

XVM/DOS
READER'S GUIDE AND
MASTER INDEX

DEC-XV-ODGIA-A-D



XVM
Systems
digital

**XVM/DOS
READER'S GUIDE AND
MASTER INDEX**

DEC-XV-ODGIA-A-D

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PREFACE

This document is the starting point for all users of XVM/DOS software, be they system managers, general managers, computer operators, system programmers, application programmers, or simply users.

Three functions are served by this document:

1. To introduce the reader to the set of manuals available with XVM/DOS and guide each user to those manuals most appropriate to his interests and the order in which they should be read.
2. To aid in locating information in the XVM/DOS manuals through the MASTER INDEX.
3. To inform the reader of the various Software Support Services provided by Digital.



CHAPTER 1
INTRODUCTION

XVM/DOS V1A000 is version 1 of the Disk Operating System software designed for the Digital Equipment Corporation (DEC) XVM and PDP-15 computer lines.

Version 1 of XVM/DOS software has a set of twenty-six manuals, some serve a general purpose and some are appropriate reading for only a small set of people. For each user to get the most from each manual, it is important that he understand where to look for particular kinds of information. This is described in Chapter 2, WHERE TO START.

The complete set of manuals, their order codes, and a synopsis of each appears in Chapter 3, WHAT EACH MANUAL CONTAINS.

Software Support Services are important to any user. As an aid to the user, Chapter 4 includes a chapter about the Software Support Services provided by Digital Equipment Corporation.

As a general guide to locating information in one or more of the XVM/DOS manuals the MASTER INDEX at the end of this document can be quite useful. In effect it is a combination of all the manual indexes with only the more important information retained. For learning to use XVM/DOS, Chapter 2 is more appropriate. Thereafter, for references about specific details about the system, the MASTER INDEX can be used.



CHAPTER 2

WHERE TO START

2.1 WHO ARE YOU?

Consider the six classes of user described below, and decide which category fits you best. These descriptions are not meant to be complete and there is bound to be some amount of overlap.

General Manager - At large user installations where numerous computer systems may exist, there may be general managers who can afford only a cursory knowledge of the software. They need to know what it is and what it can do.

System Manager - For each computer installation there is a technical manager who is responsible for its operation and upkeep. He receives the XVM/DOS software from DEC, installs it on his machine, customizes it, and then disseminates information to other users. He is responsible for contracting with DEC for hardware and software support services.

System Programmer - At some user sites the system manager will have a staff of programmers whose job it is to augment the DEC-supplied XVM/DOS software. There are four standard ways of doing this: (1) by adding software for general use which supports special peripheral equipment, (2) by creating new, general purpose utility programs which can be merged into the system, (3) by creating commonly used libraries of user subroutines, and (4) by augmenting the command language of the batch processing system.

Applications Programmer - In an oversimplification of the real world, system programs are tools used to create application programs. Application programs are products which produce the final results users want to see. The applications programmer needs to know what system tools are at his disposal to create his programs.

Computer Operator - XVM/DOS can be run as a batch processing system, which usually requires the presence of an operator to input card decks for processing, to handle line printer output, etc. The operator must know how to load and start a canned software system on the machine, how to execute system and user programs, how to control I/O equipment, and how to handle error recovery.

User - The end user of the software is often not a programmer and understands little of computers. He might for example be a laboratory technician who runs experiments with equipment monitored and controlled by the computer. He might be a manager whose only contact with the system is his daily printout of sales forecasts. If you the reader fall in this category, you are probably reading the wrong document. Your system manager should be consulted for information on how to use your installation's application software.

WHERE TO START

2.2 GUIDE TO APPLICABLE MANUALS

Table 2-1 lists all of the XVM/DOS manuals as they apply to different users. You may find after reading section 2.3 that you do not need all the manuals recommended in your category. For instance, if you choose to create application programs exclusively using the FOCAL language, you need not (among others) read the EDIT manual because FOCAL itself is an editor. Note in the table that application programmers have been divided into two categories; those who use the system in an on-line interactive mode (they sit at the computer console) and those who submit job card decks to be run by the BOSS (batch processor) operator.

