ETOS

Version 5B

SYSTEM MANAGER'S GUIDE

PREFACE

Certain functions must be performed by the person responsible for the operation of an ETOS system. These include stopping, starting, and backing up the system. Some of these functions could be dangerous to system validity if performed by users, for instance, the deletion of all files in the common area. Consequently, this guide should not be distributed to users.

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CHAPTER 1
ETOS SYSTEM ORGANIZATION

1.1 INTRODUCTION

This chapter is the first ETOS documentation you should read after the release notes. It explains some of the requirements and philosophy of the ETOS product. It also provides a comprehensive list of the licensed software which ETOS includes. This chapter should be understood before proceeding to Chapter 2. It is a basis for the entire system. No actual installation work is to be performed in this chapter. It is strictly a document to familiarize you with ETOS. The detailed installation is explained in Chapter 2.

1.2 HARDWARE REQUIREMENTS

QUODATA supports the following minimum configuration for ETOS Version 5B

PDP-8/E, 8/F, 8/M or 8/A
TSC8-75, time share control board
16K words of memory (32K words recommended)
DK8-EA, DK8-EC, DK8-EP or DKC8-AA clock
RK8E disk controller with one RK05 drive or
System Industries 30/40 controller with Diablo 44 disk drive
or Western Dynex 6000 disk drive
backup medium (disk, DECtape, etc.)
console terminal

LA180, LP05 or LP08 line printers, line printers interfaced to a DKC8-AA, KL8E, KL8JA or LS8E interface, OM200 or TM200 card readers, and almost any variety of terminal are supported by non-privileged (ETOS) OS/8 device handlers.

TD8E DECtapes, TCØ8 DECtapes, PT8E high speed reader/punch and RXØ1 floppy disk are supported by privileged (ETOS) OS/8 device handlers.

LA18Ø, LPØ5 or LPØ8 line printers, line printers interfaced to a DKC8-AA, KL8E, KL8JA or LS8E interface, OM2ØØ or TM2ØØ card readers, and almost any variety of terminal are supported by non-privileged COS device handlers.

The RXØ1 floppy disk is supported by a privileged COS device handler.

1.3 DISK LAYOUT

ETOS is distributed on an RKØ5J or a removable System Industries compatible disk pack. ETOS can be run from an RKØ5 (F or J) pack or a fixed System Industries compatible disk pack.

The RKØ5F is equivalent to two RKØ5J drives and each RKØ5F is treated by the software as two drives. If one RKØ5F exists on the system, it is configured as drive Ø and 1. If two RKØ5F drives exist, they are configured as drive Ø and 1 and drive 2 and 3. A maximum of four RKØ5J drives (two RKØ5F drives) may be installed on the system for a total of 12.8 megabytes of storage.

The Western Dynex 6ØØØ disk drive is compatible with the Diablo 44B drive. A maximum of two Western Dynex drives can be installed on the system for a total of 26.Ø megabytes.

ETOS does not support a mix of RKØ5 and Western Dynex drives on the same system. Any transfer of files between the two types of drives must be performed under single user OS/8.

1.3.1 Layout For RKØ5 Disks

An RKØ5J disk drive utilizes a sixteen sector per track disk pack. Each pack contains 4Ø6 tracks (2Ø3 cylinders) for a total of 6496 (base 1Ø or 14540 base 8) sectors (blocks). Since each sector contains 256 12-bit words (512 characters), there is a total of 1,662,976 12 bit words (3,325,952 6 bit characters) on one disk pack. The transfer rate for this disk is 1.44 million bits per second. The rotational speed is 15ØØ RPM and the average latency is 2Ø MS. The ETOS software supports up to four RKØ5J disk drives, each containing a removable cartridge. The industry designation for this type of front-loading cartridge is a "2315" pack.

The pack which is used as an ETOS system disk has a dual identity in the sense that it can be used both in OS/8 single-user mode and ETOS mode. The ETOS monitor is loaded and executed via the R command of OS/8; that is, ETOS.SV is an executable program from OS/8. The ETOS pack is therefore booted with the standard OS/8 RK8E bootstrap (see 2.2). This bootstrap is identical to the standard COS RK8E bootstrap.

The ETOS cartridge is logically different from standard RKØ5 cartridges in the following ways.

1. The OS/8 single user monitor has device handlers built into it which are unique to the ETOS system. This monitor should not be copied to other standard OS/8 packs.

   Copies of the resources (RES/E) for both the real OS/8 and the virtual OS/8 are provided in Table 1-1. In real OS/8, the SYS and DSK handlers are modified RKØ5 system handlers and the remaining handlers are the standard OS/8 device handlers. In virtual OS/8, all device handlers have been modified for maximum efficiency under ETOS.

   If the device handlers for your peripherals are not enabled, you must run BUILD under OS/8 and ETOS to

enable them (see 6.4.1). The peripherals currently enabled under OS/8 are RK05J disk drives 0 and 1, TD8E DECtape drive 0, console terminal, low-speed paper tape reader/punch, high speed paper tape reader/punch, line printer and card reader. The peripherals currently enabled under ETOS OS/8 are the write-protected system area, channels 2-5, TD8E DECtape drive 0, RX01 floppy disk drives 0 and 1, user terminals, low speed paper tape reader/punch, line printer, spooler and card reader.

2. In virtual OS/8, the OS/8 CUSPs (Commonly Used System Programs) have been modified for use under ETOS. For this reason, the standard OS/8 CUSPs should never replace these programs. The operational differences between the standard OS/8 cusps and their ETOS versions are presented in 4.3, System User's Guide.

3. Standard OS/8 logically divides an RK8E/RK05 disk into two devices. Drive zero, then has available devices RKA0 and RKB0; drive one has RKA1 and RKB1, etc. Each RK05 has 14,540 (base 8) or 6496 (base 10) sectors (blocks). Blocks 0 through 6257 (base 8) are used for RKA0 (SYS) and blocks 6260 (base 8) through 14,537 (base 8) are for RKB0. The disk allocation for standard OS/8 is shown in Table 1-2.

The ETOS RK05 system disk allocation (see Table 1-3) differs in that there is no single user accessibility beyond block 1177 (base 8). In single user mode, the ETOS disk appears to the user to have 1200 (base 8) blocks, all allocated to the logical device SYS.

Under OS/8, the only difference between the allocation of system and non-system disks is that blocks 7 through 70 are used for file storage.

Under ETOS, non-system disks may be standard OS/8 or COS packs (private packs). If multi-user access on the pack is desired, an ETOS format (public) pack is used. The disk allocation for an ETOS public pack is shown in Table 1-4.

Table 1-1
RK05 Resources

Real OS/8

```
.RESOURCES ETOSOS.SY/E
#  NAME TYPE MODE SIZ  BLK KIND U V  ENT   USER
01 SYS  40   RWF      SYS      0 B   07
02 DSK  40   RWF      SYS      0 B   07
03 RKB0 RK8E RWF 3248 16  RK05 0 A   21
04 RKA1 RK8E RWF 3248 16  RK05 1 A   22
05 RKB1 RK8E RWF 3248 16  RK05 1 A   23
06 RXA0 RX8E RWF  494 17          E   30
07 RXA1 RX8E RWF  494 17          E   34
10 DTA0 TD8E RWF  737 20+ TD8A 0 D   10
11 CDR  CR8E R        21+ 029     C   00
12 HSP  PTP  W        22  PT8E    A   00
13 HSR  PTR  R        22  PT8E    A  112
14 TTY  TTY  RW       23+ KL8E    E  176
15 PTP  PTP  W        24  KS33    A   00
16 PTP  PTP  R        24  KS33    A  110
17 LPT  LPT  W        25  LPSV    C   05

FREE DEVICE SLOTS:  NONE,  FREE BLOCK SLOTS:  NONE
OS/8 V3Q
.
```

