



**Edinburgh
Regional
Computing
Centre**

User Note 15

(March 1987)

Title:

Computing Service Software Index

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Software Support
Category: n/a

Synopsis

This Note lists the software available on EMAS 2900, EMAS-3, ERCVAX and Computing Service Unix services and gives the Computing Service Software Support Category for each item, together with a reason for Categories other than A.

Keywords

CONLIB, DAPSYS, EMAS 2900 Subsystem, EMAS-3 Subsystem, ERCLIB, GEC Series 63/40, Gould PN 9080, KNTLIB, MICROS, PLULIB, software support, Unix, VAX/VMS

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General

This edition of the Software Index is in four parts:

- Part 1 - EMAS 2900 software
- Part 2 - EMAS-3 software
- Part 3 - VAX/VMS software
- Part 4 - UNIX software

It reflects the position for all items as at 1 March 1987.

User Support Considerations

The software facilities (languages, packages, programs, etc.) available to users of the Computing Service are considerable; some 1333 items are listed below. Some of them have been acquired from elsewhere, and some have been contributed by users. Giving users full support for software entails:

- a. the provision of suitable user information, either hard copy or on-line.
- b. the provision of an advisory service.
- c. the provision of instruction (either as courses or as self-teaching material).
- d. the investigation and rectification of errors in the software.
- e. maintaining stability in the life of the item.

Given that the effort available for user support in all its aspects is not unlimited, and this is not confined to the activities of the User Support Group (USG) alone, it is neither sensible nor practical to offer full user support on every item of software. The factors determining the level of user support which can or should be provided are:

- a. how many Advisory staff have knowledge of and expertise in the software, and at what level.
- b. the extent and nature of the user information available.
- c. the nature of back-up expertise and information available to USG.
- d. the degree of Computing Service control of the investigation and correction of errors in the software (which may be none for commercial software).
- e. the extent and nature of the training that can be offered.
- f. the intended or likely life of the item.
- g. the importance of the software, usually assessed by its amount of use, or exceptionally of the user or the user's work.

For the purpose of defining levels of user support, the Computing Service has adopted the Software Support Categories (SSC) originally devised by the University of London Computer Centre, and subsequently sponsored as a UK system by the Inter-University Computing Committee. These are shown in Appendix 1. Ideally the criteria should be applied rigorously so that users are never led to expect a better service than can reasonably be delivered.

It is not possible to define levels of support in absolute terms and, in any case, a system being applied nationally, if only in part, has to be written in the round so that it can accommodate local circumstances. The SSC should therefore be seen in terms of how they relate to each other. SSC A is 'full support' as interpreted as practicable in the Computing Service, and SSC D is minimal user support, with B and C somewhere in between.

Items are categorized B, C or D because one or more of the criteria required for a higher category are not met. A column 'Reason' (for SSC) shows those criteria which are not met.

A (Advisory) reflects a limitation in either the Advisory knowledge of and expertise in the item or in the number of expert Advisers.

I (user Information) similarly reflects a limitation in the scope of the user information available.

L (Life) reflects a management intention to downgrade the item further, or take it out of use altogether (with appropriate notice of either published separately).

M (Maintenance) reflects either the lower priority the Computing Service is giving to error investigation and correction for software it fully controls (holds the source code), or that the Computing Service does not hold the source code (as in commercial software, for example from DEC on the VAX) and cannot determine the speed of error correction.

T (Training) reflects limitations in the scope or frequency of the training offered.

In effect the SSC is a statement of a minimum level of service with an implied higher level of service for those criteria not shown in the Reasons column. It is not the intention that the assistance given to a user is rigidly confined to what is indicated by the SSC - the Advisory staff will always give assistance to whatever level is practicable at the time.

For a number of reasons, possibly mainly that of always trying to deliver the maximum assistance possible regardless of the software item concerned, the Computing Service has never applied the SSC with strong conviction as to their value. One important value that they have is to give a cautionary identification of the less well-supported items before a user embarks on some major project using one of them. However, the SSC do provide an appropriate explanation (or managerial reason) when a user feels aggrieved at the lack of some aspect of user support, for some low category item.

Arrangement of the Index

Regardless of the machines concerned a common approach is used throughout the Index. Items are grouped according to their function as seen by the user, with the aim of having sub-groups (for EMAS software) small enough so that scanning the alphabetical lists within them is not tedious. Within sub-groups the alphabetical arrangements are software Type (Command, Package, Program etc.) and within these by Item name. See Appendix 4 for definitions of sub-groups used.

The Index goes down to sub-program level only for EMAS software. For VAX/VMS and UNIX software only major items (languages, packages, etc.) are identified separately.

Against each item information is given under the following column headings:

- a. Item name – the name by which it is accessed.
- b. Type (of software item) – whether command, program, routine or package.
See Appendix 4 for details.
- c. A brief Description of what the item does.
- d. For EMAS items: the Library in which the item is held for directory purposes.
See Appendix 2 for more details.
- e. The SSC (Software Support Category), as defined in Appendix 1.
- f. Reason for SSC as A, I, L, M, T – see under User Support Considerations
above for details.

Part I EMAS 2900 Software

EMAS 2900 software is organized in directories under usernames Subsys, DAPSYS, ERCLIB, PLULIB, KNTLIB, CONLIB and MICROS: see Appendix 2 for more details. These directories have no logic as far as the function of the software is concerned; the items are grouped entirely for managerial considerations. For example, the Subsystem is looked after by the Central Systems Group, and the KNTLIB items are those which originated at the University of Kent at Canterbury after the adoption of EMAS 2900 by Kent. CONLIB items have been contributed by users and are supervised by a member of USG staff.

The main functional groupings of the Index are:

- a. User's EMAS Procedures. Those commands and programs likely to be required in any general use of EMAS 2900 such as logging on, setting up the terminal, accessing programs and running jobs.
- b. File Utilities. EMAS 2900 is a file based system with extensive facilities. Although these items could be seen as part of a. above they are put in a separate group.
- c. Applications (General). These are application - or problem - orientated items which provide widely used facilities, although some could be seen as falling into d. below.
- d. Applications (Discipline Orientated). These are similar to those in c. but with an application orientated towards a particular subject or discipline.

Single Entry Principle

A single entry principle is used in the EMAS Software Index. An item appears only once in that group where it is thought most likely to be sought. There are some items which could be listed within more than one group. An example is VIEW which is shown under User Information, but since it can be used to look at any file it could have been listed under File Handling as well. Such items are marked with an asterisk * and their further uses are given after the Index. Some items such as the statistical ones have an obvious duality and are not so marked.

SSC Changes

As advertised in the September 1986 edition of this Software Index all 625 items have moved to SSC D because the host machines will be closed on 31 July 1987.

EMAS 2900 Software Index: by item function

Index	Item name	Type	Description	Library	SSC	Reason
1	USER'S EMAS PROCEDURES					
1.1	Access to EMAS					
	PASSWORD	Comd	Sets foreground and/or background passwords.	Subsys	D	
	QUIT	Comd	Logs the user off the machine.	Subsys	D	
	STOP	Comd	Logs the user off the machine.	Subsys	D	
1.2	Terminal Control and Information					
	BEL	Comd	Sends about 7 BEL characters to the interactive terminal.	CONLIB.GENERAL	D	I,M,T
	DISPLAYX3	Comd	Displays those terminal characteristics changed from default by user.	Subsys	D	T
	GETMODE	Comd	Displays those terminal characteristics changed from default by user.	Subsys	D	T
	SETMODE	Comd	Modifies the characteristics of a terminal connected to a TCP.	Subsys	D	
	TERMINALTYPE	Comd	Allows user to take advantage of the characteristics of the type of terminal he uses.	Subsys	D	
	TTYINIT	Comd	Identifies the terminal being used and issues appropriate setmode.	Subsys	D	L
	TTYLIST	Comd	Displays the terminals on which you have used the TERMINALTYPE command.	Subsys	D	T
	VVDEMO	Comd	Demonstrates facilities of VVP.	Subsys	D	L,M,T
	XMODE	Comd	Modifies the characteristics of a terminal connected to a PAD.	CONLIB.GENERAL	D	T
	QUERYMODE	IFn	Displays or stores terminal's characteristics.	Subsys	D	L,T
	QUERYTABS	IFn	Queries tab settings of terminal.	Subsys	D	L,T
	VDUB	IFn	For terminal control from user program.	Subsys	D	T
	VDUI	IFn	For terminal control from user program.	Subsys	D	T
	X29CALL	IFn	Determines whether terminal is connected to a PAD or a TCP.	Subsys	D	L,T
	REQUESTMODES	IRtn	Finds out which terminal modes have been set at the TCP.	Subsys	D	L,T
	VVP	IRtn	To make better use of an interactive terminal.	CONLIB.GENERAL	D	L,M,T
	MODESTR	ISFn	Returns modes set for a terminal connected to a TCP.	Subsys	D	T
	VDUC	ISFn	For terminal control from user program.	Subsys	D	T
	VDUS	ISFn	For terminal control from user program.	Subsys	D	T
	X3PARMS	ISFn	Returns modes set for a terminal connected to a PAD.	Subsys	D	T
1.3	EMAS process control and information					
	DAOPTION	Comd	Sets options used by DAP software.	DAPSYS.DAPDIR	D	L,M,T
	DELETEPROFILE	Comd	Deletes the information associated with a particular key from a profile file.	KNTLIB.GENERAL	D	M,T
	DESCRIBE	Comd	Examines the attributes of an EMAS 2900 process.	CONLIB.GENERAL	D	T
	DONATEFUNDS	Comd	Allows one holder of FUNDS to give to another.	Subsys	D	
	LISTPROFILE	Comd	Lists the contents of profile file.	KNTLIB.GENERAL	D	M,T
	MERGEPROFILES	Comd	Merges the contents of two profile files.	KNTLIB.GENERAL	D	M,T
	OPTION	Comd	Enables the user to set options on his own process.	Subsys	D	
	PACKOPT	Comd	Sets options for some or all PLU packages.	Subsys	D	
	READPROFILE	IRtn	To read data stored in user's profile file.	PLULIB.PACKDIR	D	I,T
	WRITEPROFILE	IRtn	To write data into user's profile file.	Subsys	D	I,T