Table 2-1
Guide to Applicable Manuals

| | | General Manager | System Manager | System Programmer | Interactive Programmer | Batch Processing Application | Computer Operator |
|----------------|--|-----------------|----------------|-------------------|------------------------|------------------------------|-------------------|
| | MANUALS | | | | | | |
| Concepts | XVM/DOS Users Manual DEC-XV-ODMAA-A-D | | X | X | X | X | X |
| | UC15 | X | X | X | X | | |
| | XVM/DOS System Manual DEC-XV-ODSAA-A-D | | | X | X | | |
| | BOSS/XVM Users Manual DEC-XV-OBUAA-A-D | X | X | X | X | | X |
| | | | | | | | |
| File Utilities | PIP XVM Utility Manual DEC-XV-UPPUA-A-D | | | X | X | X | X |
| | MTDUMP XVM Utility Manual DEC-XV-UNTUA-A-D | | | X | X | X | X |
| | | | | | | | |
| Languages | FORTTRAN IV Language Manual DEC-XV-LF4MA-A-D | | | | | X | X |
| | FORTTRAN IV Op. Env. Manual | | | | | X | X |
| | | | | | | | |
| | DEC-XV-LF4EA-A-D MACRO XVM Assembler Language Manual | | | X | X | X | X |
| | DEC-XV-LMALA-A-D MAC11 XVM Assembler Language Manual | | | X | X | | |
| | DEC-XV-LMLAA-A-D FOCAL XVM Language Manual | | | | | X | |
| | DEC-XV-LFLGA-A-D 8TRAN XVM Utility Manual | | | | | | |
| | DEC-XV-UTRNA-A-D | | | | X | | |
| | | | | | | | |
| | | | | | | | |

WHERE TO START

Table 2-1 (Cont.)
Guide to Applicable Manuals

| | | General Manager | System Manager | System Programmer | Batch Processing Application Programmer | Computer Operator | | |
|-------------------|--|-----------------|----------------|-------------------|---|-------------------|---|---|
| | MANUALS | | | | | | | |
| Editors | EDIT/EDITVP/EDITVT XVM Utility Manual DEC-XV-UETUA-A-D | | | X | X | X | | |
| Loaders | Linking Loader XVM Utility Manual DEC-XV-ULLUA-A-D Chain & XVM/Execute XVM Utility Manual DEC-XV-UCHNA-A-D | | | | X | X | | |
| Debuggers | DDT XVM Utility Manual DEC-XV-UDDTA-A-D SRCCOM XVM Utility Manual DEC-XV-USRCA-A-D | | | | X | X | | X |
| Graphics | VT15 XVM Graphics Software Manual DEC-XV-GVTAA-A-D VT15A XVM Graphics Software Manual DEC-XV-GVPAA-A-D | | | | | X | | X |
| Customization | Update XVM Utility Manual DEC-XV-UUPDA-A-D SGEN XVM Utility Manual DEC-XV-USUTA-A-D PATCH XVM Utility Manual DEC-XV-UPUMA-A-D XVM/DOS System Installation Manual DEC-XV-ODSIA-A-D | | | X | X | | | |
| General Reference | DOS KBD CND Guide DEC-XV-ODKBA-A-D XVM/DOS Users Guide and Master Index DEC-XV-ODGIA-A-D Software Dispatch Review XVM/DOS | | X | X | X | X | X | X |

2.3 READING GUIDE

The remainder of this chapter is a reading guide for those learning to use XVM/DOS software. It is based on the highly divergent needs of the users described in section 2.1.

2.3.1 General Manager

The manager who is interested in an overview of the software system should begin with Chapters 1 through 4 of the XVM/DOS Users Manual. Chapter 1 describes significant operating system features, the software and the hardware. Chapter 2 gives a synopsis of each major system utility program. Chapters 3 and 4, which are at a more technical level, describe basic system concepts such as the monitor, data structures, input/output processing and file structures.

The XVM UNICHANNEL Software Manual is relevant to installations with UNICHANNEL hardware. Chapter 1 is introductory and covers both software and hardware components.

Read Chapters 1 through 4 of the BOSS XVM Users Manual, if a card-oriented batch processing system is of interest. Chapter 1 introduces BOSS software features; Chapter 2, card conventions; Chapter 3, system hardware; and Chapter 4, details of software features such as file structures and accounting files.

2.3.2 System Manager

The system manager should eventually read all of the XVM/DOS manuals so that he can consult with all users of the system. At the beginning, however, his primary interest is to get the software installed and running on his machine.

First, he should read about basic system concepts, the hardware environment, and the software tools provided. These are covered in the following manuals: XVM/DOS Users Manual, XVM/DOS System Manual, XVM UNICHANNEL Software Manual, and BOSS XVM Users Manual. From these he will become aware of operating procedures at the monitor level, error processing and recovery, and basic assembly language interfaces to the system.

Next, the system manager should know how to create programs and manipulate data files in the interactive DOS environment. The EDIT/EDITVP/EDITVT XVM Utility Manual explains how source programs are created and modified on-line. Most XVM/DOS software modules are written in assembly language and the system manager must know how to perform conditional assemblies with these programs. The MACRO XVM Assembler Language Manual, from an operational viewpoint, is necessary reading. The MAC11 XVM Assembler Language Manual is required only for customers with UNICHANNEL hardware. To manipulate I/O devices and perform file transfer functions, the manager must become thoroughly familiar with the PIP XVM Utility Manual and (for users with magnetic tape) The MTDUMP XVM Utility Manual. Part of the system installation procedures call for the use of the Linking Loader; the operating procedures are discussed in a section of the XVM/DOS Keyboard Command Guide.