Virtual OS/8

```
.RESOURCES ETOSET.SY/E
#  NAME TYPE MODE SIZ  BLK KIND U V  ENT   USER
01 SYS  40   RWF      SYS      0 D   07
02 DSK  42   RWF      SYS      1     11
03 CHN2 42   RWF      SYS      1     11
04 CHN3 43   RWF      SYS      1     12
05 CHN4 44   RWF      SYS      1     13
06 CHN5 45   RWF      SYS      1     14
07 RXA0 RX8E RWF 494  16          C   30
10 RXA1 RX8E RWF 494  16          C   34
11 DTA0 TD8E RWF 737  17+ TD8A 0 B   10
12 LPT  LPTR W        20  LPSV    B   03
13 PTP  PTP  W        21  KS33    A   00
14 PTR  PTR  R        21  KS33    A  106
15 QLP  LPTR W        22+ LQP     B   00
16 TTY  TTY  RW       23+ KL8E    E  176
17 CDR  CR8E R        24+ 029     C   00

FREE DEVICE SLOTS: NONE, FREE BLOCK SLOTS: 01
OS/8 V3Q
.
```

Table 1-2
OS/8 RKØ5 System Disk Allocation

Blocks (base 8)	Use
Ø	Bootstrap
1-6	Directory of RKAØ (SYS)
7-7Ø	OS/8 Monitor
71-6257	RKAØ File Storage [3192 (base 1Ø) blocks]
6260	Unused
6261-6266	Directory of RKBØ
6267-14537	RKBØ File Storage [3241 (base 1Ø) blocks]

Table 1-3
ETOS RK05 System Disk Allocation

Blocks (base 8)	Use
0	Stand-alone OS/8 boostrap
1-6	Directory of stand-alone SYS
7-67	OS/8 Monitor (This copy is a standard OS/8 Version 3 monitor with special device handlers for use under ETOS.)
70-1177	Stand-alone OS/8 file storage. Under ETOS, this area is referred to as the ETOS file OS8.OS8 under account [0,2].
1200	Master file directory. This directory consists of a list of user accounts and pointers to those accounts. This list is contained in the account [0,1] with an initial password of "PASSWORD".
1201	Map for the Master file directory (MFD).
1202	Map for the operator's user file directory [0,3].
1203	Map for the library account [0,2].
1204-1205	Operator's user file directory.
1206	Library's user file directory.
1207	Map for virtual OS/8 ([0,2]OS8.RTS.
1210-1220	LOGIN program ([0,2]LOGIN.SAV).
1221-1260	List of available blocks on the disk. This list is contained in the ETOS file [0,2]FREEBLO.CKS.
1261-1277	Free blocks for ETOS files.

Table 1-3 (continued)

Blocks (base 8)	Use
1300-n	Free blocks for line printer spooling and account storage. The size of this region is dependent on the response to the question "NUMBER OF SWAP TRACKS?" in the SYSGEN option. On a standard distribution pack, this area extends from block 1300 (base 8) to block 3015 (base 8).
n+1-6237	Swap tracks for all users. The size of this region is dependent on the response to the question "NUMBER OF SWAP TRACKS?" in the SYSGEN question. The number of blocks in this file is equal to the (number of swap tracks plus four) multiplied by thirty-two. The swap tracks are contained in the ETOS file [0,2]SWAPTRA.CKS.
6240-6327	Virtual OS/8 system head [0,2]OS8.RTS. Under ETOS, this area is public and accessible by all users as a read-only device. Privileged users have write capabilities. This area may be REDUCEd (see 5.8).
6330-6357	System scratch blocks for job number 3 ([0,3]JOB03.SBK).
6360-6407	System scratch blocks for job number 4 ([0,3]JOB04.SBK).
6410-6437	System scratch blocks for job number 5 ([0,3]JOB05.SBK).
6440-7077	System scratch blocks for jobs 6 - 21.
7100-7127	System scratch blocks for job number 22 ([0,3]JOB22.SBK).
7130-12337	Remainder of virtual OS/8 (blocks 70-3277).
12340-14537	Free blocks for ETOS files.

6496_{10} blocks.

IN CONFIGURATION OF 8/13 APPROX 3600_{10} BLOCKS FREE FOR ETOS FILES.

Table 1-4
ETOS RKØ5 Public Disk Allocation

Blocks (base 8)	Use
Ø	Unused for ETOS. Contains routine which prints "PUBLIC PACK CANNOT BE BOOTED" if pack is attempted to be used as a system pack.
1	Master file directory. This directory consists of a list of user accounts and pointers to these accounts. This list is contained in the account [Ø,1] with an initial password of "PASSWORD".
2	Map for the Master file directory (MFD).
3	Map for the library account [Ø,2].
4	Library's user file directory.
5-44	List of available blocks on the disk. This list is contained in the ETOS file [Ø,2]FREEBLO.CKS.
45-14537	Free blocks for ETOS files.

6496_{10} blocks

4460_{10} free blocks for files

1.3.2 Layout For System Industries Disks

A System Industries (S.I.) drive utilizes one fixed and one removable disk pack of equal length. The packs contain sixteen sectors per track. Each pack contains 816 tracks (408 cylinders) for a total of 13,056 (base 10 or 31400 base 8) sectors (blocks). Since each sector contains 256 12-bit words (512 characters), there is a total of 3,342,336 12-bit words (6,684,672 6-bit characters) on one disk pack. The transfer rate for this disk is 2.500 million bits per second. The rotational speed is 2400 RPM and the average latency is 12.5 MS. The ETOS software supports up to two System Industries drives, each containing one fixed and one removable cartridge. The industry designation for the removable top-loading cartridge is a "2340" pack.

ETOS is distributed on a removable pack and copied onto the fixed pack in port 0 for operation of the system. After this copy, the fixed disk has a dual identity in the sense that it can be used in both OS/8 single-user mode and ETOS mode. The ETOS monitor is loaded and executed via the R command of OS/8; that is, ETOS.SV is an executable program from OS/8. The fixed pack is therefore booted with the standard OS/8 System Industries bootstrap (see 2.3).

The ETOS cartridge is logically different from standard System Industries cartridges in the following ways.

1. The OS/8 single user monitor has device handlers built into it which are unique to the ETOS system. This monitor should <u>not</u> be copied onto standard OS/8 packs.

   Copies of the resources (RES/E) for both the real OS/8 and the virtual OS/8 are provided in Table 1-5. In real OS/8, the SYS and DSK handlers are modified System Industries system handlers and the remaining handlers are the standard OS/8 device handlers. In virtual OS/8, all device handlers have been modified for maximum efficiency under ETOS.

If the device handlers for your peripherals are not enabled, you must run BUILD under OS/8 and ETOS to enable them (see 6.4.1). The peripherals currently enabled under OS/8 are the fixed and removable packs in port Ø, RKØ5J drive Ø, console terminal, low-speed paper tape reader/punch, RXØ1 floppy disk drives Ø and 1, line printer and card reader. The peripherals currently enabled under ETOS OS/8 are the write-protected system area, channels 2-5, TD8E DECtape drive Ø, RXØ1 floppy disk drives Ø and 1, user terminals, low speed paper tape reader/punch, line printer, spooler and card reader.

2. In virtual OS/8 the OS/8 CUSPs (Commonly Used System Programs) have been modified use under ETOS. For this reason, the standard OS/8 cusps should never replace these programs. The differences between standard OS/8 cusps and their ETOS versions are presented in 4.3, System User's Guide.

3. Standard OS/8 logically divides a System Industries disk into four devices. The fixed pack in port Ø has available devices DSKØ, DSK1, DSK2 and DSK3; the removable pack in port Ø has available devices DSK4, DSK5, DSK6 and DSK 7. Each System Industries pack has 32Ø54 (base 8) or 13,Ø56 (base 1Ø) sectors (blocks). The disk allocation for standard OS/8 is shown in Table 1-6.

The ETOS disk allocation (see Table 1-7) differs in that there is no single user accessibility beyond block 1177 (base 8). In single user mode, the ETOS disk appears to the user to have 12ØØ (base 8) blocks, all allocated as the logical system device (SYS).