Index	Item name	Type	Description	Library	SSC	Reason
1.3.1	Directory					
	ACTIVEDIR	Comd	Nominates a different active directory.	CONLIB.GENERAL	D	I
	ALIAS	Comd	Aliases EMAS 2900 commands for a user.	Subsys	D	
	ALIASENTRY	Comd	Aliases an entry for the duration of the session.	Subsys	D	T
	INSERT	Comd	Puts information about object files into the active directory.	Subsys	D	
	INSERTMACRO	Comd	Puts information about macros into the active directory.	Subsys	D	L,T
	INSERTPDF	Comd	Inserts all object members of a pdf file into user's active directory.	CONLIB.GENERAL	D	I,T
	LISTDIR	Comd	Lists names of active directory and members of directory search list.	CONLIB.GENERAL	D	I,T
	LOOKFOR	Comd	Searches directories for occurrences of an entry point.	CONLIB.GENERAL	D	I,M,T
	MODDIR	Comd	Alters filenames in directories.	CONLIB.GENERAL	D	M,T
	MOVEINDIR	Comd	Adds directories to end of search list.	CONLIB.GENERAL	D	I,T
	NEWDIRECTORY	Comd	Creates a new, empty directory file.	Subsys	D	
	REMOVE	Comd	Removes information about an object file from the active directory.	Subsys	D	
	REMOVEDIR	Comd	Removes directories from search lists.	CONLIB.GENERAL	D	I,T
	REMOVEMACRO	Comd	Removes information about macros from the active directory.	Subsys	D	L,T
	REMOVEPDF	Comd	Removes all object members of a pdf file from the user's directory.	CONLIB.GENERAL	D	I,T
	REPLACEDIR	Comd	Replaces search directory by another.	CONLIB.GENERAL	D	I,T
	SEARCH	Comd	Places a directory at a specified position in a search list.	CONLIB.GENERAL	D	I,T
	SWITCHDIR	Comd	Switches the order of any two existing directories.	CONLIB.GENERAL	D	I,T
	TIDYDIR	Comd	Retrieves wasted space in directory.	Subsys	D	T
1.4	EMAS Command Handling					
	Filename Extension	Comd	Simplifies some of the standard EMAS 2900 commands.	CONLIB.GENERAL	D	I,T
	CALL	ISFn	Calls an EMAS 2900 command from within a program.	Subsys	D	L,M
	HASHCOMMAND	ISFn	Issues a hash {#} command from a program.	Subsys	D	I,T
	USEFOR	ISFn	Calls any external routine or function from within a program where the routine or function need not be specified until run time.	Subsys	D	L,M,T
	History	Soft	Allows you to reissue EMAS 2900 commands used in a session.	Subsys	D	M,T
	Prompting	Soft	Asks for input from terminal.	Subsys	D	T
1.4.1	Session Information					
	CHEFR	Comd	Calls CHEF to look at a recording of your interactive session.	KNTLIB.GENERAL	D	M,T
	DAPMETER	Comd	Displays the total DAP time in seconds used during the current session.	DAPSYS.DAPDIR	D	L,M,T
	FORGET	Comd	Clears RECALL file.	KNTLIB.GENERAL	D	M,T
	METER	Comd	Prints date, time of day, cpu and connect times, page turns and approximate cost of session.	Subsys	D	T
	NEWSESSION	Comd	Writes a marker in the RECALL file for use by THISS and PREV.	CONLIB.GENERAL	D	I,M,T
	PREV	Comd	Extracts the section of the RECALL file between the last two markers set by NEWSESSION.	CONLIB.GENERAL	D	I,M,T
	RCL	Comd	Calls EM to look at stored terminal input/output.	KNTLIB.GENERAL	D	M,T
	RECALL	Comd	Calls the editor to look at stored terminal input/output.	Subsys	D	M
	RECAP	Comd	Calls ECCE to look at stored terminal input/output.	Subsys	D	
	SESSION	Comd	Used to enquire which session you are on.	CONLIB.GENERAL	D	I,M,T
	THISS	Comd	Extracts the section of the RECALL file after the last marker set by NEWSESSION.	CONLIB.GENERAL	D	I,M,T
	CONSOLE	IRtn	Re-enables RECALLing after JOURNAL OFF or SUPPRESS RECALL.	Subsys	D	A,I,T
	JOURNALOFF	IRtn	Allows a program or command to stop its output from being saved in the journal (RECALL file).	Subsys	D	I,T
	SUPPRESSRECALL	IRtn	Suppresses RECALL until return to command level.	Subsys	D	I,T

Index	Item name	Type	Description	Library	SSC	Reason
1.5 User's Programs						
1.5.1 Date and Time						
	CURRENTPACKEDDT	IIFn	Gives current date and time in packed format.	Subsys	D	T
	DTWORD	IIFn	Converts packed date and time from old format to new.	Subsys	D	T
	PACKDATE	IIFn	Converts date into packed integer format.	CONLIB.GENERAL	D	I,T
	PACKDATEANDTIME	IIFn	Converts date and time into packed integer format.	Subsys	D	T
	UNPACKDATE	ISFn	Unpacks the date from packed integer format.	Subsys	D	T
	UNPACKTIME	ISFn	Unpacks the time from packed integer format.	Subsys	D	T
1.5.2 Input						
	NRSTRG	IRtn	Returns the next line of characters from the input stream.	CONLIB.GENERAL	D	I,M,T
	RCL	IRtn	Reads a line of text from the currently selected input stream.	Subsys	D	I,T
	RDINT	IRtn	Reads the next decimal or hexadecimal number from the console.	CONLIB.GENERAL	D	I,M,T
	RDINTS	IRtn	Reads a number from a string or from the console if string is empty.	CONLIB.GENERAL	D	I,M,T
	READLINE	IRtn	Reads visible characters from input line.	CONLIB.GENERAL	D	I,T
	RSTRG	IRtn	Gives next non-blank line of characters from input stream.	CONLIB.GENERAL	D	I,M,T
	UCSTRG	IRtn	Returns the next non-blank line of characters from the currently selected input stream, converting alphabetic characters to upper case.	CONLIB.GENERAL	D	I,M,T
1.5.3 Output						
	#DEC	Comd	Prints the decimal equivalent of a hexadecimal number.	Subsys	D	I,T
	#HEX	Comd	Prints the hexadecimal number. equivalent of a decimal	Subsys	D	I,T
	PHEX	IRtn	Prints an integer in hexadecimal representation.	Subsys	D	I,T
	PRINTCHS	IRtn	Prints characters of a string.	Subsys	D	I,T
1.5.4 String handling						
	SEARCHVM	Comd	Searches in a specified area of virtual memory for a string, halfword or fullword pattern.	CONLIB.GENERAL	D	I,M,T
	BIN	IIFn	Converts hexadecimal or decimal string into binary string.	CONLIB.GENERAL	D	I,M,T
	HXSTOBIN	IIFn	Converts a hexadecimal string into a binary number.	CONLIB.GENERAL	D	I,M,T
	KWDSCAN	IIFn	Searches a 'keyword index' for a section which includes all of a set of keywords nominated by the caller.	Subsys	D	I,T
	LOCATE	IIFn	Fast search for text in a specified string.	CONLIB.GENERAL	D	M,T
	MATCHADDR	IIFn	Scans an area of store for a given pattern of bytes.	Subsys	D	I,T
	SAMEBYTES	IIFn	Compares areas of virtual store.	Subsys	D	I,T
	STARTSWITH	IIFn	Checks whether one string starts with another.	Subsys	D	I,T
	STOREMATCH	IIFn	Compares areas of virtual store.	Subsys	D	I,T
	TRAILSPACES	IIFn	Counts trailing spaces in a string.	Subsys	D	I,T
	CHOPLDR	IRtn	Removes leading characters from a string.	Subsys	D	I,T
	DESPACE	IRtn	Replaces groups of contiguous multiple spaces in a string by a single space.	CONLIB.GENERAL	D	I,M,T
	ETOI	IRtn	Translates specified bytes from EBCDIC to ISO.	Subsys	D	I,T
	FILL	IRtn	Fills an area of virtual store with copies of a byte.	Subsys	D	I,T
	HSTOI	IRtn	Converts a string of hexadecimal digits to an integer value.	CONLIB.GENERAL	D	I,T
	ITOE	IRtn	Translates specified bytes from ISO to EBCDIC.	Subsys	D	I,T

Library	SSC Reason
1. Library	2. SSC Reason

Subsys	D	I,T
...	...	...

1.5.4 (cont.)	MOVE	IRtn	Moves data from one area of virtual store to another.	Subsys	D	I,T
	NSTOLRS	IRtn	Converts a string of numbers to an array of longreal values.	CONLIB.GENERAL	D	I,T
	NSTORS	IRtn	Converts a string of numbers to an array of real values.	CONLIB.GENERAL	D	I,T
	STOLR	IRtn	Converts a string of numerals to a longreal value.	CONLIB.GENERAL	D	I,T
	STOR	IRtn	Converts a string of numerals to a real value.	CONLIB.GENERAL	D	I,T
	UCTRANSLATE	IRtn	Converts lower case alphabetic characters to upper case.	Subsys	D	T
	FROMMSTR	ISFn	A version of SUBSTRING which returns a null string if called incorrectly.	CONLIB.GENERAL	D	I,M,T
	HTOS	ISFn	Supplies a string of characters which is the hexadecimal representation of an integer.	Subsys	D	T
	ITOB5	ISFn	Converts an integer to a bit-pattern string.	CONLIB.GENERAL	D	I,T
	ITOH5	ISFn	Converts a binary pattern to a string of hexadecimal digits.	CONLIB.GENERAL	D	I,T
	ITOS	ISFn	Returns a string which gives the decimal representation of the value of an integer.	Subsys	D	T
	ITOSTR	ISFn	Mimics the IMP function WRITE, producing a string result.	ERCLIB.GENERAL	D	I,T
	PSTOI	ISFn	Returns a value which is the binary representation of the positive integer represented by a string.	CONLIB.GENERAL	D	T
	PSTOI	ISFn	Returns a value which is the binary representation of the positive integer represented by a string.	Subsys	D	T
	RTOSTR	ISFn	Mimics the IMP function PRINT, producing a string result.	ERCLIB.GENERAL	D	I,T
	SEPARATE	ISFn	Separates a string of text into substrings between commas.	CONLIB.GENERAL	D	I,L,M,T
	UCSTRING	ISFn	Converts lower case alphabetic characters to upper case.	Subsys	D	T

#LISTFD	Comd	Lists all known facts about the file or device defined as a channel.	Subsys	D	I,T
CLEAR	Comd	Clears channel definitions set up by DEFINE.	Subsys	D	
CURRENTREFS	Comd	Prints a list of currently active references.	Subsys	D	M,T
DAPCLEAR	Comd	Tidies process following an error during a call to DAPRUN.	DAPSYS.DAPDIR	D	L,M,T
DAPRUN	Comd	Runs a compiled DAP program.	DAPSYS.DAPDIR	D	L,M,T
DATASPACE	Comd	Allows users to set up a data area in a file to satisfy data references while loading.	Subsys	D	T
DEFINE	Comd	Links input/output channel to file or device.	Subsys	D	
EXECUTE	Comd	The same as RUN, but the load level is unaltered.	Subsys	D	
LOADEDENTRIES	Comd	Prints a list of entries loaded by the caller.	Subsys	D	T
LOADEDFILES	Comd	Prints a list of currently loaded files.	Subsys	D	T
LOADPARAM	Comd	Allows loader run time options to be set.	Subsys	D	T
PACKTEST	Comd	Selects the test version of the nominated package for use in the current job or session.	PLULIB.PACKDIR	D	I,T
PRELOAD	Comd	Causes an object file to be permanently loaded.	Subsys	D	T
RUN	Comd	Runs a compiled program.	Subsys	D	
DAPTIME	FRtn	Returns the DAP time measured from an arbitrary starting point.	DAPSYS.DAPDIR	D	L,M,T
FSAVEARRAY	FRtn	Saves the contents of an array in a file.	CONLIB.GENERAL	D	I,L,M,T
DEFINFO	IRtn	Provides information on links between channel numbers and files.	Subsys	D	T
DFDFIN	IRtn	Allows a program or command to redefine temporarily the source for input on stream 0.	Subsys	D	A,I,T
DFDOUT	IRtn	Allows a program or command to redefine temporarily the destination for output on stream 0.	Subsys	D	A,I,T
REPORTON	IRtn	Allows users to reroute stream 0 output to another channel	Subsys	D	I,T
SAVEARRAY	IRtn	Saves the contents of an array in a file.	CONLIB.GENERAL	D	I,L,M,T
#LQUIET	Comd	Used to switch off all loader warning messages.	Subsys	D	M,T