Finally, the system manager needs to be aware of how the software is supplied, how to install it, and customize it. The XVM/DOS System Installation Guide describes how the software is packaged by DIGITAL

WHERE TO START

and the steps which must be followed to install the software on a customer's machine. The procedures vary according to the media on which the software is distributed (DEctape versus magtape), the hardware configuration and the software options desired. An important part of the customizing process is done using the system generator program described in the SGEN XVM Utility Manual. Ancillary to the system generator is a program called SPLGEN used to generate space on a cartridge disk for the UNICHANNEL spooler. The use of SPLGEN is covered in the System Installation Guide.

For building and modifying general purpose subroutine libraries, read the UPDATE XVM Utility Manual. To install programs into the system, you will need to use programs such as PATCH, MACIMG and SPLIMG. The latter two are used on systems with UNICHANNEL hardware and are described in the System Installation Guide. The first is covered in the PATCH XVM Utility Manual. Once a thorough knowledge of the use of the several utility programs is obtained, the XVM/DOS Keyboard Command Guide will be a valuable quick reference pocket guide to operating procedures.

After a working system has been built and a backup copy saved on tape, the XVM/DOS checkout procedures should be run as a test of basic system integrity. This is described in Appendix G of the XVM/DOS Users Manual. The successful running of the checkout package could be used as part of the software acceptance criteria.

2.3.3 System Programmer

The learning process for the system programmer is similar to that of the system manager. All the manuals listed as relevant for the system manager, with the exception of the XVM/DOS System Installation Guide, are also used by the system programmer. Whereas the system manager is mostly concerned with software concepts and operating procedures, the system programmer concentrates, in addition, on programming conventions and program development tools.

To begin with, the basics of the system should be learned by reading the XVM/DOS Users Manual and the XVM/DOS System Manual. Rereading the latter will certainly be necessary after hands-on familiarity with the software is gained. Chapter 7 describes how the user can write I/O device handlers for special customer peripheral equipment. The remainder of the manual contains flow charts and diagrams of the major system components and information tables.

If the installation has UNICHANNEL hardware, the XVM Unichannel Software Manual is basic reading. In addition to giving an overview of the hardware and software components, the manual also describes the detailed theory of operation of the PDP-11 PIREX monitor, I/O drivers, and spooler, as well as how to write your own drivers and spoolers.

The BOSS XVM Users Manual is another basic system level manual which should be read if your installation will run card-oriented batch processing. The BOSS command language is implemented in a set of source level, easily modified and augmented procedure files. The creation of new procedure files, described in the manual, is another role of the system programmer.

Here it is assumed that system programming is done almost entirely in assembler language. For the 18-bit machines, (XVM and PDP-15) read the MACRO XVM Assembler Language Manual. If there is a UNICHANNEL (16 bit) front-end processor on the 18-bit machine, read the MAC11 XVM Assembler Language Manual too. There is one additional language

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consideration. If there are programs written in PDP-8 assembler language which you wish to convert to run on an XVM or PDP-15, the information is in the 8TRAN XVM Utility Manual. Note, however, that none of the XVM/DOS software requires the use of 8TRAN.

Program source preparation is normally performed on-line through the use of an interactive editor described in the EDIT/EDITVP/EDITVT XVM Utility Manual. Program and data file manipulation are covered in the PIP XVM Utility Manual. Two methods of user program loading and execution are the subjects of the LINKING LOADER XVM Utility Manual and the CHAIN XVM/EXECUTE XVM Utility Manual. The Linking Loader manual gives details about the structure of relocatable binary program files, which are created by both the FORTRAN and MACRO language processors and which are accepted input for the Linking Loader, CHAIN, the Task Builder (which is a component of RSX software systems) and .SYSLD (the DOS System Loader).

Often-used system utility programs are stored on disk in core-image form and can be executed simply by typing their names to the monitor (e.g., MACRO) and do not require explicitly calling a loader. The result is a fast response time. System programmers can create their own "system" programs (subject to restrictions mentioned in the PATCH manual listed below). Written as relocatable binary modules, the programs can be run by the Linking Loader and debugged with the use of an on-line debugging program described in the DDT XVM Utility Manual. Once the program is working well, it can be installed as a core-image system program. Space on the disk and a program attribute table is reserved by the SGEN program (read the SGEN XVM Utility Manual), and the relocatable binary file is converted into core image form and stored in the disk space reserved by SGEN by the PATCH program (read the PATCH XVM Utility Manual).