Table 1-5
System Industries Resources

Real OS/8

```
.RESOURCES ETOSOS.SY/E
#  NAME TYPE MODE SIZ  BLK KIND U V  ENT   USER
Ø1 SYS  4Ø   RWF      SYS      Ø B   Ø7
Ø2 DSK  4Ø   RWF      SYS      Ø B   Ø7
Ø3 RKBØ RK8E RWF 3248 16  RKØ5 Ø A   21
Ø4 RKA1 RK8E RWF 3248 16  RKØ5 1 A   22
Ø5 RKB1 RK8E RWF 3248 16  RKØ5 1 A   23
Ø6 RXAØ RX8E RWF  494 17          E   3Ø
Ø7 RXA1 RX8E RWF  494 17          E   34
1Ø DTAØ TD8E RWF  737 2Ø+ TD8A Ø D   1Ø
11 CDR  CR8E R        21+ Ø29     C   ØØ
12 HSP  PTP  W        22  PT8E    A   ØØ
13 HSR  PTR  R        22  PT8E    A  112
14 TTY  TTY  RW       23+ KL8E    E  176
15 PTP  PTP  W        24  KS33    A   ØØ
16 PTP  PTP  R        24  KS33    A  11Ø
17 LPT  LPT  W        25  LPSV    C   Ø5

FREE DEVICE SLOTS:  NONE,  FREE BLOCK SLOTS:  NONE
OS/8 V3Q
```

VIRTUAL OS/8

```
.RESOURCES ETOSET.SY/E
#  NAME TYPE MODE SIZ  BLK KIND U V  ENT   USER
Ø1 SYS  4Ø   RWF      SYS      Ø D   Ø7
Ø2 DSK  42   RWF      SYS      1     11
Ø3 CHN2 42   RWF      SYS      1     11
Ø4 CHN3 43   RWF      SYS      1     12
Ø5 CHN4 44   RWF      SYS      1     13
Ø6 CHN5 45   RWF      SYS      1     14
Ø7 RXAØ RX8E RWF 494  16          C   3Ø
1Ø RXA1 RX8E RWF 494  16          C   34
11 DTAØ TD8E RWF 737  17+ TD8A Ø B   1Ø
12 LPT  LPTR W        2Ø  LPSV    B   Ø3
13 PTP  PTP  W        21  KS33    A   ØØ
14 PTR  PTR  R        21  KS33    A  1Ø6
15 QLP  LPTR W        22+ LQP     B   ØØ
16 TTY  TTY  RW       23+ KL8E    E  176
17 CDR  CR8E R        24+ Ø29     C   ØØ

FREE DEVICE SLOTS: NONE, FREE BLOCK SLOTS: Ø1
OS/8 V3Q
```

Table 1-6
OS/8 S.I. System Disk Allocation

Blocks	Use
0	Bootstrap
1-6	Directory of DSK0 (SYS)
7-70	OS/8 monitor
71-6257	DSK0 file storage [3192 (base 10) blocks]
6260-6277	Unused
6300	Unused
6301-6306	Directory of DSK1
6307-14557	DSK1 file storage [3241 (base 10) blocks]
14560-14577	Unused
14600	Unused
14601-14606	Directory of DSK2
14607-23057	DSK2 file storage [3241 (base 10) blocks]
23060-23077	Unused
23100	Unused
23101-23106	Directory of DSK3
23107-31357	DSK3 file storage [3241 (base 10) blocks]
31360-31377	Unused

Table 1-7
ETOS S.I. System Disk Allocation

Blocks (base 8)	Use
0	Stand-alone OS/8 bootstrap
1-6	Directory of stand-alone SYS
7-67	OS/8 Monitor (This copy is a standard OS/8 Version 3 monitor with special device handlers for use with ETOS.)
70-1177	Stand-alone OS/8 file storage. Under ETOS, this area is referred to as the ETOS file OS8.OS8 under account [0,2].
1200	Master file directory. This directory consists of a list of user accounts and pointers to those accounts. This list is contained in the account [0,1] with an initial password of "PASSWORD".
1201	Map for the Master File Directory (MFD).
1202	Map for the operator's user file directory [0,3].
1203	Map for the library account [0,2].
1204-1205	Operator's user file directory [0,3].
1206	Library user file directory [0,2].
1207	Map for virtual OS/8 ([0,2]OS8.RTS).
1210-1220	LOGIN program [0,2]LOGIN.SAV.
1221-1260	List of available blocks on the disk. This list is contained in the ETOS file [0,2]FREEBLO.CKS.
1261-1277	Free blocks for ETOS files.
1300-n	Free blocks for line printer spooling and account storage. The size of this region is dependent on the response to the question "NUMBER OF SWAP TRACKS?" in the SYSGEN option. On a standard distribution pack, this area extends from block 1300 (base 8) to block 3015 (base 8).

Table 1-7 (continued)

Blocks (base 8)	Use
n+1-6237	Swap tracks for all users. The size of this region is dependent on the response to the question "NUMBER OF SWAP TRACKS?" in the SYSGEN question. The number of blocks in this file is equal to the (number of swap tracks plus four) multiplied by thirty-two. The swap tracks are contained in the ETOS file [0,2]SWAPTRA.CKS.
6240-6327	Virtual OS/8 system head [0,2]OS8.RTS. Under ETOS, this area is public and accessible by all users as a read-only device. Privileged users have write capabilities. This area may be REDUCEd (see 5.8).
6330-6357	System scratch blocks for job number 3 ([0,3]JOB03.SBK).
6360-6407	System scratch blocks for job number 4 ([0,3]JOB04.SBK).
6410-6437	System scratch blocks for job number 5 ([0,3]JOB05.SBK).
6440-7077	System scratch blocks for jobs 6 - 21.
7100-7127	System scratch blocks for job number 22 ([0,3]JOB22.SBK).
7130-12337	Remainder of virtual OS/8 (blocks 70-3277).
12340-31377	Free blocks for ETOS files.

Table 1-8
ETOS S.I. Public Disk Allocation

Blocks (base 8)	Use
Ø	Unused.
1	Master file directory. This directory consists of a list of user accounts and pointers to these accounts. This list is contained in the account [Ø,1] with an initial password of "PASSWORD".
2	Map for the Master file directory (MFD).
3	Map for the library account [Ø,2].
4	Library's user file directory.
5-44	List of available blocks on the disk. This list is contained in the ETOS file [Ø,2]FREEBLO.CKS.
45-31377	Free blocks for ETOS files.

1.4 MEMORY LAYOUT

The first 4K words (field Ø) of the main memory is occupied by the resident monitor (RMON). RMON controls the operation of the total system. It is the heart of the monitor in the sense that nothing can function without it.

The second 4K words (field 1) of memory is used primarily for system tables and free core. Free core is composed of buffers which are dynamically used by the monitor to transfer data to and from user programs and devices.

Any remaining memory is used for user programs. An additional 8K, at least, must be available for the monitor to run the disk monitor (DMON) and the command processor (SCALE) nonresident monitor programs. There is an eight word core table which determines whether or not a field is available for use. This table can be set up by the user via the CONFIG program (see 3.8).

1.5 MONITOR LAYOUT

The monitor consists of four basic segments: RMON, KMON, DMON and SYSGEN. RMON is the resident monitor which occupies field Ø and 1 at all times. KMON is the keyboard monitor (SCALE) which is swapped into memory when needed. DMON is the disk monitor which is swapped into memory when needed. SYSGEN is utilized only when the initial ETOS option "Sysgen" is chosen. RMON and KMON are loaded together into a core image file. DMON is loaded into a second core image file. SYSGEN is loaded into a third core image file. These three core image files are merged with the "/I" option in PIP to create the monitor file ETOS.SV. The layout of this 165 block (base 8) or 118 block (base 1Ø) file is contained in Table 1-7.

Table 1-9
ETOS Monitor Layout

Blocks (base 8)	Use
Ø	Core control block for RMON, KMON core image file
1-2Ø	Field 1 of KMON (field 3 of RMON, KMON)
21-4Ø	Field Ø of KMON (field 2 of RMON, KMON)
41-6Ø	Field 1 of RMON and Initializer (field 1 of RMON, KMON)
61-1ØØ	Field Ø of RMON (field Ø of RMON, KMON)
1Ø1	Core control block for DMON core image file
1Ø2-121	Field 1 of DMON
122-141	Field Ø of DMON
142	Core control block for SYSGEN core image file
143-164	Field 3 of SYSGEN

1.6 REAL AND VIRTUAL OS/8

When the user first bootstraps the system, he is running in stand-alone mode. This is referred to as real OS/8. The CUSPs in this disk area are mostly unmodified OS/8 CUSPs. This area contains 1200 (base 8) blocks. It can be used to perform functions not supported under ETOS (i.e., formatting tapes). It may also be used to transfer programs to and from devices not supported under ETOS. If you want to transfer a program from cassette to ETOS, transfer the program to stand-alone OS/8. You then would start ETOS and transfer the program from real OS/8 to virtual OS/8 (see 5.13.6). Under stand-alone mode, real OS/8 is accessed as SYS. A copy of the real OS/8 system head is contained in the stand-alone file ETOSOS.SY. Under ETOS it is accessed as [0,2]OS8.OS8. The files distributed under stand-alone OS/8 are listed in Table 1-10.