Index	Item name	Type	Description	Library	SSC	Reason
1.5.6	Diagnostics					
	#ACR	Comd	Gives the access control register value for a process.	Subsys	D	I,L,T
	#DUMP	Comd	Dumps a specified area of virtual memory.	Subsys	D	I,T
	#DUMPFIL	Comd	Dumps specified area of file.	Subsys	D	I,T
	#MON	Comd	Monitors CPU time and page turns.	Subsys	D	T
	#MONLOAD	Comd	Sets the level of monitoring.	Subsys	D	I,T
	#N	Comd	Cancels all #MON and #MONLOAD settings.	Subsys	D	I,T
	#PCOM	Comd	Prints the contents of a location.	Subsys	D	I,T
	#PMESS	Comd	Prints the Subsystem Error Message for faultnumber 'fn'.	Subsys	D	I,T
	#PVM	Comd	Displays virtual memory.	Subsys	D	I,T
	#REGS	Comd	Prints contents of 2900's registers at the time of last hardware-detected program failure.	Subsys	D	I,T
	#SCOM	Comd	Sets the contents of a location.	Subsys	D	I,T
	#SNAP	Comd	Dumps specified area of virtual memory.	Subsys	D	I,T
	#SNAPCH	Comd	Translates the specified area of VM into ISO and prints it.	Subsys	D	I,T
	#SNAPCODE	Comd	Decompiles code into a form of host machine assembler and prints it.	Subsys	D	I,T
	DUMPCODE	Comd	Prints machine code from a section of virtual memory.	CONLIB.GENERAL	D	I,M,T
	DUMPFIL	Comd	Prints a hex dump of a file.	CONLIB.GENERAL	D	I,M,T
	DUMPVM	Comd	Prints a hexadecimal dump of an area of virtual memory.	CONLIB.GENERAL	D	I,M,T
	EBCDICDUMP	Comd	Prints a hex dump from virtual memory with EBCDIC interpretation of characters.	CONLIB.GENERAL	D	I,M,T
	IBMCODE	Comd	De-assembler into 370-XA machine code.	CONLIB.GENERAL	D	I,M,T
	QENV	Comd	Identifies the environment from which it was called.	CONLIB.GENERAL	D	I,M,T
	RECODE	Comd	Places de-compiled host machine assembler from a file to a device.	Subsys	D	T
	RECODELINES	Comd	De-assembles host machine machine code from IMP object file to a file or device.	CONLIB.GENERAL	D	I,M,T
	SIZE OF	IFn	Returns the number of bytes occupied by the variable named as the parameter.	Subsys	D	I,T
	DUMP	IRtn	Prints a hex dump of virtual memory.	CONLIB.GENERAL	D	I,M,T
	UDERRS	IRtn	Returns the message text interpreting a Director error number.	CONLIB.GENERAL	D	I,L,M,T
	VAL	IRtn	Tells if permission is set for user's access to virtual memory.	CONLIB.GENERAL	D	I,L,M,T
1.5.8	Parameter handling					
	PARMAP	IFn	Determines which parameters are non-null.	Subsys	D	I,T
	ANALYSEPARAMETERS	IRtn	Analyses parameters without invoking the parameter prompting mechanism.	Subsys	D	I,T
	CASTOUT	IRtn	Removes spaces from a string and translates any lower-case letters to upper case.	Subsys	D	A,I,T
	FILPS	IRtn	Analyses parameter string, prompting for parameters.	Subsys	D	I,T
	QUERYPROMPTS	IRtn	Controls parameter prompting in commands called from programs.	Subsys	D	I,T
	SETPAR	ISFn	Resolves a parameter string into substrings separated by single commas.	Subsys	D	I,T
	SPAR	ISFn	Returns a specific parameter, which will be null if and only if the corresponding bit in the PARMAP value is zero.	Subsys	D	I,T
1.6	File Command handling					
	FIT	Comd	Performs one given command on a number of files.	CONLIB.GENERAL	D	T
	FMACRO	Comd	Performs a number of commands on a number of files.	CONLIB.GENERAL	D	I,T
	LMACRO	Comd	Performs a set of commands on a number of files.	CONLIB.GENERAL	D	I,T
	PDMACRO	Comd	Performs a number of commands on pfile members.	CONLIB.GENERAL	D	I,T

Index	Item name	Type	Description	Library	SSC	Reason
1.7	Jobs (all)					
	CPULIMIT	Comd	Sets the time limit for each subsequent command.	Subsys	D	T
1.7.1	Jobs (background)					
	AWAITRESTORES	Comd	Delays detached job until necessary RESTOREs performed.	Subsys	D	T
	BINTT	Comd	Interrupts background jobs (Int:T) from foreground process.	Subsys	D	T
	DELAYJOB	Comd	Reruns a background job at regular intervals.	CONLIB.GENERAL	D	T
	*DELETEDOC	Comd	Deletes a job or file or transfer request which is currently queued or active.	Subsys	D	
	DETA	Comd	Handy version of DETACH.	CONLIB.GENERAL	D	L,M,T
	DETACH	Comd	Detaches a job into the background job queue.	Subsys	D	
	DETACHJOB	Comd	Detaches a file of job instructions to be run in batch mode.	Subsys	D	
	HOUSEKEEP	Comd	Assists in organizing regular runs of a batch program.	KNTLIB.GENERAL	D	I,T
1.7.2	Jobs (foreground)					
	OBEY	Comd	Obeys a file containing a sequence of commands and data.	Subsys	D	
	OBEYJOB	Comd	Similar to OBEY but job interpreter is used.	Subsys	D	L,M
1.8	Tape Handling					
	COPYTAPE	Comd	Copies whole tapes or files from tapes.	Subsys	D	T
	DEFINEMT	Comd	Links input/output channel to a file on magnetic tape.	Subsys	D	T
	FRONTAPE	Comd	Copies files from IBM standard tapes to EMAS 2900 files.	Subsys	D	T
	HOLDMT	Comd	Magnetic tape is not to be rewound when a file on the tape is closed.	Subsys	D	T
	RELEASEMT	Comd	Unload a specified magnetic tape.	Subsys	D	T
	TAPEANAL	Comd	Analyses the contents of a tape file.	Subsys	D	T
	TOTAPE	Comd	Writes files to IBM standard labelled tapes or to unlabelled tapes.	Subsys	D	T
	WRULTAPE	Comd	Writes a file to an unlabelled magnetic tape.	KNTLIB.GENERAL	D	I,T
	RSXPIP	Prog	Reads files from a DEC RSX-11 tape.	KNTLIB.DEC	D	A,M,T
	VMSPiP	Prog	Reads files from a DEC VAX/VMS tape.	KNTLIB.DEC	D	A,M,T
1.9	Services, System & User Information and Utilities					
1.9.1	System Information					
	ALERT	Comd	Prints news of changes to the System.	Subsys	D	
	DAPALERT	Comd	Displays DAP software alert (i.e. changes in release) information.	DAPSYS.DAPDIR	D	L,M,T
	DAPSTATE	Comd	Displays the DAP status.	DAPSYS.DAPDIR	D	L,M,T
	EPOCH	Comd	Prints time of next scheduled system close-down.	KNTLIB.GENERAL	D	I,M,T
	FUNDS	Comd	Tells amount of Funds left, name of Group Holder and whether scarcity.	Subsys	D	
	RUON	Comd	Finds out if a user is on the computer.	CONLIB.GENERAL	D	I,T
	TIM	Comd	Prints the time of day.	CONLIB.GENERAL	D	I,M,T
	USERS	Comd	Prints the number of users.	Subsys	D	
	XTALKREV	Comd	Prints date and version of X-Talk on EMAS.	MICROS.EMASLIB	D	I

Index	Item name	Type	Description	Library	SSC	Reason
1.9.2	User Information					
	HELP	Comd	Provides help on various ERCC facilities.	Subsys	D	
	NAGHELP	Comd	Provides help on NAG Fortran Mk 11 and NAG Graphics Mk 1 Libraries.	ERCLIB.NAGFORTRAN	D	I,M,T
	PACKALERT	Comd	Lists ALERT information about packages.	PLULIB.PACKDIR	D	I
	PACKERROR	Comd	Calls VIEW to list contents of file PLULIB.ERROR which contains information relating to known errors in CAST packages.	PLULIB.PACKDIR	D	I,T
	PACKHELP	Comd	Lists HELP information about packages.	PLULIB.PACKDIR	D	I
	PACKLIST	Comd	Prints a list of PLU packages available, including pre-release versions.	PLULIB.PACKDIR	D	I,T
	PACKTELL	Comd	Allows users to send MAIL messages about certain packages to CAST staff.	PLULIB.PACKDIR	D	I,T
	PACKUSE	Comd	Reports on user's use of a nominated package, or use of all packages.	PLULIB.PACKDIR	D	I,T
	*VIEW	Comd	Displays pages of text from a file.	Subsys	D	
1.9.3	Utility					
	ADDMEMO	Comd	Adds a memorandum to a list of personal memoranda.	CONLIB.GENERAL	D	I,M,T
	DELMEMO	Comd	Removes a memo from a list created by the ADDMEMO command.	CONLIB.GENERAL	D	I,M,T
	MEMO	Comd	Lists personal messages stored by ADDMEMO.	CONLIB.GENERAL	D	I,M,T
	QUIP	Comd	Prints a quip.	CONLIB.GENERAL	D	I,T
	DIARY	Prog	Maintains a personal diary.	CONLIB.GENERAL	D	I,M
2	FILE UTILITIES					
2.1	File Comparison					
	CHECKENDS	Comd	Compares the contents of two files of any type.	CONLIB.GENERAL	D	T
	COMPARE	Comd	Compares two character files line by line.	CONLIB.GENERAL	D	M,T
	CONTRAST	Comd	Compares any two files regardless of type.	CONLIB.GENERAL	D	T
	DIFF	Comd	Compares contents of two character files.	KNTLIB.GENERAL	D	A,L,M,T
	TEXTCOMPARE	Comd	Compares the textual contents of two character files.	CONLIB.GENERAL	D	T
	YCOMP	Comd	Makes a binary comparison of two files of any type.	CONLIB.GENERAL	D	M,T
2.1.1	File Comparison (PD)					
	PDCHECK	Comd	Compares members of pdfiles and ordinary files with the same name.	CONLIB.GENERAL	D	M,T
	PDVERIFY	Comd	Compares two pdfiles and reports on differences.	CONLIB.GENERAL	D	T
2.2	File Copying					
	COPF	Comd	Copies files including non-standard files.	CONLIB.GENERAL	D	I,M,T
	COPY	Comd	Copies one file into another.	Subsys	D	
	COPY2	Comd	Copies files including members of members of a pdfile.	Subsys	D	I,T
2.2.1	File Copying (PD)					
	FROMPD	Comd	Copies pdfile members into separate files.	CONLIB.GENERAL	D	I,T
	PACKPD	Comd	Copies selected disc files to members of a pdfile.	CONLIB.GENERAL	D	I,T
	PDEXT	Comd	Copies pdfile members.	CONLIB.GENERAL	D	I,L,M,T
	PDINS	Comd	Copies pdfile members.	CONLIB.GENERAL	D	I,L,M,T
	PDREP	Comd	Copies pdfile members.	CONLIB.GENERAL	D	I,L,M,T