Part of the software supplied with XVM/DOS is a file containing close to a hundred subroutines which constitute the FORTRAN arithmetic and science library as well as the FORTRAN Object Time System (OTS). Mechanisms exist in the binary output of the language processors to ask the loaders to find particular routines in a library file and to load and link them with the user program. In addition to the DEC-supplied system library, there can exist a user library, one presumably maintained by a system programmer. The program used to create user libraries is covered in the UPDATE XVM Utility Manual.

Additional debugging aids are UDMP XVM, QDMP XVM and DUMP XVM for dumping core memory onto DECTape or line printer (see the XVM/DOS Keyboard Command Guide) and a program to compare two source files and list differences (see the SRCCOM XVM Utility Manual). The Keyboard Command Guide is a pocket reference guide to the operating and error recovery procedures of the system utility programs. It is very useful once an understanding of each program is gained by reading the individual utility manuals.

Five sanctioned methods of system modification have been described:

1. System tailoring by using SGEN
2. Creation of new device I/O handlers
3. Creation of core-image "system" programs
4. Creation of new BOSS procedure files to augment the command language
5. Creation of user subroutine libraries

2.3.4 Applications Programmer

The applications programmer uses an existing software system as a tool. Some customers run their systems entirely in a batch processing mode. This means that the applications programmer gets no hands-on use of the machine; rather, he submits job card decks to the computer operator and later picks up the results (printouts). Other installations run completely in an interactive mode, which means that the programmer creates and tests his programs by directly controlling the system from the console keyboard of the machine. There are different learning processes for each of these modes of operation as is described below.

2.3.4.1 Interactive Applications Development - The interactive user should first study the basics of XVM/DOS by reading the XVM/DOS Users Manual. This manual describes what services the monitor performs, how input/output programming is accomplished at the assembler language level, how the file structures are used on disk and tape and what forms executable programs may take. He will learn how to load and to start the system and how to control it by giving commands to the monitor from the console keyboard. A good deal of information is given about the functional characteristics of the DIGITAL-supported I/O devices, which all users should know.

The most generally used utility programs in DOS are PIP and MTDUMP (the latter used only for magnetic tape). They are used to initialize I/O devices (for example, to create or clear a tape directory) and to transfer program and data files from one device to another. Read the PIP XVM Utility Manual and the MTDUMP XVM Utility Manual.

Next a choice of implementation language must be made. FORTRAN is the most often used, because of its universality in the computer industry and ease of program implementation. It is described in the FORTRAN IV XVM Language Manual and the FORTRAN IV XVM Operating Environment Manual. There is also the MACRO XVM Assembler Language Manual which explains how to program in assembly language for the XVM or PDP-15 (18-bit) computers. Assembly language offers the programmer more freedom in structuring code, and often requires less core and compute time to run than would a comparable FORTRAN program. On the negative side, it takes longer to write programs, there is more room for error and the programs are written in a language which is probably not understood by any other class of machine and hence are not transportable. It is possible to write FORTRAN main programs which call MACRO language subroutines. The MACRO subroutines must conform to the FORTRAN protocol covered in the FORTRAN IV XVM Operating Environment Manual. A third choice of language is FOCAL. It is an easy language to learn (on a par with FORTRAN). Unlike FORTRAN and MACRO, FOCAL is an interpreter and does not generate binary code from source code which must later be linked and loaded. It has the advantage that programs can be created, run, and modified all under control of the FOCAL utility program. This program implementation is simple and fast compared with the others. However, FOCAL is a language unique to DIGITAL and thus not universal. Read the FOCAL XVM Language Manual.

Program creation can be performed off-line (prepared on cards); however, in an interactive system, most programs are created and modified with a program called the EDITOR (see EDIT/EDITVP/EDITVT XVM Utility Manual). FOCAL programs, however are created using FOCAL (see the FOCAL XVM Language Manual).

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FORTRAN and MACRO program execution is covered in the LINKING LOADER XVM Utility Manual and the CHAIN XVM/EXECUTE XVM Utility Manual. The former is a load-and-go facility; the latter builds an intermediate execute file and gives the capability of building programs with core overlays to achieve the effect of a much larger machine. FOCAL programs are loaded and executed by the FOCAL utility program.

The following debugging aids exist. For programs loaded using the Linking Loader, an on-line interactive debugging program can be used (see the DDT XVM Utility Manual). DDT is not normally used by the FORTRAN programmer because its use requires a knowledge of the machine language output generated by the compiler. Sometimes it is useful to compare two source files and to list their differences. This is described in the SRCCOM XVM Utility Manual. Three core dumping utilities, UDMP XVM, QDMP XVM, and DUMP XVM, are explained in the XVM/DOS Keyboard Command Guide.