Table 1-10
Stand-alone OS/8 Files

File Name	Group Name And Use	Documented In Manual	Manual Section
ABSLDR.SV	PAL8 ASSEMBLER. Loads binary programs into memory.	OS/8 Handbook	Page 1-108
BACKUP.SV	ETOS CUSP. Backs up system disk onto non-disk medium.	ETOS Mgr's Guide	2.5.3
BATCH.SV	OS/8 Extension Kit. Processes OS/8 or SCALE Commands from an OS/8 file.	OS/8 Handbook	Page 2-1

Table 1-10 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
BOOT.SV	OS/8 CUSP. Boots stand-alone OS/8 on various peripherals.	OS/8 Handbook	Page 2-32
BUILD.SV	OS/8 CUSP. Changes active device handlers in stand-alone OS/8 system head.	OS/8 Handbook or ETOS Mgr's Guide	Page 2-34 6.4.1
CCL.SV	OS/8 CUSP. Concise command language which extends stand-alone OS/8 command structure.	OS/8 Handbook	Page 1-52
CDUMP.SV	ETOS CUSP. Prints crash dump for problem diagnosis.	ETOS Mgr's Guide	8.7
CONFIG.SV	ETOS CUSP. Configures ETOS for your hardware.	ETOS Mgr's Guide	Chapter 3
CREF.SV	OS/8 CUSP. Cross references PAL8 and SABR source code.	OS/8 Handbook	Page 2-69
DIRECT.SV	OS/8 CUSP. Lists directories of OS/8 peripherals.	OS/8 Handbook	Page 2-77
DTCOPY.SV	OS/8 CUSP. Copies TC08 DECtapes.	Maintenance TC08 DECtape Copy Documentation	
DTFRMT.SV	OS/8 CUSP. Formats TC08 DECtapes.	Maintenance TC08 DECtape Formatter Documentation	
EDIT.SV	OS/8 CUSP Creates ASCII files for use with COBOL, FORTRAN II, FORTRAN IV or PAL8.	OS/8 Handbook	Page 1-78

Table 1-10 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
EPIC.SV	OS/8 CUSP. General purpose utility which compares, punches and modifies OS/8 mass storage.	OS/8 Handbook	Page 2-83
ETOS.SV	ETOS MONITOR. Controls time-sharing.	ETOS User's Guide ETOS Mgr's Guide	
ETOSET.SY	VIRTUAL OS/8. OS/8 system head modified for ETOS.	ETOS Mgr's Guide	1.6
ETOSOS.SY	REAL OS/8. Stand-alone OS/8 system head for use with ETOS.	ETOS Mgr's Guide	1.6
FOTP.SV	OS/8 CUSP. Copies OS/8 files from one peripheral to another.	OS/8 Handbook	Page 2-97
FUTIL.SV	OS/8 CUSP. General purpose utility which enables you to examine and modify the contents of mass storage devices.	OS/8 Handbook Update	Appendix K
HELP.HL	OS/8 FILE. ASCII file which contains all HELP messages.	OS/8 Handbook Update	Page 11
HELP.SV	OS/8 CUSP. Prints HELP messages from HELP.HL file.	OS/8 Handbook Update	Page 11
INIT.CM	OS/8 FILE. Contains command executed when stand-alone OS/8 is bootstrapped and SET SYS INIT is enabled.	OS/8 Handbook Update	J.4.1

Table 1-10 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
PAL8.SV	PAL 8 ASSEMBLER. Assembles absolute machine language code.	OS/8 Handbook	Chapter 3
PIP.SV	OS/8 CUSP. Transfers programs and system heads from one peripheral to another.	OS/8 Handbook	Page 1-97
RESORC.SV	OS/8 CUSP. Prints active device handlers in the stand-alone OS/8 system head.	OS/8 Handbook	Page 2-121
RKCOPY.SV	ETOS CUSP. Copies one RK05 disk pack to another RK05 disk pack.	ETOS Mgr's Guide	2.5.1
RKLFMT.SV	OS/8 CUSP. Formats RK05 disk packs.	ETOS Mgr's Guide	2.4.1
RXCOPY.SV	OS/8 CUSP. Copies one RX01 diskette to another RX01 diskette.	OS/8 Handbook Update	Appendix I
SET.SV	OS/8 CUSP. Sets OS/8 device attributes.	OS/8 Handbook Update	Appendix J
SICOPY.SV	ETOS CUSP. Copies one System Industries disk pack to another System Industries disk pack.	ETOS Mgr's Guide	2.5.2
TDCOPY.SV	OS/8 CUSP. Copies one TD8E DECtape to another TD8E DECtape.	Maintenance TD8E DECtape Copy documentation	

Table 1-10 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
TDFRMT.SV	OS/8 CUSP. Formats TD8E DECtapes.	Maintenance TD8E DECtape Formatter documentation	
TSC8.SV	ETOS CUSP. Diagnoses ETOS board (TSC8-75) for possible errors.	ETOS Mgr's Guide	2.11
XDDT.SV	ETOS CUSP. Allows on-line debugging of ETOS monitor.	ETOS Mgr's Guide	8.8
3040.SV	SYSTEM INDUSTRIES CUSP. Diagnoses System Industries disk drives and formats System Industries packs.	System Industries Controller Manual	

A list of stand-alone OS/8 files, segmented by group name, is contained in Table 1-11.

Table 1-11
Stand-alone OS/8 Groups

Group Name	File Names
ETOS CUSP	BACKUP.SV, CDUMP.SV, CONFIG.SV, RKCOPY.SV, SICOPY.SV, TSC8.SV, XDDT.SV
ETOS MONITOR	ETOS.SV
ETOS OS/8	ETOSET.SY
OS/8 CUSP	BOOT.SV, BUILD.SV, CCL.SV, CREF.SV, DIRECT.SV, DTCOPY.SV, DTFRMT.SV, EDIT.SV, EPIC.SV, FOTP.SV, FUTIL.SV, HELP.SV, PIP.SV, RESORC.SV, RKLFMT.SV, RXCOPY.SV, SET.SV, TDCOPY.SV, TDFRMT.SV
OS/8 FILE	HELP.HL, INIT.CM
PAL8 ASSEMBLER	ABSLDR.SV, PAL8.SV
REAL OS/8	ETOSOS.SY
SYSTEM INDUSTRIES CUSPS	3040.SV

Most of the programs on the stand-alone system area are the same for all users. However, there are three files which differ for users of different types of system disks: ETOS.SV, ETOSOS.SY, and BUILD.SV. The ETOS monitor ETOS.SV contains the timesharing system disk driver. The stand-alone OS/8 system and the file ETOSOS.SY which contains a copy of the stand-alone head have different system device handlers for different disks. BUILD.SV contains different system handlers and auxiliary handlers for different types of disks.

When you LOGIN to ETOS, you are running in a multi-user environment. This is referred to as virtual OS/8. The CUSPs in the system area are OS/8 CUSPs which have been modified for ETOS and special ETOS CUSPs. The differences between the virtual OS/8

CUSPS and the stand-alone OS/8 cusps are listed in 4.3, ETOS User's Guide. Virtual SYS is a public area, accessible to all users. Under ETOS, this area is read or written on by accessing it as SYS or [0,2]OS8.RTS. A copy of the virtual OS/8 system head is contained in the stand-alone file ETOSET.SY.

The files distributed under virtual OS/8 are listed in Table 1-12. Your system contains only the software which you have a license for.

X = delete from working copy.