Index	Item name	Type	Description	Library	SSC	Reason
2.2.1	(cont.) TOPD	Comd	Copies a number of files into a PDFILE.	CONLIB.GENERAL	D	I,T
	UNPACKPD	Comd	Copies selected members of pdfiles to disc files, optionally destroying the members afterwards.	CONLIB.GENERAL	D	I,T
2.3 File Editing						
2.3	#SBYTE	Comd	Alters a byte within virtual memory.	Subsys	D	I,T
	#SSTRING	Comd	Alters a string within virtual memory.	Subsys	D	I,T
	#STEXT	Comd	Alters a text within virtual memory.	Subsys	D	I,T
	#SWORD	Comd	Alters a word within virtual memory.	Subsys	D	I,T
	ADDNP	Comd	Puts newpage character at start of text file.	CONLIB.GENERAL	D	M,T
	BECCE	Comd	Similar to ECCE, for a file of any type.	CONLIB.GENERAL	D	I,T
	CASECONVERT	Comd	Converts text to all upper or lower case.	CONLIB.GENERAL	D	I,T
	CH,CHEF	Comd	An interactive text editor.	KNTLIB.GENERAL	D	M,T
	CODECHANGE	Comd	Converts the character code of a file to another code.	CONLIB.GENERAL	D	T
	COLUMNS	Comd	Rearranges a given text file in columns and pages.	CONLIB.GENERAL	D	I,T
	CUTANDPASTE	Comd	Overlays several input files to produce a composite output file.	CONLIB.GENERAL	D	I,M,T
	DEGROT	Comd	Removes non-printing characters from a file.	CONLIB.GENERAL	D	T
	DETAB	Comd	Substitutes spaces for horizontal tab characters.	CONLIB.GENERAL	D	T
	DQUOTDEL	Comd	Performs double quote deletion on a character file.	CONLIB.GENERAL	D	I,T
	ECCE	Comd	An interactive text editor.	Subsys	D	I,T
	ED	Comd	The interactive text editor EM, but it does not give a prompt.	KNTLIB.GENERAL	D	M,T
	EDIT	Comd	An interactive text editor.	Subsys	D	M,T
	EM	Comd	An interactive text editor.	KNTLIB.GENERAL	D	M,T
	FILLOUT	Comd	Pads out the lines of a character file to a specified line length.	CONLIB.GENERAL	D	I,T
	FIXCODE	Comd	Tests bottom 7 bits of each character and removes all non-printing characters from a file.	CONLIB.GENERAL	D	T
	REMOVESPACE	Comd	Removes trailing spaces from lines in a character file.	CONLIB.GENERAL	D	I,T
	SBYTE	Comd	Enables the user to change a specified byte in a file.	CONLIB.GENERAL	D	I,M,T
	SCREED	Comd	Screen editor.	Subsys	D	T
	SHALF	Comd	Enables the user to change a specified half-word in a file.	CONLIB.GENERAL	D	I,M,T
	STRIP	Comd	Removes trailing spaces from text.	KNTLIB.GENERAL	D	M,T
	SUPERSNAP	Comd	A tool for detailed examination and simple editing of any file.	CONLIB.GENERAL	D	T
	SWORD	Comd	Enables the user to change a specified word in a file.	CONLIB.GENERAL	D	I,M,T
	TAIL	Comd	Copies the tail end of a file to another file or to the line printer.	KNTLIB.GENERAL	D	M,T
	TR	Comd	Translates one group of characters into another.	KNTLIB.GENERAL	D	M,T
	XSM	Comd	Allows data files to be looked at and/or altered.	CONLIB.GENERAL	D	I,T
2.4 File Handling						
2.4	#CONNECT	Comd	Connects a file in write mode and prints the connect address.	Subsys	D	I,T
	CARDINDEX	Comd	Reads card images from a character file and builds a view file.	Subsys	D	I,T
	CHEFL	Comd	Calls CHEF to look at the contents of a text file.	KNTLIB.GENERAL	D	M,T
	CONC	Comd	Concatenates text files.	CONLIB.GENERAL	D	I,L,M,T
	CONCAT	Comd	Concatenates files, grouping them together under another file name.	Subsys	D	T
	CONVERT	Comd	Converts a data file into a character file.	Subsys	D	T
	DECODE	Comd	Decodes contents of file encoded by ENCODE for network transfer.	KNTLIB.GENERAL	D	A,I,T
	DECRYPT	Comd	Decrypts the contents of an encrypted text file.	PLULIB.PACKDIR	D	A,M,T
	DISCONNECT	Comd	Disconnects a file from virtual memory.	Subsys	D	D

Index	Item name	Type	Description	Library	SSC	Reason
2.4 (cont.)	ENCODE	Comd	Encodes byte patterns into ISO printable characters for network transfer.	KNTLIB.GENERAL	D	A,I,T
	ENCRYPT	Comd	Encrypts the contents of a text file.	PLULIB.PACKDIR	D	A,M,T
	GREP	Comd	Searches a file for a sequence of characters and prints the line and number.	KNTLIB.GENERAL	D	M,T
	LK	Comd	Invokes EM to examine a file but not alter it.	KNTLIB.GENERAL	D	M,T
	LOOK	Comd	Invokes the editor to examine a file but not alter it.	Subsys	D	M
	MERGEFILES	Comd	Merges contents of two or more files into one ordered file.	ERCLIB.SORTMERGE	D	T
	NEWGEN	Comd	Replaces contents of an existing file with contents of a new file, this new file is then destroyed.	Subsys	D	T
	POSTSEND	Comd	Control characters removed by PRESEND are replaced to allow DECRYPTION.	PLULIB.PACKDIR	D	A,M,T
	PRESEND	Comd	Removes control characters from ENCRYPTed text file prior to transfer to external site.	PLULIB.PACKDIR	D	A,M,T
	RESETLOADER	Comd	Unload any loaded files.	Subsys	D	T
	SHOW	Comd	Invokes ECCE to examine but not alter a file.	Subsys	D	T
	TESTFILE	Comd	Checks the order of contents of a file.	ERCLIB.SORTMERGE	D	T
	TSEARCH	Comd	Searches a file for a piece of text.	CONLIB.GENERAL	D	M,T
	TSEARCHALL	Comd	Searches a file and prints each occurrence of text found.	CONLIB.GENERAL	D	M,T
	*WCOUNT	Comd	Counts and prints numbers of lines, words and characters in file.	KNTLIB.GENERAL	D	M,T
	YSEARCH	Comd	Prompts for a file which is to be binary searched for a byte pattern.	CONLIB.GENERAL	D	M,T
	NWFILEAD	IRtn	Connects a file in write mode, but if file already exists then it is connected in newcopy mode.	CONLIB.GENERAL	D	I,M,T
	RDFILEAD	IRtn	Connects a file in the most suitable or possible mode for reading.	CONLIB.GENERAL	D	I,M,T
	TPFILEAD	IRtn	Connects a file in write mode, but the file is created on a temporary basis only.	CONLIB.GENERAL	D	I,M,T
	WRFILEAD	IRtn	Connects a file in write-mode.	CONLIB.GENERAL	D	I,M,T
	AR	Prog	Manipulates files in UNIX 'ar' format.	KNTLIB.DEC	D	A,M,T
2.4.1	File Handling (PD)					
	PDTOTEXT	Comd	Converts a pdfile to a character file.	Subsys	D	I,T
	TEXTTOPD	Comd	Converts a character file to a pdfile.	Subsys	D	I,T
	UPDATE	Comd	Use with PDCHECK to update pdfiles.	CONLIB.GENERAL	D	I,L,M,T
2.5	File Listing					
	ADD.ADDRESSES	Comd	Stores, categorizes and edits addresses, and produces selected lists and printed labels.	CONLIB.GENERAL	D	I,T
	DELIVER	Comd	Sets delivery information for user's output.	Subsys	D	
	EXFILE	Comd	Extracts specified lines from a file and lists them to a line printer.	CONLIB.GENERAL	D	I,M,T
	LABS	Comd	Produces a set of printed labels.	KNTLIB.GENERAL	D	M,T
	LANDNUM	Comd	Numbers the lines in a character file and lists it.	CONLIB.GENERAL	D	T
	LINENO	Comd	Produces a line numbered listing of a character file.	KNTLIB.GENERAL	D	M,T
	LIST	Comd	Lists character files to an output device.	Subsys	D	
	LISTN	Comd	Lists a character file to several different destinations.	CONLIB.GENERAL	D	I,T
	LISTNEW, TIDYLISTNEW	Comd	Lists a file only if it has been altered since last listed by this command.	CONLIB.GENERAL	D	I,T
	MAN	Comd	Prints manual pages relating to a given KNTLIB utility.	KNTLIB.GENERAL	D	A,I,T
	NLIST	Comd	Lists a file to an output device not directly accessible to host.	CONLIB.GENERAL	D	I,T
	PLIST	Comd	Lists files to single sheet fed devices.	CONLIB.GENERAL	D	I,T
	SEND	Comd	Lists and destroys a file.	Subsys	D	
2.5.1	File Listing (PD)					
	LISTPD	Comd	Lists members of a pdfile.	KNTLIB.GENERAL	D	M,T
	LISTPDMEMS	Comd	Lists selected members of a pdfile to console or line printer.	CONLIB.GENERAL	D	I,T

Index	Item name	Type	Description	Library	SSC	Reason
2.6	File Management					
	APERMIT	Comd	Sets or returns access permission for archived files.	Subsys	D	T
	ARCHIVE	Comd	Marks files for archiving.	Subsys	D	
	ARCHSORT	Comd	Sorts archived files in reverse alphabetical order disregarding date archived.	CONLIB.GENERAL	D	T
	CHECKFILE	Comd	Examines a file for possible corruption.	CONLIB.GENERAL	D	T
	CHERISH	Comd	Marks files for back-up.	Subsys	D	
	DAPNEWLIB	Comd	Constructs a library for DAP software.	DAPSYS:DAPDIR	D	I,L,M,T
	DESTROY	Comd	Destroys files.	Subsys	D	
	DISCARD	Comd	Destroys archived files.	Subsys	D	
	DQ	Comd	Deletes on-line or archived files.	CONLIB.GENERAL	D	M,T
	HAZARD	Comd	Un-cherishes a file.	Subsys	D	
	KILFIL	Comd	Destroys files.	KNTLIB.GENERAL	D	A,M,T
	LISTPERM	Comd	Reports on any of user's files whose permissions differ from the standard.	CONLIB.GENERAL	D	T
	NEWSMFILE	Comd	Creates an unstructured file of a certain size for use by direct mapping.	Subsys	D	
	PERMIT	Comd	Sets the access permission for any file.	Subsys	D	
	RENAME	Comd	Changes the name of a file.	Subsys	D	
	RESTORE	Comd	Brings back an archived file.	Subsys	D	
	VFILES	Comd	Allows you to manipulate your file index using screen control facilities.	CONLIB.GENERAL	D	L,M,T
	WIPEFILE	Comd	Destroys file after replacing contents with blanks.	PLULIB.PACKDIR	D	T
2.6.1	File Management (PD)					
	NEWPDFILE	Comd	Creates a new, empty pdfile.	Subsys	D	
	PDEL	Comd	Deletes pdfile members.	CONLIB.GENERAL	D	I,L,M,T
	PDDES	Comd	Destroys pdfile members.	CONLIB.GENERAL	D	I,L,M,T
	PDREN	Comd	Changes name of members of a pdfile.	CONLIB.GENERAL	D	I,L,M,T
2.7	File Transfer					
	PDSEIVE	Comd	Checks that a pdfile is properly structured, especially its object file members.	CONLIB.GENERAL	D	I,L,T
	ACCEPT	Comd	Accepts a file on OFFER by another user.	Subsys	D	
	FROMFSTORE	Comd	Transfers a file from the Filestore.	CONLIB.GENERAL	D	I,T
	FSTCOPYDOWN	Comd	Reconstructs an EMAS file from an image of that file as transferred to the Filestore and back again.	CONLIB.GENERAL	D	I,T
	FSTORE	Comd	Transfers files to and from the Filestore.	CONLIB.GENERAL	D	I,T
	GET	Comd	Transfers a file from an external host machine.	CONLIB.GENERAL	D	I,T
	GET1	Comd	Transfers a file from an external host machine.	CONLIB.GENERAL	D	I,T
	GIVEFILE	Comd	Transfers a file from a microcomputer to EMAS using X-Talk protocol.	MICROS.EMASLIB	D	I
	HOSTS	Comd	Transfers a file from microcomputer to EMAS using X-Talk protocol.	Subsys	D	I
	KERMIT	Comd	Gives information on all aspects of the service offered by a remote system.	Subsys	D	
	OFFER	Comd	Transfers a file between a microcomputer and EMAS using Kermit protocol.	MICROS.KERMDIR	D	T
	PUT	Comd	Offers a file to another user.	Subsys	D	
	PUT1	Comd	Transfers a file to an external host machine.	CONLIB.GENERAL	D	I,T
	RELAY	Comd	Transfers a file to an external host machine.	CONLIB.GENERAL	D	I,T
	TAKEFILE	Comd	Sends jobs to remote computers.	ERCLIB.RELAYDIR	D	A,I,L,M,T
	TO72	Comd	Transfers a file to a microcomputer from EMAS using X-Talk protocol.	MICROS.EMASLIB	D	I
	TO80	Comd	Transfers a file from BUSH to EMAS machine.	ERCLIB.GENERAL	D	I,T
		Comd	Transfers a file from EMAS to BUSH machine.	ERCLIB.GENERAL	D	I,T