Two additional manuals are available for the FORTRAN or MACRO programmer who needs to generate pictures or text to be displayed on the VP15A storage scope or the VT15 graphics display. The relevant manuals are the VP15A XVM Graphics Software Manual and the VT15 XVM Graphics Software Manual.

Once the user has gained a working knowledge of the various utility programs, the XVM/DOS Keyboard Command Guide, a pocket reference guide, will be invaluable for looking up operating and error recovery procedures.

2.3.4.2 Batch Processing Applications Development - The primary document for applications programmers who use DOS as a batch processing system is the BOSS XVM Users Manual. It describes enough of the DOS concepts (for example, the disk file structure) so that a reading of the XVM/DOS Users Manual is not necessary except to learn in more depth the operating system capabilities. Assuming that BOSS is run by a computer operator, the applications programmer need only concentrate on learning card format conventions and JOB control commands.

The most generally used utility programs in DOS are PIP and MTDUMP (the latter used only for magnetic tape). They are used to initialize I/O devices (for example, to create or clear a tape directory) and to transfer program and data files from one device to another. Read the PIP XVM Utility Manual and the MTDUMP XVM Utility Manual. Most of the PIP information is also covered in the BOSS XVM Users Manual and many PIP commands are directly implemented in the batch command language.

As in the case of the interactive applications programmers, a choice of implementation language must be made. The most often used, because of its universality in the computer industry and ease of program implementation is FORTRAN, described in the FORTRAN IV XVM Language Manual and the FORTRAN IV Operating Environment Manual. There is also the MACRO XVM Assembler Language Manual which explains how to program in assembly language for the XVM or PDP-15 (18-bit) computers. Assembly language offers the programmer more freedom in structuring code, and often requires less core and compute time to run than would a comparable FORTRAN program. On the negative side, it takes longer to write programs, there is more room for error and the programs are written in a language which is probably not understood by any other class of machine and hence are not transportable. It is possible to write FORTRAN main programs which call MACRO language subroutines. The MACRO subroutines must conform to the FORTRAN protocol covered in the FORTRAN IV XVM Operating Environment Manual.

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Program and data preparation is normally done off-line on a card punch. BOSS has a line editing feature, explained in Chapter 5 of the BOSS XVM Users Manual, which permits the user to create a new file on disk from data cards or to edit an existing disk file by inserting or substituting data on cards and by deleting unwanted lines.

The loading and execution of FORTRAN and MACRO user programs is controlled by the programs described in the CHAIN XVM/EXECUTE XVM Utility Manual. CHAIN builds an intermediate execute file, which can be a single core load or which may have multiple overlays to achieve the effect of a much larger machine.

For off-line debugging, BOSS provides commands to dump core memory and to list it on a line printer. The commands are described in Chapter 6 of the BOSS XVM Users Manual. There also exists a command to compare two source files and list their differences. The program which performs this function is described in the SRCCOM XVM Utility Manual.

Once the user has gained a working knowledge of the various utility programs, the XVM/DOS Keyboard Command Guide, a pocket reference guide, will be invaluable for referencing operating and error recovery procedures.

2.3.5 Computer Operator

The operator of the batch processing system does not need to know how to program the computer but does need to know what the monitor and system utility programs do and must be able to call them into execution. The two manuals to be read first are the XVM/DOS Users Manual and the BOSS XVM Users Manual. The first describes the system features and the hardware/software environment. The loading and operating procedures are covered in Chapters 7 through 10 and information about system error messages appear in the appendices. Chapters 5 and 6 can be disregarded because they relate solely to programming. All of the BOSS manual should be read even though there may be some of the same information as in the DOS manual. Chapter 2 covers the card format conventions; Chapter 5, the syntax of the BOSS command language; Chapter 6, the control commands; and Chapter 7, the operating procedures.

References are made throughout the BOSS Users Manual to the several DOS utility program manuals. Actually, the operating and error recovery procedures are described equally well in the XVM/DOS Keyboard Command Guide. There are two utility programs which should be studied in depth. Read the PIP XVM Utility Manual and, if the system has magtape, the MTDUMP XVM Utility Manual. They explain how to initialize I/O devices and how to transfer program and data files from one device to another.



CHAPTER 3

WHAT EACH MANUAL CONTAINS

Below is a list of all the XVM/DOS V1A000 manuals with a brief synopsis of the function of each. In parentheses following the manual title is the order code (i.e., DEC-XX-XXXXX-X-D), which is an identification number to be used when ordering additional copies.

General System Concepts Manuals

XVM/DOS Users Manual (DEC-XV-ODMAA-A-D)

This manual describes the features of DOS and the basic programming concepts and operating procedures of the system.

