAL: Update Version 1 Reference Manual

PUBLICATION NUMBER: 60449900

PAGES: 70

This manual describes the Update program for maintaining and updating source decks on libraries in compressed symbolic format. The manual covers directives, files, Update execution, and other elements of Update. The appendix provides information on overlapping corrections, listable output, file formats, and file summaries.

The reader is assumed to be an experienced programmer familiar with the operating system in use.

MANUAL: XEDIT Version 3 Reference Manual

PUBLICATION NUMBER: 60455730

PAGES: 95

This manual describes the use of XEDIT commands to edit text files. It gives an example of each command. By using XEDIT, the reader can make changes to a file. These changes include replacing characters, deleting lines, and adding lines.

The reader is assumed to be familiar with NOS operations and file concepts.

MANUAL: 8-Bit Subroutines Reference Manual

PUBLICATION NUMBER: 60495500

PAGES: 140

The 8-Bit Subroutines package is a group of user-callable subroutines for processing 8-bit data on Control Data computer systems. The subroutines presented in this manual are accessed by FORTRAN CALL and COBOL ENTER statements and by COMPASS return jump instructions. The manual discusses data conversion strings, input/output subroutines, and utility subroutines. It presents system interfaces and COPY8P programs, and provides examples of 8-bit subroutine usage in both COBOL and FORTRAN Extended languages.

The reader is assumed to have knowledge of CYBER Record Manager and FORM (File Organizer and Record Manager) as well as knowledge of both IBM and Control Data file structures. A working knowledge of COBOL or FORTRAN Extended is essential.

CROSS-REFERENCE BY MANUAL
PUBLICATION NUMBER (Contd)

Publication Number	Page Number	Publication Number	Page Number
60495500	58	60499400	15
60495700	15	60499500	32
60495800	16	60499600	35
60496200	19	60499700	22
60496400	52	60499800	52
60496900	5	76070300	56
60497100	5	84000460	47
60497200	6	84002550	1
60497300	4	84002710	25
60497500	49	84002730	25
60497600	49	84002740	25
60497800	21	84002750	25
60497900	21	84002760	36
60498200	20	84003900	24
60498300	46	84009900	43
60498800	19	96836100	10
60499000	46	96836400	9
60499200	6	96836500	9
60499300	14		

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