Index	Item name	Type	Description	Library	SSC	Reason
2.7 (cont.)	TO88	Comd	Transfers a file from EMAS to BUSH machine.	ERCLIB.GENERAL	D	I,T
	TOBUSH	Comd	Transfers a file to BUSH machine.	ERCLIB.GENERAL	D	I,T
	TOEMAS	Comd	Transfers a file to EMAS machine.	ERCLIB.GENERAL	D	I,T
	TOEMASA	Comd	Transfers a file to EMAS-A machine.	ERCLIB.GENERAL	D	I,T
	TOFSTORE	Comd	Sends files to the Filestore.	CONLIB.GENERAL	D	I,T
	TRANSFER	Comd	Transfers a file from one computer to another.	Subsys	D	
	TRANSFERS	Comd	Gives information on file transfer requests which are queued or active.	Subsys	D	

2.8 File Information

2.8	ANALYSE	Comd	Gives information about a file.	Subsys	D	
	CIFANAL	Comd	Simple analysis of a CIF file member of a CIF library.	DAPSYS.DAPDIR	D	A,L,M,T
	COUNT	Comd	Counts the number of occurrences of specified code value in any character file.	CONLIB.GENERAL	D	T
	*DOCUMENTS	Comd	Gives information on jobs, files and transfer requests which are queued or active.	Subsys	D	
	FILECHECK	Comd	Checks on the state of files in the masterfile set up by FILESETUP.	CONLIB.GENERAL	D	T
	FILES	Comd	Lists the names of user's files.	Subsys	D	
	FILESETUP	Comd	Sets up masterfile of information for FILECHECK.	CONLIB.GENERAL	D	T
	FILESUMMARY	Comd	Gives information about some or all of a user's files.	CONLIB.GENERAL	D	T
	FILEUPDATE	Comd	Updates masterfile created by FILESETUP and used by FILECHECK.	CONLIB.GENERAL	D	T
	LONGS	Comd	Reports all lines in a character file longer than a specified length.	KNTLIB.GENERAL	D	I,T
	MAXLN	Comd	Reports the length and position of the longest line in any character file and the total number of lines.	KNTLIB.GENERAL	D	I,T
	NLINES	Comd	Counts the number of lines, and their length, of any character file.	CONLIB.GENERAL	D	T
	NOPRINT	Comd	Checks for non-printing characters in a file.	CONLIB.GENERAL	D	T
	QINFO	Comd	Describes in one line each file in given list.	CONLIB.GENERAL	D	I,M,T
	SORTSIZE	Comd	Lists permanent files in descending order of size.	CONLIB.GENERAL	D	I,T
	EXIST	lIfn	Checks that file exists on-line.	Subsys	D	I,T
	FILETYPE	lIfn	Tells you what type a file is, character, binary etc.	CONLIB.GENERAL	D	I,M,T

2.8.1 File Information (PD)

PDANAL	Comd	Analyses a pdfile giving members in alphabetical order.
REPORT	Comd	Checks a pdfile and reports the members altered within a given time.

LANGUAGES, COMPILERS and UTILITIES

3.0 Compiler Utility

DAPPARM	Comd	Sets parameters for the DAP assembler and compilers.
PARM	Comd	Sets compile time parameters.

3.0.1 Object Utility

CONSOLIDATE	Comd	Consolidates CIF output pdfile from the compiler/assembler into a loadable object file.
LINK	Comd	Groups object files into a single object file.
MODIFY	Comd	Modifies the attributes of an EMAS 2900 object file.
OBJANAL	Comd	Analyses an object file and its structure.

DAPSYS.DAPDIR	D	L,M,T
Subsys	D	
Subsys	D	I,T
CONLIB.GENERAL	D	I,T

Index	Item name	Type	Description	Library	SSC	Reason
3.1	ALGOL Compiler ALGOL	Comd	Compiles Algol60 programs.	ERCLIB.ALGOL	D	A,M,T
3.2	ASSEMBLER Compiler ASS11 DAPASSEMBLE MAPLE PAL8C PAL8N	Comd Comd Comd Comd Comd	Assembles the output from the IMP11 (SKIMP) compiler. Assembles APAL source programs. Main Assembler Programming Language for 2900s. PDP8 Assemblers. PDP8 assemblers.	CONLIB.IMP11DIR DAPSYS.DAPDIR KNTLIB.MAPLELIB CONLIB.IMP11DIR CONLIB.IMP11DIR	D D D D D	I,T L,M,T A,I,L,M,T A,I,L,M,T A,I,L,M,T
3.2.1	ASSEMBLER Utility IBMLINES RECODEVM	Comd Comd	Places de-compiled 370-XA assembler from object file into file or device. De-assembles an area of virtual memory into a file or device.	CONLIB.GENERAL CONLIB.GENERAL	D D	I,M,T I,M,T
3.3	BASIC Compiler BASIC DETOKENISE PBASIC	Comd Comd Comd	Compiles Basic programs. Converts BBC BASIC program and data files to a format usable on EMAS. Verifies BASIC program against ANSI standard.	KNTLIB.BASIC MICROS.EMASLIB KNTLIB.BASIC	D D D	T I,T T
3.4	BCPL Compiler BCPL	Comd	Compiles BCPL programs.	KNTLIB.BCPL	D	A,T
3.6	FORTRAN Compiler *BFORT77 *BFORTE DAPFORTRAN FORT77 FORTE PDFORT77 PDFORTE	Comd Comd Comd Comd Comd Comd Comd	Detaches a job calling the FORT77 compiler. Detaches a job calling the FORTE compiler. Calls the DAPFORTRAN compiler and assembler to compile and assemble a source file. Compiles Fortran 77 programs. Compiles Fortran IV programs. Compiles pdfite member and if successful creates member of an object pdfite. Uses the FORTE compiler on pdfite members.	Subsys Subsys DAPSYS.DAPDIR Subsys Subsys CONLIB.GENERAL CONLIB.GENERAL	D D D D D D D	T L,T L,M,T L,M,T L,M,T I,T I,L,T
3.6.1	FORTRAN Utility POLISH DCE263 PFORT RATFOR	Comd Pack Pack Pack	Tidies enhanced Fortran IV programs. Tidies enhanced Fortran IV programs. Verifies Fortran IV programs. Extension of Fortran to allow structured programming.	KNTLIB.GENERAL PLULIB.PACKDIR PLULIB.PACKDIR PLULIB.PACKDIR	D D D D	A,T A,I,L,M,T A,I,L,M,T I,L,M,T

Index	Item name	Type	Description	Library	SSC	Reason
3.7	IMP Compiler					
	*B80	Comd	Detaches a job calling the IMP80 compiler.	CONLIB.GENERAL	D	L,M,T
	*BIBMIMP	Comd	Detaches a job calling the IBM IMP80 compiler.	Subsys	D	I,T
	*BIMP	Comd	Detaches a job calling the IMP compiler.	Subsys	D	L,T
	*BIMP11	Comd	Detaches a job calling the SKIMP compiler for PDP11/45 IMP programs.	Subsys	D	I,L,T
	*BIMP80	Comd	Detaches a job calling the IMP80 compiler.	Subsys	D	T
	*BIOPT	Comd	Detaches a job calling the IOPT compiler.	Subsys	D	I,L,T
	*BOP	Comd	Detaches a job calling the IOPT compiler.	CONLIB.GENERAL	D	L,M,T
	180	Comd	Calls the IMP80 compiler.	CONLIB.GENERAL	D	I,L,M,T
	IMP	Comd	Compiles IMP9 programs.	Subsys	D	L,M,T
	IMP11	Comd	SKIMP compiler for PDP11/45 IMP programs.	CONLIB.GENERAL	D	I,L,M,T
	IMP80	Comd	Compiles IMP80 programs.	Subsys	D	L,M,T
	IOPT	Comd	Calls the IOPT compiler.	CONLIB.IMP11DIR	D	A,I,L,M,T
	PDP8IMP	Comd	Calls the EMAS-3 optimising IMP80 compiler.	Subsys	D	T
	PIM	Comd	IMP compiler for PDP8 computers.	CONLIB.IMP11DIR	D	I,L,M,T
		Comd	Calls the IMP compiler.	CONLIB.GENERAL	D	A,I,L,M,T
3.7.1	IMP Utility					
	CHECK	Comd	Checks the syntax and semantics of an IMP source file.	CONLIB.GENERAL	D	I,L,M,T
	GENINDEX	Comd	Cross-reference utility for IMP programs.	KNTLIB.GENERAL	D	M,T
	*IMPMOD	Comd	Aids the conversion of IMP9 source to IMP80.	CONLIB.GENERAL	D	I,L,T
	IMPSPEC	Comd	Generates %external...spec for specified IMP library routines.	ERCLIB.IMPSPEC	D	I,L,M,T
	LCIMPKEYS	Comd	Alters all %... type IMP source keywords to lower case letters.	CONLIB.GENERAL	D	I,T
	NAGSPEC	Comd	Generates %external...spec for specified NAG library routines.	ERCLIB.NAGSPEC	D	I,M,L,T
	PDIMP	Comd	Compiles pdfile member and if successful creates member of an object pdfile.	CONLIB.GENERAL	D	I,L,T
	PDIMP80	Comd	Compiles pdfile member and if successful creates member of an object pdfile.	CONLIB.GENERAL	D	I,T
	PROCLIST	Comd	Lists IMP80 routines, functions and maps in alphabetical order.	CONLIB.GENERAL	D	I,T
	*SOAP80	Comd	Formats IMP80 source programs.	CONLIB.GENERAL	D	T
	UCIMPKEYS	Comd	Alters all %... type IMP source keywords to upper case letters.	CONLIB.GENERAL	D	I,T
	XREF80	Comd	Produces a cross-reference table from an IMP80 compiler-listing file.	CONLIB.GENERAL	D	I,M,T
	DEBUG	Prog	Interactive debugging of IMP programs.	CONLIB.GENERAL	D	L,T
3.11	PASCAL Compiler					
	*BPASCAL	Comd	Detaches a job calling the PASCAL compiler.	Subsys	D	T
	PASCAL	Comd	Compiles PASCAL programs.	Subsys	D	M,T
	PDPASCAL	Comd	Compiles pdfile member and if successful creates member of an object pdfile.	CONLIB.GENERAL	D	I,T
3.13	PROLOG Interpreter					
	PROLOG	Prog	A Prolog interpreter written by EU Computer Science.	CONLIB.PROLOG	D	A,L,M,T
3.15	SNOBOL Compiler					
	SNOBOL	Comd	Compiles Snobol programs.	KNTLIB.SNOBOL	D	A,T