BOS XVM Users Manual (DEC-XV-OBUAA-A-D)

This is the principal document for the batch processing system. It encompasses system features, concepts, command language and operating procedures.

XVM UNICHANNEL Software Manual (DEC-XV-XUSMA-A-D)

The UNICHANNEL front end hardware is used primarily for I/O device support to XVM and PDP-15 computer systems. This manual describes the hardware and software components, operating procedures, and program design theory so that the customer may implement support for other I/O devices.

XVM/DOS System Manual (DEC-XV-ODSAA-A-D)

Detailed flowcharts showing operation of major components of DOS and BOSS and an explanation of the structure of vital system information blocks and tables are given. Also shown are instructions for writing new I/O device handlers.

File Utilities Manuals

PIP XVM Utility Manual (DEC-XV-UPPUA-A-D)

This manual describes and illustrates the features provided by the XVM Utility program DOSPIP. This utility program operates only within the XVM Disk Operating System (DOS) monitor environment.

PIP is a general-purpose system utility program used to initialize devices and to transfer program and data files from one device to another.

WHAT EACH MANUAL CONTAINS

MTDUMP XVM Utility Manual (DEC-XV-UMTUA-A-D)

The operation and use of the Magnetic Tape DUMP utility program within the XVM Advanced Monitor environment is described in this manual.

MTDUMP is a system utility program designed to manipulate and display data on directoried and non-directoried magtape. MTDUMP provides for magtape functions not implemented in PIP.

Language Manuals

FORTTRAN IV XVM Language Manual (DEC-XV-LF4MA-A-D)

This manual describes the elements of the FORTRAN IV language supported by XVM/DOS.

FORTTRAN IV XVM Operating Environment Manual (DEC-XV-LF4EA-A-D)

The FORTRAN compiler and Object Time System (OTS) routines for XVM/DOS are explained in this manual. It contains both programming information and operating procedures.

MACRO XVM Assembler Language Manual (DEC-XV-LMALA-A-D)

This manual explains how to write a program in MACRO XVM assembler language and how to operate the assembler. MACRO programs run on XVM or PDP-15 (18-bit) computers.

MAC11 XVM Assembler Language Manual (DEC-XV-LMLAA-A-D)

This manual describes the elements of programming in MAC11 assembler language designed for UNICHANNEL (16-bit) computers. Also included are operating procedures of the assembler itself.

FOCAL XVM Language Manual (DEC-XV-LFLGA-A-D)

The FOCAL language and operating procedures for the FOCAL interpreter are described in this manual.

8TRAN XVM Utility Manual (DEC-XV-UTRNA-A-D)

The operation and use of the DOS/XVM Utility Program 8TRAN is described in this manual.

PDP-8 assembler language programs can be converted to MACRO XVM assembler language format using the 8TRAN utility program described in this manual.

Editor Manual

EDIT/EDITVP/EDITVT XVM Utility Manual (DEC-XV-UETUA-A-D)

Creation and modification of program and data files can be performed with one of three editing utility programs described in this manual. EDIT is used on a teletypewriter, EDITVP can be used also with a VPl5A storage scope, and EDITVT can be used with a VT15 graphic display.

WHAT EACH MANUAL CONTAINS

Loader Manuals

LINKING LOADER XVM Utility Manual (DEC-XV-ULLUA-A-D)

This manual describes the structure of relocatable binary files (the output of FORTRAN IV XVM and MACRO XVM) and library files, which is relevant to the Linking Loader, CHAIN, .SYSLD, UPDATE and (in RSX systems) the Task Builder utility programs. Also described are the procedures for operating the Linking Loader, which loads binary programs directly into core memory for execution.

CHAIN XVM/EXECUTE XVM Utility Manual (DEC-XV-UCHNA-A-D)

This manual describes the operation of two utility programs, CHAIN and EXECUTE. CHAIN builds executable program files on disk which can then be quickly loaded and run by EXECUTE. CHAINED programs may consist of a single core load or may have multiple overlays.

Debugging Program Manuals

DDT XVM Utility Manual (DEC-XV-UDDTA-A-D)

DDT is an on-line, interactive debugging program used in conjunction with programs run by the Linking Loader. This manual describes its operation.

SRCCOM XVM Utility Manual (DEC-XV-USRCA-A-D)

This manual describes the operation of the SRCCOM utility program which is used to compare two source files and to print their differences.

Graphics Programming Manuals

VT15 XVM Graphics Software Manual (DEC-XV-GVTAA-A-D)

This manual describes the Digital XVM VT15 Graphics Subprogram Package and is primarily concerned with those display subroutines and calling user programs employed to exhibit information and communicate with the computer. VT15 generates display commands that allow the user to define display elements and direct the linking, displaying and deleting of those elements.