Table 1-12
Virtual OS/8 Files

File Name	Group Name And Use	Documented In Manual	Manual Section
ABSLDR.SV	PAL8 ASSEMBLER. Loads binary programs into memory.	OS/8 Handbook	Page 1-108
ACCNT.SV	ETOS CUSP. Creates, renames, lists ETOS files (accounts and account storage).	ETOS Mgr's Guide	Chapter 5
X ALGOP1.BA	EB BASIC DEMONSTRATION. Demonstration BASIC program, which drills students on algebraic operations.	Starter Kit Listing	
X BASIC.SV	EB BASIC. QUODATA's extended BASIC editor, compiler and run-time system.	EDUCOMP BASIC Manual	
BATCH.SV	OS/8 EXTENSION KIT. Processes OS/8 or SCALE commands from an OS/8 file.	OS/8 Handbook	Page 2-1
BITMAP.SV	PAL8 ASSEMBLER. Prints map of all memory locations used by a binary program.	OS/8 Handbook	Page 2-26
BREAK.CS	VIRTUAL COS. Discussed in section 1.7.	ETOS User's Guide.	5.6
X BUILD.CS	VIRTUAL COS Discussed in Section 1.7.	COS300/310 System Reference Manual	Chapter 6

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
BUILD.SV	OS/8 CUSP. Changes active device handlers in virtual OS/8 system head.	OS/8 Handbook and ETOS Mgr's Guide	Page 2-34 6.4.1
CBASIC.OV	COMMERCIAL BASIC. Contains arithmetic file and string functions for the run-time system.	OS/78 User's Manual Update #1	Chapter 6
CBASIC.SV	COMMERCIAL BASIC. Allows creation and editing of BASIC programs.	OS/78 User's Manual Update #1	Chapter 6
CBCOMP.SV	COMMERCIAL BASIC. Compiles BASIC Source program into pseudo-compiled code.	OS/78 User's Manual Update #1	Chapter 6
CBLOAD.SV	COMMERCIAL BASIC. Loads pseudo-compiled programs into memory.	OS/78 User's Manual Update #1	Chapter 6
CBRTS.SV	COMMERCIAL BASIC. Runs pseudo-compiled programs.	OS/78 User's Manual Update #1	Chapter 6
CCL.SV	OS/8 CUSP. Concise command language which extends virtual OS/8 command structure.	OS/8 Handbook	Page 1-52
COBOL.HE	COBOL/8. Header file inserted in each COBOL-generated SABR source file.	COBOL Manual Addendum	
COBOL.SV	COBOL/8. Pre-compiler program which creates stripped source program DSK:SOURCE.DA from input program.	COBOL Manual or COBOL Manual Addendum	

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
COBOLA.SV	COBOL/8. First pass of COBOL compiler, which accepts DSK:SOURCE.DA as input from COBOL.SV and generates DSK:COBOLA.DA.	COBOL Manual Addendum	
COBOL1.SV	COBOL/8. Last pass of COBOL compiler. Accepts DSK:COBOLA.DA and generates SABR source program DSK:COBOLP.DA. COBOL1 chains to SYS:SABR.SV which completes the compilation.	COBOL Manual Addendum	
COBOL8.RL	COBOL/8. Library containing arithmetic functions called by COBOL programs.	COBOL Manual Addendum	
COBOL9.RL	COBOL/8. Library containing file functions called by COBOL programs.	COBOL Manual Addendum	
COMP.CS	VIRTUAL COS. Discussed in Section 1.7.	COS300/310 System Reference Manual	Chapter 4
CONVEX.CS	VIRTUAL COS. Discussed in Section 1.7.	COS300/310 System Reference Manual	
COSBLD.SV	ETOS CUSP. Builds ETOS COS into a user's account storage area.	ETOS Mgr's Guide	5.5.2
COSBO.SV	ETOS CUSP. Boots ETOS COS user account from OS/8.	ETOS User's Guide	5.1

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
COSOS8.QB	QBOL UTILITY. Compiled QBOL program, which converts COS data files to QBOL data files.	QBOL Manual	Chapter 7
COSOS8.QS	QBOL UTILITY. Source version of COSOS8.QB.	QBOL Manual	Chapter 7
CREF.CS	VIRTUAL COS. Discussed in section 1.7.	COS 300/310 System Reference Manual	Chapter 14
CREF.SV	OS/8 CUSP. Cross references PAL8 and SABR source code.	OS/8 Handbook	Page 2-69
DAFT.CS	VIRTUAL COS. Discussed in section 1.7.	COS 300/310 System Reference Manual	Chapter 11
DEMOPY.CO	COBOL/8 DEMONSTRATION. Demonstration COBOL payroll program.	COBOL Manual	Sample Program #3
DFDIR.CS	VIRTUAL COS. Discussed in section 1.7.	COS 300/310 System	Chapter 17
DIBOLQ.QB	QBOL UTILITY. Compiled QBOL program which converts COS programs to QBOL programs.	QBOL Manual	Chapter 8
DIBOLQ.QS	QBOL UTILITY. Source version of DIBOLQ.QB.	QBOL Manual	Chapter 8
DIPLO.BA	EB BASIC DEMONSTRATION. Simulation of Mid-East diplomatic crisis.	Starter Kit Listing	

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
DIRECT.SV	OS/8 CUSP. Lists directories of OS/8 peripherals	OS/8 Handbook	Page 2-77
DKCOPY.SV	ETOS CUSP. Allows on-line backup of ETOS system disk.	ETOS Mgr's Guide	6.6
DSKINT.SV	ETOS CUSP. Creates ETOS public packs for auxiliary account storage.	ETOS Mgr's Guide	5.11
EBARD.BA	EB BASIC DEMONSTRATION. Generates random poetry.	Starter Kit Listing	
EDIT.SV	OS/8 CUSP. Creates ASCII files for use with COBOL, FORTRAN II, FORTRAN IV or PAL8.	OS/8 Handbook	Page 1-78
EPIC.SV	OS/8 CUSP. General purpose utility which compares, punches and modifies OS/8 mass storage.	OS/8 Handbook	Page 2-83
ERRCPY.SV	ETOS CUSP. Prints all RK05 disk errors which have occurred since previous run of the program.	ETOS Mgr's Guide	8.4.1
EVOLU.BA	EB BASIC DEMONSTRATION. Simulation of environmental effects of evolution.	Starter Kit Listing	
FOCAL.SV	FOCAL. ETOS version of FOCAL language.	ETOS Mgr's Guide	5.16.1

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
FORLIB.RL	FORTRAN IV. Library routines called by FORTRAN IV programs.	OS/8 Handbook	Page 8-40
FORT.SV	FORTRAN II. Compiles FORTRAN II programs into SABR source code.	OS/8 Handbook	Chapter 7
FOTP.SV	OS/8 CUSP. Copies OS/8 files from one peripheral to another.	OS/8 Handbook	Page 2-97
FREE.SV	ETOS CUSP. Prints physical locations of free blocks in ETOS directory.	ETOS Mgr's Guide	8.6
FRTS.SV	FORTRAN IV. Runs pseudo-compiled FORTRAN IV programs and sets device assignments.	OS/8 Handbook	Page 8-31
FTBALL.BA	EB BASIC DEMONSTRATION. Allows user to simulate football game with the computer.	Starter Kit Listing	
FUTIL.SV	OS/8 CUSP. General purpose utility which enables you to examine and modify the contents of mass storage devices.	OS/8 Handbook	Appendix K
F4.SV	FORTRAN IV. Compiles FORTRAN IV programs into intermediate code and builds a symbol table. Chains to PASS2.SV.	OS/8 Handbook	Chapter 8

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
GOLF.BA	EB BASIC DEMONSTRATION. Allows user to simulate golf game with the computer.	Starter Kit Listing	
HELP.HL	OS/8 FILE. ASCII file which contains all HELP messages.	OS/8 Handbook Update	Page 11
HELP.SV	OS/8 CUSP. Prints HELP messages from HELP.HL file.	OS/8 Handbook Update	Page 11
HORS.BA	EB BASIC DEMONSTRATION Allows user to simulate horse race with the computer.	Starter Kit Listing	
INIT.SV	ETOS CUSP. Initializes system time and date.	ETOS Mgr's Guide	4.6
INPUT1.DA	COBOL/8 DEMONSTRATION. File containing sample data for DEMOPY.CO sample payroll program.	COBOL Manual	Sample Program #3
INQUIR.SV	ETOS CUSP. Prints status of all ETOS channels.	ETOS User's Guide	4.8
KBASET.SV	SORT/8. Sets up sort parameters from an ASCII file.	SORT/8 Manual	Chapter 4
KINERV.BA	EB BASIC DEMONSTRATION. Simulates kinetic energy experiments.	Starter Kit Listing	
KREF.SV	MACREL ASSEMBLER. Prints cross reference of MACREL source code.	MACREL User's Guide	