Index	Item name	Type	Description	Library	SSC	Reason
4	APPLICATIONS (GENERAL)					
4.1	Databases					
	*DATALIB	Comd	A VIEW system giving details of data holdings and access facilities of the Data Library Service.	PLULIB.PACKDIR	D	A,I,M,T
4.1.1	Data Validation					
	PURGE	Comd	Validates data records against specified format.	ERCLIB.GENERAL	D	A,L,M,T
	MATCH	lIFn	Validates data strings against specified format.	CONLIB.GENERAL	D	I,T
4.1.2	Database Handling					
	RETOCAT	Comd	Converts REFER master-files into text files which may be edited and used as input to CATALOG.	ERCLIB.GENERAL	D	A,I,M,T
	CATALOG	Pack	Indexing and retrieval system.	PLULIB.PACKDIR	D	I
	FAMULUS	Pack	Indexing and retrieval system. Complementary to CATALOG: common file format.	PLULIB.PACKDIR	D	A,L,M,T
	FAMULUS77	Pack	Rewritten and updated version of FAMULUS.	PLULIB.PACKDIR	D	M,T
	RAPPORT	Pack	Relational database management system.	PLULIB.PACKDIR	D	L,T
	*SASPAC	Pack	Analyses small area statistics from census data.	PLULIB.PACKDIR	D	M,T
	CENSUS	Prog	Interface to some census data facilities.	PLULIB.PACKDIR	D	A,I,T
	DATAC	Prog	Interface to some census data facilities.	PLULIB.PACKDIR	D	A,M,T
	ENUF	Prog	Database management system.	PLULIB.PACKDIR	D	A,M,T
4.1.3	Sorting					
	SORTFILE	Comd	Sorts contents of one or more files.	ERCLIB.SORTMERGE	D	
	NAG M01	FRtn	Sorting numbers or characters.	ERCLIB.NAGFORTRAN	D	M,T
	SORT	Rout	Internal sorting of records held in memory or files connected in virtual memory.	ERCLIB.SORTMERGE	D	T
4.2	Graphics Drafting					
	EASYMENU	Comd	Easy introduction to EASYGRAPH.	CONLIB.GRAPHICS	D	T
	GINO	Comd	For Fortran programs calling the GINO-F multi-purpose graphics routines.	PLULIB.PACKDIR	D	T
	GINOGRAF	Comd	For Fortran programs calling GINO-F subroutines for graphs and histograms.	PLULIB.PACKDIR	D	T
	GINOSURF	Comd	For Fortran programs calling GINO-F subroutines producing isometric and contour plots.	PLULIB.PACKDIR	D	T
	GPLAYOUT	Comd	Picture editor, to alter and merge plotfiles.	CONLIB.GRAPHICS	D	T
	HISTOGRAM	Comd	Easy method of drawing histograms.	CONLIB.GRAPHICS	D	I,T
	NOTICEMAP	Comd	Creates file of NOTICE instructions to draw certain maps.	CONLIB.GRAPHICS	D	I,T
	SYMVUMENU	Comd	Sets up control and data files and then runs SYMVU.	CONLIB.GENERAL	D	I,M,T
	TEKDRAW	Comd	Draws logic diagrams.	CONLIB.GRAPHICS	D	I,M,T
	NAG J06A	FRtn	Axes, grids, borders and titles.	ERCLIB.NAGFORTRAN	D	M,T
	NAG J06B	FRtn	Point plotting and straight line drawing.	ERCLIB.NAGFORTRAN	D	M,T
	NAG J06C	FRtn	Curve drawing.	ERCLIB.NAGFORTRAN	D	M,T
	NAG J06E	FRtn	Drawing a general function of one variable.	ERCLIB.NAGFORTRAN	D	M,T
	NAG J06F	FRtn	Drawing special functions of one variable.	ERCLIB.NAGFORTRAN	D	M,T
	NAG J06H	FRtn	Surface views.	ERCLIB.NAGFORTRAN	D	M,T
	EDWIN	lRtn	General purpose device-independent graphics routines.	CONLIB.EDWINDIR	D	A,M,T
	ASPEX	Pack	Three dimensional surface plotting.	PLULIB.PACKDIR	D	T
	HBOOK	Pack	FORTTRAN routines for accumulating, manipulating and displaying histograms.	PLULIB.PACKDIR	D	T

Index	Item name	Type	Description	Library	SSC	Reason
4.2 (cont.)	NOTICE, DRAWWRITE	Pack	Easy method of drawing posters.	CONLIB.GRAPHICS	D	I
	SYMVU	Pack	Three dimensional surfaces and histograms.	PLULIB.PACKDIR	D	M,T
	EASYGRAPH	Prog	Easy method of drawing graphs.	CONLIB.GRAPHICS	D	
	GRAFIX	Prog	Fits and plots data.	CONLIB.GRAPHICS	D	I,M,T
	*POLldata,	Prog	Accepts totals of counts of taxa either by taxon or sample and for each taxon displays on line printer and graph plotter the data and derived statistics.	CONLIB.POLPLOTS	D	I,T
	ZONATION		Calcomp simulation routines.			
	CALCOMPICS	Rout	Standard IMP/FORTRAN routines to create diagrams.	ERCLIB.CALCOMPICS	D	
	GRAPHPACK	Rout		ERCLIB.GRAPHICS	D	T
	TEKTRONIX	*Rout	Creates diagrams for display on Tektronix screens and a range of other graphical devices.	ERCLIB.GRAPHICS	D	L,T
4.2.1 Contouring						
4.2.1	NAG J06G	FRtn	Contour plotting.	ERCLIB.NAGFORTRAN	D	M,T
	BIGGPCP	Pack	Draws contour diagrams.	PLULIB.PACKDIR	D	M,T
	GPCP	Pack	General purpose contouring program.	PLULIB.PACKDIR	D	M,T
	DCNTUR	Rout	Contour drawing routines.	ERCLIB.CALCOMPICS	D	I,T
	DCONTOUR, DCONTR	Rout	Contour drawing routines.	ERCLIB.GRAPHICS	D	I,T
4.2.2 Graphics File Handling						
4.2.2	CREATEGPFILE	Comd	Converts a Tektronix plot into an RCO plotfile.	ERCLIB.GRAPHICS	D	L
	GRANALYSE	Comd	Analyses RCO plotfiles from an ordinary terminal.	ERCLIB.GRAPHICS	D	I,T
	GRCONVERT	Comd	Converts existing RCO plotfile for new plotter.	ERCLIB.GRAPHICS	D	I,T
	*SETUPGRID	Comd	Sets up patterns for the Matrix plotter.	ERCLIB.GRAPHICS	D	T
4.2.3 Graphics Display						
4.2.3	BDRAWPICTURE	Comd	Detaches a job calling DRAWPICTURE.	ERCLIB.GRAPHICS	D	I,M,T
	DRAWPICTURE	Comd	Sends RCO plotfiles to graphical devices.	ERCLIB.GRAPHICS	D	I,M,T
	GPLIST	Comd	Graph plotter equivalent of LIST.	ERCLIB.GRAPHICS	D	T
	GPSEND	Comd	Graph plotter equivalent of SEND.	ERCLIB.GRAPHICS	D	I,T
	GRAFPLOT	Comd	Copies a drawing created by TEKDRAW to a graphical device.	CONLIB.GRAPHICS	D	I,M,T
	MATRIXMAP	Comd	Interprets character files for the Matrix plotter.	ERCLIB.GRAPHICS	D	T
	MPLIST	Comd	Lists character files to the Matrix plotter.	ERCLIB.GRAPHICS	D	T
	MPLISTN	Comd	Lists character files to the Matrix plotter.	ERCLIB.GRAPHICS	D	T
	MPTEXT	Comd	Interprets character files for the Matrix plotter.	ERCLIB.GRAPHICS	D	T
	PLUPLOT	Comd	Displays plotfiles.	PLULIB.PACKDIR	D	I,T
	SHOWOFF	Comd	Demonstrates capabilities of terminal on which it is running by outputting a series of graphical examples, EDWIN based.	ERCLIB.GRAPHICS	D	I,M,T
			Displays a Tektronix plot.			
	TEKVIEW	Comd	Draws RCO plotfiles on Tektronix displays.	ERCLIB.GRAPHICS	D	L,T
	TVIEW	Comd		ERCLIB.GRAPHICS	D	L,T
4.2.4 Image Processing						
4.2.4	SPIDER	FRtn	Image processing.	PLULIB.PACKDIR	D	M,T

Index	Item name	Type	Description	Library	SSC	Reason
4.3	Mathematical					
	INTERPRET	Comd	Calculating (performs arithmetic functions).	CONLIB.GENERAL	D	I,L,M,T
	NAG A02	FRtn	Complex Arithmetic.	ERCLIB.NAGFORTRAN	D	M,T
	NAG C02	FRtn	Zeros of Polynomials.	ERCLIB.NAGFORTRAN	D	M,T
	NAG C05	FRtn	Roots of one or more Transcendental Equations.	ERCLIB.NAGFORTRAN	D	M,T
	NAG C06	FRtn	Summation of Series.	ERCLIB.NAGFORTRAN	D	M,T
	NAG D01	FRtn	Quadrature.	ERCLIB.NAGFORTRAN	D	M,T
	NAG D02	FRtn	Ordinary Differential Equations.	ERCLIB.NAGFORTRAN	D	M,T
	NAG D03	FRtn	Partial Differential Equations.	ERCLIB.NAGFORTRAN	D	M,T
	NAG D04	FRtn	Numerical Differentiation.	ERCLIB.NAGFORTRAN	D	M,T
	NAG D05	FRtn	Integral Equations.	ERCLIB.NAGFORTRAN	D	M,T
	NAG E01	FRtn	Interpolation.	ERCLIB.NAGFORTRAN	D	M,T
	NAG E02	FRtn	Curve and Surface Fitting.	ERCLIB.NAGFORTRAN	D	M,T
	NAG E04	FRtn	Minimizing or Maximizing a Function.	ERCLIB.NAGFORTRAN	D	M,T
	NAG F01	FRtn	Matrix Operations, including Inversion.	ERCLIB.NAGFORTRAN	D	M,T
	NAG F02	FRtn	Eigenvalues and Eigenvectors.	ERCLIB.NAGFORTRAN	D	M,T
	NAG F03	FRtn	Determinants.	ERCLIB.NAGFORTRAN	D	M,T
	NAG F04	FRtn	Simultaneous Linear Equations.	ERCLIB.NAGFORTRAN	D	M,T
	NAG F05	FRtn	Orthogonalisation.	ERCLIB.NAGFORTRAN	D	M,T
	FACSIMILE	Pack	Automatic solution of initial value problems.	PLULIB.PACKDIR	D	A,M,T
	CALCULATOR	Prog	Desk calculator program.	CONLIB.GENERAL	D	I,M,T
	*CURVEFIT	Prog	Fits polynomials and splines to data points.	CONLIB.GRAPHICS	D	T
	KDF9	Prog	Provides the facilities of a reverse Polish calculator at the console.	CONLIB.GENERAL	D	I,M,T
4.4	Statistical					
	SPSSETOI	Comd	Converts EMAS 2900 SPSS system file to IBM.	PLULIB.PACKDIR	D	I,M,T
	SPSSITOE	Comd	Converts IBM370 SPSS system file to EMAS 2900.	PLULIB.PACKDIR	D	I,M,T
	NAG G01	FRtn	Simple Calculations on Statistical Data.	ERCLIB.NAGFORTRAN	D	M,T
	NAG G02	FRtn	Correlation and Regression Analysis.	ERCLIB.NAGFORTRAN	D	M,T
	NAG G04	FRtn	Analysis of Variance.	ERCLIB.NAGFORTRAN	D	M,T
	NAG G05	FRtn	Random Number Generators.	ERCLIB.NAGFORTRAN	D	M,T
	NAG G08	FRtn	Non-parametric Statistics.	ERCLIB.NAGFORTRAN	D	M,T
	AID	Pack	Detects interaction in regression analysis.	PLULIB.PACKDIR	D	I,L,T
	BLISS	Pack	Programs for maximum likelihood of statistical applications; for quantal response functions including probit, logit and sigmoid transformations.	PLULIB.PACKDIR	D	T
	BMDP	Pack	Wide range of statistical techniques.	PLULIB.PACKDIR	D	M,T
	CLUSCOM	Pack	Builds a command file for CLUSTAN.	PLULIB.PACKDIR	D	A,I,T
	CLUSTAN	Pack	Cluster analysis.	PLULIB.PACKDIR	D	A,M,T
	DSIGNX	Pack	Generates randomised experimental designs.	PLULIB.PACKDIR	D	T
	EDEX	Pack	Analysis of experiments with a factorial structure.	PLULIB.PACKDIR	D	T
	FAKAD	Pack	An interactive data analysis package with facilities for simulation etc.	PLULIB.PACKDIR	D	I,L,M,T
	GENSTAT	Pack	Data manipulation and statistical analysis.	PLULIB.PACKDIR	D	A,M,T
	GLIM	Pack	General linear modelling.	PLULIB.PACKDIR	D	T
	HIERF	Pack	Analysis of hierarchical structured data.	PLULIB.PACKDIR	D	T