VP15A XVM Graphics Software Manual (DEC-XV-GVPAA-A-D)

The VP15A Graphics Software Manual consists of an I/O device handler program, several subprograms, and an ASCII text line editing program. The purpose of this software is to provide the user with a simplified means for programming the VP15A Storage Tube Display System by eliminating the need for detailed familiarity with the hardware.

System Customization Manuals

UPDATE XVM Utility Manual (DEC-XV-UUPDA-A-D)

This manual describes the operation and use of the UPDATE Utility Program. The UPDATE Program provides users with the ability to create, examine and revise the binary library files of the XVM/DOS and Background/Foreground Monitor System.

WHAT EACH MANUAL CONTAINS

SGEN XVM Utility Manual (DEC-XV-USUTA-A-D)

This manual describes the XVM/15 System Generator Utility Program, DOSGEN, and gives other information needed by the system manager for installation and maintenance of the XVM/DOS system.

PATCH XVM Utility Manual (DEC-XV-UPUMA-A-D)

This manual describes the operation and use of the PATCH Utility program. The PATCH utility program enables the user to view and modify system programs and data on specific device data blocks.

XVM/DOS System Installation Guide (DEC-XV-ODSIA-A-D)

This manual is a getting-on-the-air document aiding the user in building a system for installation.

General Reference Manuals

XVM/DOS Keyboard Command Guide (DEC-XV-ODKBA-A-D)

This is a quick reference, pocket guide to the operating and error recovery procedures of the monitor and the system utility programs.

XVM/DOS User's Guide And Master Index (DEC-XV-ODGIA-A-D)

This is the starting point for all users of XVM/DOS software. Its purpose is to introduce the reader to the set of manuals available with XVM/DOS and guide the user to those manuals applicable. Also included is a Master Index to aid in locating information in the XVM/DOS manuals.

Software Dispatch Review: XVM/DOS

This is a monthly publication intended for the DIGITAL software user. It publishes new and revised software announcements, programming notes, software problems and solutions, patches and documentation corrections.

CHAPTER 4

SOURCES OF SOFTWARE INFORMATION

4.1 SUBSCRIPTION SERVICES

The Software Maintenance Service provides support packages for the XVM/DOS Software. There are two levels of support available, each with a fixed annual price.

4.2 SOFTWARE PROBLEMS

Any questions or problems relating to DIGITAL's Software should be reported as follows:

North and South American Submitters:

Upon completion of the Software Performance Report (SPR) form, remove the last copy and send the remainder to:

Software Communications
P.O. Box F
Maynard, Massachusetts 01754

An acknowledgement copy will be returned along with a blank SPR form upon receipt. The acknowledgement will contain a DIGITAL assigned SPR number. The SPR number or the preprinted number should be referenced in any future correspondence. Additional SPR forms may be obtained from the above address.

All International Submitters:

Upon completion of the SPR form, reserve the last copy and send the remainder to the SPR Center in the nearest DIGITAL office. SPR forms are also available from our SPR Centers.

4.3 PROGRAMS AND MANUALS

Software and manuals should be ordered by title and order number. In the United States, send orders to the nearest distribution center.

Digital Equipment Corporation
Software Distribution Center
146 Main Street
Maynard, Massachusetts 01754

Digital Equipment Corporation
Software Distribution Center
1400 Terra Bella
Mountain View, California 94043

Outside of the United States, orders should be directed to the nearest Digital Field Sales Office or representative.

SOURCES OF SOFTWARE INFORMATION

4.4 USERS SOCIETY

DECUS, Digital Equipment Computers Users Society, maintains a user exchange center for user-written programs and technical application information. The Library contains approximately 1,900 programs for all DIGITAL computer lines. Executive routines, editors, debuggers, special functions, games, maintenance and various other classes of programs are available.

DECUS Program Library Catalogs are routinely updated and contain lists and abstracts of all programs according to computer line:

- . PDP-8, FOCAL-8, BASIC-8, PDP-12
- . PDP-7/9, 9, 15
- . PDP-11, RSTS-11
- . PDP-6/10, 10

Forms and information on acquiring and submitting programs to the DECUS Library may be obtained from the DECUS office.

In addition to the catalogs, DECUS also publishes the following:

- DECUSCOPE -The Society's bi-monthly bulletin aimed at disseminating news items concerning the Society. Circulation reached 22,000 in May, 1975.
- PROCEEDINGS OF THE DIGITAL EQUIPMENT USERS SOCIETY -Contains technical papers presented at DECUS Symposia held twice a year in the United States, once a year in Europe, Australia, and Canada.
- MINUTES OF THE DECsystem-10 SESSIONS -A report of the DECsystem-10 sessions held at the two United States DECUS Symposia.
- COPY-N-Mail -A monthly mailed communique among DECsystem-10 users.
- LUG/SIG -Mailing of Local User Group (LUG) and Special Interest Group (SIG) communique, aimed at providing closer communication among users of a specific product or application.