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
KRETRV.SV	SORT/8. Retrieves records via sorted key file to create sorted 8-bit output file.	SORT/8 Manual	3.1.3
KSETUP.BA	SORT/8. EB BASIC program which creates ASCII parameter file input to KBASET.SV.	SORT/8 Manual	Chapter 4
KSETUP.SV	SORT/8. Sets up sort parameters from the terminal.	SORT/8 Manual	3.1.1
KSHUFL.SV	SORT/8. Merges sorted key files to create one sorted key file.	SORT/8 Manual	3.1.3
KSORT.SV	SORT/8. Creates sorted key files from 8-bit ASCII file and sort parameters.	SORT/8 Manual	3.1.2
LIBRA.SV	RALF ASSEMBLER. Creates or modifies a library of routines (e.g., FORLIB.RL) from the relocatable output of RALF.	OS/8 Handbook	Page 8-41
LIBSET.SV	SABR. Creates or modifies a library of routines (e.g. LIB8.RL) from the relocatable binary output of SABR.	OS/8 Handbook	Page 4-68
LIB8.RL	FORTRAN II. System library of functions called by FORTRAN II programs.	OS/8 Handbook	Page 4-68

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
LINCHG.CS	VIRTUAL COS. Discussed in section 1.7.	COS 300/310 System Reference Manual	Chapter 16
LINK.SV	MACREL ASSEMBLER. Links relocatable binary modules in memory.	MACREL User's Guide	
LOAD.SV	RALF ASSEMBLER. Loads RALF relocatable assembler programs into memory.	OS/8 Handbook	Page 8-20
LOADER.SV	SABR. Loads SABR relocatable assembler programs into memory.	OS/8 Handbook	Page 4-62
LOGIN.SV	ETOS Monitor. Transferred to ETOS if LOGIN processor corrupted.	ETOS Mgr's Guide	5.12.3
LOOKUP.SV	ETOS CUSP. Facilitates accessing of ETOS files (e.g., public pack, multiple OS/8 disks)	ETOS Mgr's Guide	5.14
MACREL.SV	MACREL ASSEMBLER. PDP8 relocatable MACRO assembler.	MACREL User's Guide	
MOO.BA	EB BASIC DEMONSTRATION Simulates logic game identical to commercially produced MASTERMIND game.	Starter Kit Listing	
OBASIC.AF	OS/8 BASIC. Arithmetic functions for the runtime system.	OS/8 Handbook	Page 6-72

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
OBASIC.FF	OS/8 BASIC. File functions for the run-time system.	OS/8 Handbook	Page 6-72
OBASIC.SF	OS/8 BASIC. String functions for the run-time system.	OS/8 Handbook	Page 6-72
OBASIC.SV	OS/8 BASIC. Allows creation and editing of BASIC programs.	OS/8 Handbook	Chapter 6
OBASIC.UF	OS/8 BASIC. User-written functions for the run-time system.	OS/8 Handbook	Page 6-72
OBCOMP.SV	OS/8 BASIC. Compiles BASIC source program into pseudo-compiled code.	OS/8 Handbook	Page 6-72
OBLOAD.SV	OS/8 BASIC. Loads pseudo-compiled programs into memory.	OS/8 Handbook	Page 6-72
OBRTS.SV	OS/8 BASIC. Runs pseudo-compiled programs.	OS/8 Handbook	Page 6-72
OS8BO.CS	VIRTUAL COS. Discussed in section 1.7.	ETOS User's Guide.	5.1
OVRDRV.MA	MACREL ASSEMBLER. Source module which is assembled with your program if you are using MACREL overlay structure.	MACREL User's Guide.	
PAL8.SV	PAL8 ASSEMBLER. PDP/8 absolute assembler.	OS/8 Handbook	Chapter 3

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
PASS2.SV	FORTRAN IV. Second pass of FORTRAN IV compiler. Completes translation of FORTRAN IV into RALF code.	OS/8 Handbook	Page 8-3
PASS20.SV	FORTRAN IV. Generates source listing of RALF code generated by FORTRAN IV compiler.	OS/8 Handbook	Page 8-3
PASS3.SV	Final pass of FORTRAN IV compiler.	OS/8 Handbook	Page 8-3
PATCH.CS	VIRTUAL COS. Discussed in section 1.6.	COS300/310 System Reference Manual	Chapter 10
PAY.BA	EB BASIC DEMONSTRATION Prints sample payroll checks.	Starter Kit Listing	
PIP.CS	VIRTUAL COS. Discussed in section 1.7.	COS300/310 System Reference Manual	Chapter 5
PIP.SV	OS/8 CUSP. Transfers programs and system heads from one peripheral to another.	OS/8 Handbook	Page 1-97
PRINT.CS	VIRTUAL COS. Discussed in section 1.7.	COS300/310 System Reference Manual	Chapter 15
P2ZZZZ.CB	QBOL. Prints cross reference of QBOL source program.	QBOL Manual	D-2
P3ZZZZ.CB	QBOL. Second pass of QBOL compiler.	QBOL Manual	D-2

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
P4ZZZZ.CB	QBOL. Third pass of QBOL compiler.	QBOL Manual	D-2
P5ZZZZ.CB	QBOL. Fourth pass of QBOL compiler.	QBOL Manual	D-2
P6ZZZZ.CB	QBOL. Last pass of QBOL compiler.	QBOL Manual	D-2
P7ZZZZ.CB	QBOL. Prints map of QBOL pseudo-compiled code.	QBOL Manual	D-2
P8ZZZZ.CB	QBOL. Prints object listing of QBOL pseudo-compiled code.	QBOL Manual	D-2
P9ZZZZ.CB	QBOL. Loads pseudo-compiled QBOL code into memory.	QBOL Manual	D-2
QBOL.SV	QBOL. Runs pseudo-compiled QBOL programs or dispatches to compiler.	QBOL Manual	
QBOLCM.CB	QBOL. First pass of QBOL compiler. Parses source code into inter-mediate code.	QBOL Manual	D-2
QUBIC.BA	EB BASIC DEMONSTRATION Allows user to play three-dimensional tic tac toe against the computer.	Starter Kit Listing	

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
RALF.SV	RALF ASSEMBLER. Relocatable assembler for use with FORTRAN IV and other user programs.	OS/8 Handbook	Chapter 5
RESORC.SV	OS/8 CUSP. Prints active device handlers in the virtual OS/8 system head.	OS/8 Handbook	Page 2-121
RUNOFF.SV	RUNOFF. Allows text processing of ASCII files.	ETOS Mgr's Guide	5.16.1
SABR.SV	SABR. Relocatable assembler for use with FORTRAN II, COBOL and other user programs.	OS/8 Handbook	Chapter 4
SET.SV	OS/8 CUSP. Sets OS/8 device attributes.	OS/8 Handbook	Appendix J
SHUTUP.SV	ETOS CUSP. Shuts up time sharing if ETOS running on non-system drive.	ETOS Mgr's Guide	8.6
SORT.CS	VIRTUAL COS. Discussed in section 1.7.	COS300/310 System Reference Manual	Chapter 7
SPOOLR.SV	ETOS CUSP. Spools printed output to line printer or terminal.	ETOS Mgr's Guide and ETOS User's Guide	6.4.13 4.9