Index	Item name	Type	Description	Library	SSC	Reason
4.4 (cont.)	IDA	Pack	Interactive data analysis and forecasting system.	PLULIB.PACKDIR	D	A,M,T
	INGRID	Pack	Grid analysis package.	PLULIB.PACKDIR	D	I,T
	LIMDEP	Pack	Parameter estimation.	PLULIB.PACKDIR	D	T
	LISREL	Pack	Analysis of linear structural relationships by method of maximum likelihood.	PLULIB.PACKDIR	D	L,M,T
	LISREL6	Pack	Analysis of linear structural relationships by method of maximum likelihood.	PLULIB.PACKDIR	D	M,T
	MAXLIKE	Pack	General maximum likelihood parameter estimation.	PLULIB.PACKDIR	D	T
	MDSX	Pack	Multi-dimensional scaling package.	PLULIB.PACKDIR	D	A,T
	MINISQ	Pack	General least squares estimation.	PLULIB.PACKDIR	D	T
	MINITAB	Pack	Easy to use statistical package.	PLULIB.PACKDIR	D	A,T
	MLP	Pack	Maximum likelihood package.	PLULIB.PACKDIR	D	T
	PARLIN	Pack	Package for biological assays.	PLULIB.PACKDIR	D	T
	REML	Pack	Estimation of variance components in non-orthogonal data by residual maximum likelihood.	PLULIB.PACKDIR	D	T
	RGSP	Pack	General survey package.	PLULIB.PACKDIR	D	M,T
	RUMIMAGE	Pack	Package for solving linear model problems.	PLULIB.PACKDIR	D	A,M,T
	SCSS	Pack	Interactive survey analysis package.	PLULIB.PACKDIR	D	A,T
	SPSS	Pack	Data management and analysis package.	PLULIB.PACKDIR	D	L,M,T
	SPSSCHKR	Pack	SPSS syntax checker.	PLULIB.PACKDIR	D	I,L,M,T
	SPSSX	Pack	Data management and analysis package.	PLULIB.PACKDIR	D	M
	SUPERCARP	Pack	Subpopulation and stratum means, totals, and proportions, goodness of fit and test of independence for two-way tables.	PLULIB.PACKDIR	D	M,T
4.4.1	Time Series	Comd	Provides a friendly interactive interface to the CSO Econometric Time Series Data.	PLULIB.PACKDIR	D	A,M,T
	CSO	FRtn	Time series analysis.	ERCLIB.NAGFORTRAN	D	M,T
	NAG G13	Pack	Time series analysis.	PLULIB.PACKDIR	D	A,M,T
	BIGTSP	Pack	Time series analysis and forecasting.	PLULIB.PACKDIR	D	M,T
	ISCOL	Pack	Time series analysis.	PLULIB.PACKDIR	D	A,M,T
	TSP	Prog	Time series analysis.	PLULIB.PACKDIR	D	A,M,T
	TSA					
5	APPLICATIONS (DISCIPLINE ORIENTATED)					
5.2	Engineering	Pack	Solves stress and heat conduction problems (with graphics).	CONLIB.PAFECDIR	D	I,L,M,T
	PAFEC					
5.3	Geographical/Mapping	Pack	Geographic information processing system.	PLULIB.PACKDIR	D	M,T
	BGIMMS4	Pack	Graphics display package for line printer output.	PLULIB.PACKDIR	D	M,T
	BIGSYMAP	Pack	Maps Edinburgh by 1971 enumeration districts on a line printer.	PLULIB.PACKDIR	D	A,M
	CAMAPED	Pack	Maps British data by parish on a line printer.	PLULIB.PACKDIR	D	A,M
	CAMAPGB1	Pack	Slower Fortran version of CAMAPGB1.	PLULIB.PACKDIR	D	A,M,T
	CAMAPGB2	Pack	Maps on a line printer according to a user defined framework.	PLULIB.PACKDIR	D	A,M,T
	CAMFRAME	Pack	Maps grid square data on a line printer.	PLULIB.PACKDIR	D	A,M
	CAMGRID	Pack	IMP version of CAMGRID (faster & cheaper).	PLULIB.PACKDIR	D	A,M,T
	CAMGRIDIMP	Pack	Geographic information processing system.	PLULIB.PACKDIR	D	M
	GIMMS	Pack	Geographic information processing system.	PLULIB.PACKDIR	D	M,T
	GIMMS4	Pack	Graphics display program for line printer output.	PLULIB.PACKDIR	D	M,T
	SYMAP					

Index	Item name	Type	Description	Library	SSC	Reason
5.3 (cont.)	GAZ	Prog	Obtains grid reference information about place names issued by user.	PLULIB.PACKDIR	D	A,M,T
	GAZF	Prog	Takes place names from an input file and writes grid reference information to an output file.	PLULIB.PACKDIR	D	A,M,T
	UMAPIT	Prog	Provides a user friendly interface for mapping census data.	PLULIB.PACKDIR	D	T
6	COMMUNICATIONS					
6	Sending/Reading Messages					
	MAIL	Comd	Allows users to send messages to each other.	Subsys	D	
	MESSAGES	Comd	Allows messages to be inhibited or displayed on the screen if wanted.	Subsys	D	T
	MSG	Comd	An extension of TELL for sending messages via MAILER.	CONLIB.GENERAL	D	I,T
	NEWSCONTROL	Comd	Allows a user to control how the news system works for them.	KNTLIB.GENERAL	D	A,I,T
	POSTNEWS	Comd	Allows a user to send an item into the news system.	KNTLIB.GENERAL	D	A,I,T
	READNEWS	Comd	Allows a user to read items in the news system.	KNTLIB.GENERAL	D	A,I,T
	SUGGESTION	Comd	Sends a suggestion about EMAS 2900 to the System Manager.	Subsys	D	
	TELL	Comd	Sends a message to another user.	Subsys	D	
	SSFOFF	IRtn	Inhibits error messages from Subsystem commands called from within a program.	Subsys	D	I,M,T
	SSFON	IRtn	Allows error messages from Subsystem commands called from within a program.	Subsys	D	I,M,T
	CHAT	Prog	Allows a group of users to chat to each other.	KNTLIB.GENERAL	D	A,M,T
7	TEXT PROCESSING					
7.1	Text Analysis					
	OCF	Comd	Word counts and concordances.	ERCLIB.GENERAL	D	M,T
	CONCORD	Prog	Word count and concordance text analysis.	CONLIB.GENERAL	D	T
7.2	Text Processing					
	CHECKLEX	Comd	Checks the order of items in a lexicon.	KNTLIB.GENERAL	D	L,M,T
	DOUBLE	Comd	Checks for words repeated adjacently.	KNTLIB.GENERAL	D	M,T
	DPLAY	Comd	LAYOUT with output defaulting to Philips GP300 printer format.	CONLIB.GENERAL	D	T
	DPLIST	Comd	A simple text formatting program.	CONLIB.GENERAL	D	T
	*EL	Comd	Version of ECCE allowing invocation of OLAYOUT.	CONLIB.GENERAL	D	T
	INDEX	Comd	Simplifies the preparation of an index for a document.	CONLIB.GENERAL	D	T
	INLAY	Comd	Prepares text file for OLAYOUT.	ERCLIB.GENERAL	D	M,T
	LASERCHECK	Comd	Checks syntax of input to Lasercomp.	ERCLIB.GENERAL	D	A,M,T
	LAYOUT	Comd	Formats text for listing to a variety of printers.	CONLIB.GENERAL	D	T
	LEXMERGE	Comd	Merges two SPELL lexicons to form a third.	KNTLIB.GENERAL	D	M,T
	LJLAY	Comd	LAYOUT with output defaulting to LaserJet printer format.	CONLIB.GENERAL	D	A,I,T
	OLAYOUT	Comd	Early form of LAYOUT text formatter.	ERCLIB.GENERAL	D	T
	ROFF	Comd	Formats text.	KNTLIB.GENERAL	D	A,M,T
	SANLAY	Comd	LAYOUT with output defaulting to Computer Science Dept Sanders printer format.	CONLIB.GENERAL	D	A,T
	SCRIBE	Comd	Local version of the proprietary text formatting program of the same name.	Subsys	D	
	SPELL	Comd	Checks and corrects the spelling of words in a file by using a standard lexicon.	KNTLIB.GENERAL	D	M,T
	SPELLC	Comd	Compresses a lexicon.	KNTLIB.GENERAL	D	L,M,T
	SPELLE	Comd	Expands a compressed lexicon (see SPELLC).	KNTLIB.GENERAL	D	L,M,T
	STRIPLEX	Comd	Removes from a lexicon any word containing an upper case letter.	KNTLIB.GENERAL	D	L,M,T
	DOCUMENT	Prog	An interactive document preparation program.	CONLIB.GENERAL	D	I,M,T

EMAS 2900 SOFTWARE INDEX

STARRED ITEMS

This summary of software items which could have been listed under more than one function embraces only these 22 items which have less obvious additional functions.

Item	Listed Function	Other Functions
B80	IMP Compiler	Jobs (background)
BFORT77	FORTRAN Compiler	Jobs (background)
BFORTE	FORTRAN Compiler	Jobs (background)
BIBMIMP	IMP Compiler	Jobs (background)
BIMP	IMP Compiler	Jobs (background)
BIMP11	IMP Compiler	Jobs (background)
BIMP80	IMP Compiler	Jobs (background)
BIOPT	IMP Compiler	Jobs (background)
BOP	IMP Compiler	Jobs (background)
BPASCAL	PASCAL Compiler	Jobs (background)
CURVEFIT	Mathematical	Statistical
DATALIB	Databases	User Information
DELETEDOC	Jobs (background)	File Listing, File Transfer
DOCUMENTS	File Information	File Listing, File Transfer, Jobs (background)
EL	Text Processing	File Editing
IMPMOD	IMP Utility	File Editing
POLLDATA,ZONATION	Graphics Drafting	Statistical
SASPAC	Database Handling	Statistical
SETUPGRID	Graphics File Handling	File Editing
SOAP80	IMP Utility	File Editing
VIEW	User Information	File Handling
WCOUNT	File Handling	Text Analysis

Part II EMAS-3 Software

This edition of the Software Index includes a section on EMAS-3 software which is provided on host EMAS-A. The EMAS-3 software is organized in directories under usernames Subsys, ERCLIB, PLULIB, KNTLIB, CONLIB and MICROS: see Appendix 3 for more details. These directories have no logic as far as the function of the software is concerned; the items are grouped entirely for managerial considerations. For example, the Subsystem is looked after by the Central Systems Group, and the KNTLIB items are those which originated at the University of Kent at Canterbury when they provided an EMAS 2900 service. CONLIB items have been contributed by users and are supervised by a member of USG staff.

The main functional groupings of the Index are:

- a. User's EMAS Procedures. Those commands and programs likely to be required in any general use of EMAS-3 such as logging on, setting up the terminal, accessing programs and running jobs.
- b. File Utilities. EMAS-3 is a file based system with extensive facilities. Although these items could be seen as part of a. above they are put in a separate group.
- c. Applications (General). These are application - or problem - orientated items which provide widely used facilities, although some could be seen as falling into d. below.
- d. Applications (Discipline Orientated). These are similar to those in c. but with an application orientated towards a particular subject or discipline.

Single Entry Principle

A single entry principle is used in the EMAS Software Index. An item appears only once in that group where it is thought most likely to be sought. There are some items which could be listed within more than one group. An example is VIEW which is shown under User Information, but since it can be used to look at any file it could have been listed under File Handling as well. Such items are marked with an asterisk * and their further uses are given after the Index. Some items such as the statistical ones have an obvious duality and are not so marked.