Further information on the DECUS Library, publications, and other DECUS activities is available from the DECUS offices listed below:

| | |
|---|--|
| Europe: | Australia and New Zealand: |
| DECUS Executive Secretary Digital Equipment Corporation Corporation 81 Route de L'Aire 1227 Carouge/Geneva 2065 Switzerland | DECUS Executive Secretary Digital Equipment P.O. Box 491 Crows Nest, New South Wales Australia |

ALL OTHERS:

DECUS
Digital Equipment Corporation
Main Street/PK3-1/E55
Maynard, Massachusetts 01754
USA

SOURCES OF SOFTWARE INFORMATION

4.5 SOFTWARE SUPPORT PEOPLE IN THE FIELD

In case of software problems, call your branch office. They will give you the name of the Software specialist in your area. Call your area specialist and describe the problem. The specialist will either answer your question immediately or return your call within a matter of days. If the problem is complex, the specialist will refer it to the Home Office Software Support Service in Marlboro, Massachusetts. The Home Office will in turn contact you directly or through your area specialist. Alternately, they may suggest that you complete a Software Performance Report (SPR).

If the software problem is one that demands immediate attention, refer it to the Customer HOTLINE service (refer to paragraph 4.6).

4.6 PDP-15 CUSTOMER HOTLINE

The HOTLINE is a new customer service established by the PDP-15 Marketing group. If there are software problems that demand immediate attention and you are having trouble contacting your software specialist, you can call either (617) 481-9511, extension 6789, or (617) 897-5111, extension 81-6789. Your questions will be answered promptly, usually within 24 hours. If your call is not during normal business hours, an answering service will take your message, and your call will be returned on the next working day.

CHAPTER 5

INDEXES

Two indexes covering the entire group of XVM/DOS manuals will help you find information on specific topics.

The XVM/DOS Master Index (Section 5.2) refers to pages containing general discussions of the listed topics. Some topics are so completely discussed in one manual that reference to individual page numbers is not practical. In such cases, the references lack page numbers. For detailed references, use the index at the back of the indicated manual.

The Index to XVM/DOS Program and Listing Examples (Section 5.3) generally represents those examples that are one page or more in length. Many shorter examples occur throughout the XVM/DOS manuals.

The format of entries for each index is:

Topic, MNEMONIC page

Example:

Control cards, BOSS 5-5

Interpretation:

Page 5-5 of the BOSS XVM User's Manual discusses control cards.

The list in Section 5.1 shows the mnemonic associated with each manual.

5.1 MNEMONICS USED IN MASTER INDEX

| <u>Mnemonic</u> | <u>Manual Title</u> |
|-----------------|--|
| BOSS | BOSS XVM USER'S MANUAL |
| CHAIN | CHAIN XVM/EXECUTE XVM UTILITY MANUAL |
| DDT | DDT XVM UTILITY MANUAL |
| EDIT | EDIT/EDITVP/EDITVT XVM UTILITY MANUAL |
| STRAN | STRAN XVM UTILITY MANUAL |
| FOCAL | FOCAL XVM LANGUAGE MANUAL |
| FORTLA | FORTRAN IV XVM LANGUAGE MANUAL |
| FORTOP | FORTRAN IV XVM OPERATING ENVIRONMENT MANUAL |
| LINK | LINKING LOADER XVM UTILITY MANUAL |
| MAC11 | MAC11 XVM ASSEMBLER LANGUAGE MANUAL |
| MACRO | MACRO XVM ASSEMBLER LANGUAGE MANUAL |
| MTDUMP | MTDUMP XVM UTILITY MANUAL |
| PATCH | PATCH XVM UTILITY MANUAL |
| PIP | PIP XVM UTILITY MANUAL |
| SGEN | SGEN XVM UTILITY MANUAL |
| SRCCOM | SRCCOM XVM UTILITY MANUAL |
| UPDATE | UPDATE XVM UTILITY MANUAL |
| VP15A | VP15A XVM GRAPHICS SOFTWARE MANUAL |
| VT15 | VT15 XVM GRAPHICS SOFTWARE MANUAL |
| DOSSYS | XVM/DOS SYSTEM MANUAL |
| DOSUSR | XVM/DOS USERS MANUAL |
| DOSV1A | XVM/DOS V1A SYSTEM INSTALLATION GUIDE |
| UNISOF | XVM UNICHANNEL SOFTWARE MANUAL |

5.2 MASTER INDEX TO ALL XVM/DOS MANUALS

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