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
SQUASH.SV	OS/8 CUSP. Compresses OS/8 directories to eliminate empties.	ETOS User's Guide	4.3
SRCCOM.SV	OS/8 CUSP. Compares two ASCII files and prints out differences.	OS/8 Handbook	Page 2-128
SYSGET.CS	VIRTUAL COS. Discussed in section 1.7.	ETOS User's Guide	5.5
SYSTAT.SV	ETOS CUSP. Prints system status of all active ETOS jobs.	ETOS User's Guide	4.5
TDSTOP.SV	ETOS CUSP. Halts TD8E DECtape if tape spins off end of reel.	ETOS Mgr's Guide	6.4.2
TECO.SV	OS/8 EXTENSION KIT. Powerful text editing and correction program for use with ASCII files.	OS/8 Handbook	Page 2-132
TIME.SV	ETOS CUSP. Prints system times for a specified job or prints current time of day.	ETOS User's Guide	4.6
TTYSET.SV	ETOS CUSP. Allows removal or addition of terminals while ETOS is running.	ETOS Mgr's Guide	8.2
UNBRK.CS	VIRTUAL COS. Discussed in section 1.7.	ETOS User's Guide	5.6

Table 1-12 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
UPDATE.CS	VIRTUAL COS. Discussed in section 1.7.	COS300/310 System Reference Manual	Chapter 8
USAGE.SV	ETOS CUSP. Prints total connect-time and run-time for a specified account.	ETOS Mgr's Guide	6.4.14
WHO.SV	ETOS CUSP. Prints job information for current user.	ETOS User's Guide	4.7
6RETRV.SV	SORT/6. Retrieves records via sorted key file to create sorted 6-bit output file.	SORT/8 Manual	3.2.3
6SETUP.SV	SORT/6. Sets up sort parameters from the terminal.	SORT/8 Manual	3.2.1
6SHUFL.SV	SORT/6. Merges sorted key files to create one sorted key file.	SORT/8 Manual	3.2.3
6SORT.SV	SORT/6. Creates sorted key files from 6-bit ASCII file and sort parameters.	SORT/8 Manual ETOS User's Manual	3.2.2 4.3

A list of virtual OS/8 system files, segmented by group name is contained in Table 1-13.

Table 1-13
Virtual OS/8 Groups

Group Name	File Names
COBOL/8	- COBOL.HE, COBOL.SV, COBOLA.SV, COBOL1.SV, COBOL8.RL, COBOL9.RL (EDIT.SV, LIB8.RL, LOADER.SV, SABR.SV also required)
COBOL/8 DEMONSTRATION	- DEMOPY.CO, INPUT1.DA
COMMERCIAL BASIC	- CBASIC.OV, CBASIC.SV, CBCOMP.SV, CBLOAD.SV, CBRTS.SV
EB BASIC	- BASIC.SV
EB BASIC DEMONSTRATION	- ALGOP1.BA, DIPLO.BA, EBARD.BA, EVOLU.BA, FTBALL.BA, GOLF.BA, HORS.BA, KINERV.BA, MOO.BA, PAY.BA, QUBIC.BA
ETOS CUSP	- ACCNT.SV, COSBLD.SV, COSBO.SV, DKCOPY.SV, DSKINT.SV, ERRCPY.SV, FREE.SV, INIT.SV, INQUIR.SV, LOOKUP.SV, SHUTUP.SV, SPOOLR.SV, SYSTAT.SV, TDSTOP.SV, TIME.SV, TTYSET.SV, USAGE.SV, WHO.SV
ETOS Monitor	- LOGIN.SV
FOCAL	- FOCAL.SV
FORTRAN II	- FORT.SV, LIB8.RL (EDIT.SV, LOADER.SV, SABR.SV also required)
FORTRAN IV	- FORLIB.RL, FRTS.SV, F4.SV, PASS2.SV, PASS2O.SV, PASS3.SV (EDIT.SV, LOAD.SV, RALF.SV also required)
MACREL ASSEMBLER	- KREF.SV, LINK.SV, MACREL.SV, OVRDRV.MA, TASK.MA (EDIT.SV also required)
OS/8 BASIC	- OBASIC.AF, OBASIC.FF, OBASIC.SF, OBASIC.SV, OBASIC.UF, OBCOMP.SV, OBLOAD.SV, OBRTS.SV
OS/8 CUSP	- BUILD.SV, CCL.SV, CREF.SV, DIRECT.SV, EDIT.SV, EPIC.SV, FOTP.SV, FUTIL.SV, HELP.SV, PIP.SV, RESORC.SV, SET.SV, SQUASH.SV, SRCCOM.SV

Table 1-13 (continued)

Group Name	File Names
OS/8 EXTENSION KIT	- BATCH.SV, TECO.SV
OS/8 File	- HELP.HL
PAL8 ASSEMBLER	- ABSLDR.SV, BITMAP.SV, PAL8.SV (EDIT.SV also required)
QBOL	- P2ZZZZ.CB, P3ZZZZ.CB, P4ZZZZ.CB, P5ZZZZ.CB, P6ZZZZ.CB, P7ZZZZ.CB, P8ZZZZ.CB, P9ZZZZ.CB, QBOL.SV, QBOLCM.CB
QBOL UTILITY	- COSOS8.QB, COSOS8.QS, DIBOLQ.QB, DIBOLQ.QS
RALF ASSEMBLER	- LIBRA.SV, LOAD.SV, RALF.SV (EDIT.SV also required)
RUNOFF	- RUNOFF.SV
SABR ASSEMBLER	- LIBSET.SV, LOADER.SV, SABR.SV (EDIT.SV also required)
SORT/6	- 6RETRV.SV, 6SETUP.SV, 6SHUFL.SV, 6SORT.SV
SORT/8	- KBASET.SV, KRETRV.SV, KSETUP.BA, KSETUP.SV, KSHUFL.SV, KSORT.SV

Probably not all programs listed here will appear on your distribution disk. You will only have those programs on yur distribution pack which you are licensed to use. This information is taken from your configuration guide. Some of the software requires a DIGITAL EQUIPMENT CORPORATION license, which may be obtained through QUODATA Corporation. The remainder of the software requires a QUODATA software license agreement. There is an additional fee for purchasing each product. A brief description of each of these licensed software products is given in Table 1-14.

Table 1-14
Licensed Product Descriptions

Product	Description
COBOL/8	- Subset of ANSII COBOL (Common Business Oriented Language). Features include business programming orientation, device independent I/O and transport ability of software. Intended as an instructional tool only. QUODATA software license required. Licensed programs consist of COBOL group and COBOL demonstration program files.
EB BASIC	- Extended version of BASIC (Beginner's All-Purpose Symbolic Instruction Code) language. Features include random access files, character strings up to 2000 characters in length and extended editing capabilities. QUODATA software license required. Licensed programs consist of BASIC and BASIC demonstration programs.
ETOS	- Extended Time Shared Operating System. QUODATA software license required. Licensed programs consist of ETOS monitor, ETOS CUSPS and ETOS versions of all other licensed software.
FOCAL	- FOCAL (Formula-Calculator) Language. No software license required. Language similar to BASIC and FORTRAN. Manual contained in documentation file on distribution pack. FOCAL consists only of the FOCAL group.
FORTRAN IV	- ANSII FORTRAN IV (Formula Translator) language. Features include program overlays, extended system library functions and random access files. Digital Equipment Corporation license required. Licensed programs consist of FORTRAN IV group and RALF group.
MACREL	- MACRO Relocatable Assembler Language. This assembler is an extended version of PAL8. Licensed programs consist of the MACREL group.

Table 1-14 (continued)

Product	Description
OS/8	- Operating system for the PDP8. Features include device independent programming, library of commonly used system programs (CUSPs), monitor commands and user-definable system commands via the concise command language (CCL). Digital Equipment software license required. Current OS/8 license is required for all ETOS users. Licensed programs consist of OS/8 CUSP group, OS/8 CUSP file group, FORTRAN II group, PAL8 Assembler group and SABR assembler group.
OS/8 EXTENSION KIT	- Extension to OS/8 system. Package allows batch OS/8 processing, powerful ASCII file manipulation and extended BASIC. Original extension kit included OS/8 BASIC only, which is documented in the OS/8 Handbook. An extended version of OS/8 BASIC called COMMERCIAL BASIC is available free of charge to all users who have a current extension kit license. Commercial BASIC features include random access files, string arithmetic of numeric character strings up to sixteen digits and extended error message print-out. QUODATA will distribute OS/8 BASIC and/or Commercial BASIC based on Configuration Guide. Digital Equipment software license required. Licensed programs consist of BATCH, TECO and OS/8 BASIC group or Commercial BASIC group.
QBOL	- QUODATA's Business Oriented Language (QBOL) for the PDP8. Features include compatability with DEC's DIBOL language, extended sort capabilities and accessibility to all OS/8 peripherals. QUODATA licensed programs consist of the QBOL group, the QBOL utilities, the SORT/6 group and the SORT/8 group.
RUNOFF	- Allows pagenation, justification and other text processing features. Manual contained in documentation file on distribution pack. RUNOFF consists only of the RUNOFF group.
SORT/8	- Allows sorting of OS/8 ASCII files. Features include support of variable and fixed length records and one to eight key levels. QUODATA software license required. Licensed programs consist of the SORT/8 group.

1.7 REAL AND VIRTUAL COS

When the user bootstraps a standard COS pack, he is running in stand-alone mode. This is referred to as real COS. The CUSPs on this pack are unmodified CUSPs from Digital Equipment Corporation. This pack could be used to perform functions not supported under ETOS, such as 2780 communications.

When you LOGIN to ETOS, you are running in a multi-user environment. This is referred to as virtual OS/8. When you enter R COSBO<RET> in an account which you transferred COS into with the COSBLD program, you begin running virtual COS. The operating system has been modified to run under ETOS. The operating system which has been implemented under ETOS is COS 3.07G. There have been later releases of COS, but the changes have been in the devices which COS supports, the COS CUSPS and the date format. COS under ETOS has been modified to support these devices (e.g., PDP8A, RX01 floppy disk, LA180 line printer)). The CUSPS for later versions of COS can be transferred to ETOS (see 5.10.2). All cusps will operate unmodified except for formatting programs, FILEX and BOOT which must be run under single user COS. The date format is MM/DD/YY. To allow for dates past 1979, the base year has been moved from 1972 to 1979. Dates on newly saved files will be correct. Dates on previously saved files will be off by seven years. To correct these dates, rewrite the files. There have not been any changes to the DIBOL syntax. Therefore, the only changes required to convert stand-alone applications to ETOS are in the batch files and the SYSGEN tables, due to different device allocations.

Unlike OS/8, COS is not a shared operating system. Therefore, each user has his own copy of COS and his own SYSGEN table. This area is accessed as DK0 under COS or [project number, programmer number]COSDISK.RTS under ETOS, where the project number and programmer number make up the account number containing the COS

file.

Each user also has his own copies of any programs he wishes to run. These may be user written source or compiled DIBOL programs or commonly used system programs (CUSPS). These CUSPS are unmodified COS300 system programs with several exceptions. BREAK, OS8BO and UNBRK are CUSPS which are used to control ETOS files and attributes. PIP has been modified to accept DK0 through DK7, instead of DK0 through DK3. SYSGET is used instead of SYSGEN to assign logical units. On the distribution pack, COS CUSPS are stored on virtual OS/8 SYS, with the extension ".CS". After COSBLD is used to transfer COS to an account (see 5.5.2), these COS CUSPS are transferred to the COS account. The extension is changed to ".SV" so that they may be executed with the "R" command. The files distributed under virtual COS are listed in Table 1-15. These programs are discussed in greater detail in the ETOS User's Guide, Chapter 5.

Table 1-15
Virtual COS Files

File Name	Group Name And Use	Documented In Manual	Manual Section
BREAK.SV	ETOS CUSP. Enables COS to break on every character input. This is not necessary unless a terminator is not a control character.	ETOS User's Guide	5.6
BUILD.SV	COS CUSP. Creates data files containing fixed length records.	COS300/310 System Reference Manual	Chapter 6
COMP.SV	COS CUSP. Compiles DIBOL source files into pseudo-compiled form which can be executed.	COS300/310 System Reference Manual	Chapter 4
CONVEX.SV	COS CUSP. Converts OS/8 ASCII files to DIBOL data files and vice versa.	COS300/310 System Reference Manual	
CREF.SV	COS CUSP. Prints alphabetical listing of all symbols used in a DIBOL source program.	COS300/310 System Reference Manual	Chapter 14
DAFT.SV	COS CUSP. Allows you to search for, examine, change or list data file records.	COS300/310 System Reference Manual	Chapter 11

Table 1-15 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
DFDIR.SV	COS CUSP. Prints a list of each logical unit assignment and its contents.	COS300/310 System Reference Manual	Chapter 17
LINCHG.SV	COS CUSP. Temporarily changes number of lines per line printer page.	COS300/310 System Reference Manual	Chapter 16
OS8BO.SV	ETOS CUSP. Allows COS user to boot virtual OS/8.	ETOS User's Guide	5.1
PATCH.SV	COS CUSP Patches system programs or a COS monitor.	COS300/310 System Reference Manual	Chapter 10
PIP.SV	COS CUSP. Transfers data files or programs between COS peripherals.	COS300/310 System Reference Manual	Chapter 5
PRINT.SV	COS CUSP. Generates DIBOL report program from a parameter file.	COS300/310 System Reference Manual	Chapter 15
SORT.SV	COS CUSP Sorts COS data files in order according to specified keys.	COS300/310 System Reference Manual	Chapter 7
SYSGET.SV	ETOS CUSP. Utilized in place of SYSGEN to assign logical units.	ETOS User's Guide	5.5
UNBRK.SV	ETOS CUSP. Restores COS break mask to its original value of 607.	ETOS User's Guide	5.6

Table 1-15 (continued)

File Name	Group Name And Use	Documented In Manual	Manual Section
UPDATE.SV	COS CUSP. Allows you to change, insert or delete records in a COS data file according to a control program.	COS300/310 System Reference Manual	Chapter 8

A list of virtual COS system files, segmented by group name, is contained in Table 1-16.

Table 1-16
Virtual COS Groups

Group Name	File Names
COS CUSP	BUILD.SV, COMP.SV, CONVEX.SV, CREF.SV, DAFT.SV, DFDIR.SV, LINCHG.SV, PATCH.SV, PIP.SV, PRINT.SV, SORT.SV, UPDATE.SV
ETOS CUSP	BREAK.SV, OS8BO.SV, SYSGET.SV, UNBRK.SV

If you have a COS license from Digital Equipment Corporation, you will have ETOS COS and the above programs on your distribution disk. This license must be purchased from DEC at the time you purchase the machine. You cannot purchase COS at a later date, since it has to be bundled with a processor. The only exception to the purchase of the license from DEC is that you may buy a used machine and utilize a COS license which was purchased with the machine originally.

There is no copy of stand-alone COS on the ETOS pack. To transfer files from a stand-alone COS pack to a virtual COS account, see 5.10.2.

1.8 CONVENTIONS USED IN THIS MANUAL

Certain documentation conventions are used throughout this manual to clairfy examples of ETOS syntax. These conventions are

a. Capital letters and special characters such as commas and colons appear verbatim in the user's command. Keywords in capital letters may sometimes be abbreviated. For example

    BROADCAST message may be abbreviated as BRO message

b. Square brackets indicate that the bracketed item is optional. For example

    PRIV [n]

    Square brackets are also used to enclose ETOS account numbers, and in this context they do not indicate that the item is optional. Examples

    [proj,prog]
    or
    [account]
    or
    [56,77]

    However, an entire account specification may be enclosed in brackets to indicate that it <u>is</u> optional. Example

    [[proj,prog]]

c. Ellipses (successive periods) ... are used in conjunction with square brackets to indicate that the previous parameter may be repeated indefinitely, as when inputting a list of numbers. Example

    POKE n,m1[,m2[,...]]

d. Items in lower case type (channel, device, length, etc.) are supplied by the user according to rules explained in the text. For example

    FORCE n;command

e. Words that the user enters are underlined. Words that the computer prints are not underlined.

f. Special input characters are indicated by a code enclosed in angle brackets, as listed below

Code	Character	ASCII Code
<RET>	Carriage Return	215
<ALT>	Altmode	233, 375, or 376
<RO>	Rubout (Delete)	377
<LF>	Line Feed	212

g. Control characters are indicated by an uparrow followed by an alphabetic character. Example

Code	Character
^C	Control-C
^V	Control-V
etc.	

h. User input is terminated by a carriage return unless otherwise indicated.

i. If a reference is made to a section in another manual, the manual name is included. If a reference is made to a section in this manual, the manual name is omitted.