SSC Changes

In the September 1987 edition of this Software Index the support level for the following items will be altered:

A to B: CALCOMPICS
A to B: INITPARM
A to B: NEWSMFILE
A to B: SUGGESTION
A to B: TEMPDELIVER

A to B: DONATEFUNDS
A to B: LINK
A to B: SHOW
A to B: TELL

C to D: BPASCAL
C to D: CODECHANGE
C to D: LISTPERM

C to D: CHECKFILE
C to D: FILECHECK
C to D: MATCHADDR

EMAS-3 Software Index: by item function

Index	Item name	Type	Description	Library	SSC	Reason
1	USER'S EMAS PROCEDURES					
	1.1 Access to EMAS					
	PASSWORD	Comd	Sets foreground and/or background passwords.	Subsys	A	
	QUIT	Comd	Logs the user off the machine.	Subsys	A	
	STOP	Comd	Logs the user off the machine.	Subsys	A	
1.2	Terminal Control & Information					
	BEL	Comd	Sends about 7 BEL characters to the interactive terminal.	ERCLIB:GENERAL	C	I,T
	SETMODE	Comd	Modifies the characteristics of a terminal.	Subsys	B	
	TERMINALTYPE	Comd	Allows user to take advantage of the characteristics of the type of terminal he uses.	Subsys	A	
	TTYLIST	Comd	Displays the terminals on which you have used the TERMINALTYPE command.	Subsys	C	T
	EMAS3MODESTR	IRtn	Sets modes for a terminal connected to a PAD.	Subsys	C	I,T
	EMAS3SETMODE	IRtn	Despatches PAD mode information to the PAD controlling the interactive terminal.	Subsys	C	T
	EMAS3VDUB	IRtn	For terminal control from user's program.	Subsys	C	I,T
	EMAS3VDUC	IRtn	For terminal control from user's program.	Subsys	C	I,T
	EMAS3VDUI	IRtn	For terminal control from user's program.	Subsys	C	I,T
	EMAS3VDUS	IRtn	For terminal control from user's program.	Subsys	C	I,T
1.3	EMAS process control and information					
	DELETEPROFILE	Comd	Deletes the information associated with a particular key from a profile file.	KNTLIB:GENERAL	C	M,T
	DESCRIBE	Comd	Examines the attributes of an EMAS process.	ERCLIB:GENERAL	D	I,T
	DONATEFUNDS	Comd	Allows one holder of FUNDS to give to another.	Subsys	A	T
	LISTPROFILE	Comd	Lists the contents of profile file.	KNTLIB:GENERAL	C	M,T
	MERGEPROFILES	Comd	Merges the contents of two profile files.	KNTLIB:GENERAL	C	M,T
	OPTION	Comd	Enables the user to set options on his own process.	Subsys	A	
	EMAS3UINFI	IRtn	Ascertains various characteristics of the current process.	Subsys	C	T
	EMAS3UINFS	IRtn	Ascertains various characteristics of the current process.	Subsys	C	T
	READPROFILE	IRtn	Reads data stored in user's profile file.	Subsys	C	I,T
	WRITEPROFILE	IRtn	Writes data into user's profile file.	Subsys	C	I,T
1.3.1	Directory					
	ACTIVEDIR	Comd	Specifies active directory.	Subsys	B	M
	ALIAS	Comd	Aliases EMAS commands for a user.	Subsys	A	
	ALIASENTRY	Comd	Aliases an entry for the duration of the session.	Subsys	B	T
	ALIASPROC	Comd	Aliases EMAS procedure entries for a user.	Subsys	B	T
	CREATEMONITORFILE	*Comd	Creates monitor file of desired size for use by EPMONITOR.	ERCLIB:GENERAL	D	I,T
	EPMONITOR	Comd	Requests monitoring of the use of entry points within a given directory.	ERCLIB:GENERAL	D	I,T
	INSERT	Comd	Puts information about object files or ecl procedure files into the active directory.	Subsys	A	
	INSERTPDF	Comd	Inserts all object members of a pdf file into user's active directory.	ERCLIB:GENERAL	D	I,T

1.3.1 (cont.)	LOOKFOR	Comd	Searches directories for occurrences of a command or an entry point.		
	MODDIR	Comd	Alters filenames in directories.	Subsys	B
	NEWDIRECTORY	Comd	Creates a new, empty directory file.	KNTLIB:GENERAL	C
	REMOVE	Comd	Removes information about an object file or an ecl procedure file from the active directory.	Subsys	A
	REMOVEDIR	Comd	Removes directories from search lists.	Subsys	B
	REMOVEPDF	Comd	Removes all object members of a pdf file from the user's directory.	ERCLIB:GENERAL	D
	SEARCHDIR	Comd	Adds directory to search list.	Subsys	B
	TIDYDIR	Comd	Retrieves wasted space in directory.	Subsys	T
1.4	EMAS Command Handling				
	APPLECALL	Comd	Calls EMAS command, overcoming lack of " " on Apple keyboard.	CONLIB:GENERAL	D
	APPLECALLS	Comd	Reads EMAS command lines and calls commands, overcoming lack of " " on Apple keyboard.	CONLIB:GENERAL	D
	COMMANDPROMPT	Comd	Sets the command-level prompt.	Subsys	T
	Filename Extension	Comd	Simplifies some of the standard EMAS commands.	ERCLIB:GENERAL	D
	MAKECOMMAND	Comd	Converts name of procedure to name of command.	Subsys	B
	EMAS3	IRtn	Calls an EMAS command from within a program.	Subsys	B
	EMAS3H	IRtn	Invokes the command interpreter to load and execute a command using given parameters.	Subsys	T
	EMAS3PROMPT	IRtn	Outputs the given string as "prompt" text requesting typed input at the interactive terminal.	Subsys	T
	EMAS3X	IRtn	Executes nominated command with given parameters.	Subsys	C
	History	Soft	Allows you to reissue EMAS commands previously used.	Subsys	B
	Prompting	Soft	Asks for input from terminal.	Subsys	I
1.4.1	Session Information				
	CLEARJOURNAL	Comd	Erases contents of RECALL file	Subsys	D
	FORGET	Comd	Clears RECALL file.	KNTLIB:GENERAL	C
	METER	Comd	Prints date, time of day, cpu and connect times, page turns and approximate cost of session.	Subsys	B
	NEWSESSION	Comd	Writes a marker in the RECALL file for use by THISS and PREV.	ERCLIB:GENERAL	C
	PREV	Comd	Extracts the section of the RECALL file between the last two markers set by NEWSESSION.	ERCLIB:GENERAL	C
	RECALL	Comd	Calls the editor to look at stored terminal input/output.	Subsys	A
	RECALLCOMMAND	Comd	Copies the RECALL file eliminating blank lines and searches backwards for "Command:xxx", then calls LOOK.	ERCLIB:GENERAL	C
	RECAP	Comd	Calls ECCE to look at stored terminal input/output.	Subsys	A
	RECAPCOMMAND	Comd	Copies the RECALL file eliminating blank lines and searches backwards for "Command:xxx", then calls SHOW.	ERCLIB:GENERAL	C
	SESSION	Comd	Enquires which session you are on.	ERCLIB:GENERAL	C
	THISS	Comd	Extracts the section of the RECALL file after the last marker set by NEWSESSION.	ERCLIB:GENERAL	C
	VRECAP	Comd	Calls VECCE to look at stored terminal input/output.	ERCLIB:GENERAL	D
	WARNINGS	Comd	Enables and disables Subsystem warning messages.	Subsys	D
	EMAS3CLEARJOURNAL	IRtn	Clears the RECALL file for the process.	Subsys	C
	EMAS3CPUTIME	IRtn	Provides the CPU time used by the process since the beginning of the session.	Subsys	T
	EMAS3GETJOURNAL	IRtn	Generates a file containing a recall of the current and previous interactive sessions.	Subsys	T
	EMAS3JOURNALOFF	IRtn	Inhibits the placement of interactive-terminal data into the RECALL file.	Subsys	C
	EMAS3JOURNALON	IRtn	Cancels inhibition imposed by previous call of EMAS3JOURNALOFF (qv).	Subsys	C

Index	Item name	Type	Description	Library	SSC	Reason
1.5.1	Date and Time					
	CURRENTPACKEDDT	IIFn	Gives current date and time in packed format.	Subsys	C	I,T
	DTWORD	IIFn	Converts packed date and time from old format to new.	Subsys	C	I,T
	EMAS3DATE	IRtn	Returns today's date, in the form dd/mm/yy.	Subsys	C	T
	EMAS3PACKDATEANDTIME	IRtn	Returns the Subsystem's binary representation of the offered date and time.	Subsys	C	T
	EMAS3TIME	IRtn	Produces the current time-of-day in the form "hh.mm.ss".	Subsys	C	T
	EMAS3UNPACKDATE	IRtn	Presents the date, assumed to be in the standard Subsystem date and time format, in the form "dd/mm/yy".	Subsys	C	T
	EMAS3UNPACKTIME	IRtn	Presents the time, assumed to be in the standard Subsystem date and time format, in the form "hh.mm.ss".	Subsys	C	T
1.5.2	Input					
	FCREADYESNO	IIFn	Returns the character 'Y' or 'N' from the terminal.	CONLIB:GENERAL	D	I,T
	CONTROL LINE	IRtn	Reads a control line of text from the currently selected input stream.	Subsys	D	I,T
	EMAS3INPOS	IRtn	Returns the position in the current input line of the character which will be delivered by the next call of (IMP) READCH, or equivalent.	Subsys	C	T
	FCKEYREAD	IRtn	Reads the first line of the file beginning with a specified key.	CONLIB:GENERAL	D	I,T
	FCKEYREADB	IRtn	As FCKEYREAD but assumes file has been sorted.	CONLIB:GENERAL	D	I,T
	FCKEYREADBF	IRtn	As FCKEYREAD but uses FCPREVLINE to backspace to find first line beginning with key.	CONLIB:GENERAL	D	I,T
	FCPREVLINE	IRtn	Reads the previous line from the input stream.	CONLIB:GENERAL	D	I,T
	FCREADLINE	IRtn	Returns the next line of a file.	CONLIB:GENERAL	D	I,T
	NRSTRG	IRtn	Returns the next line of characters from the input stream.	ERCLIB:GENERAL	C	I,T
	RDINT	IRtn	Reads the next decimal or hexadecimal number from the console.	ERCLIB:GENERAL	C	I,T
	RDINTS	IRtn	Reads a number from a string or from the console if string is empty.	ERCLIB:GENERAL	C	I,T
	READLINE	IRtn	Reads visible characters from input line.	ERCLIB:GENERAL	D	I,T
	RSTRG	IRtn	Gives next non-blank line of characters from input stream.	ERCLIB:GENERAL	C	I,T
	UCSTRG	IRtn	Returns the next non-blank line of characters from the currently selected input stream, converting alphabetic characters to upper case.	ERCLIB:GENERAL	C	I,T
1.5.3	Output					
	#DEC	Comd	Prints the decimal equivalent of a hexadecimal number.	Subsys	C	I,T
	#HEX	Comd	Prints the hexadecimal equivalent of a decimal number.	Subsys	C	I,T
	EMAS3OUTPOS	IRtn	Returns the current output line-length on the currently selected output stream.	Subsys	C	T
	EMAS3PHEX	IRtn	Outputs on the currently selected output stream eight hexadecimal digits representing the given 32-bit value.	Subsys	C	T
	PRINTCHS	IRtn	Prints characters of a string.	Subsys	C	I,T
1.5.4	String handling					
	SEARCHVMM	Comd	Searches in a specified area of virtual memory for a string, halfword or fullword pattern.	ERCLIB:GENERAL	C	I,T
	CSTRNG	FRtn	Copies into a character variable the first n characters from an A4 packed integer area.	Subsys	D	I,T
	ISTRNG	FRtn	Copies n characters contained in a character variable into an integer area in packed A4 format.	Subsys	D	I,T
	BIN	IIFn	Converts hexadecimal or decimal string into binary string.	ERCLIB:GENERAL	C	I,T
	ERCLIBLOCATE	IIFn	Fast search for text in a specified string.	ERCLIB:GENERAL	C	I,T
	HXSTOBI	IIFn	Converts a hexadecimal string into a binary number.	ERCLIB:GENERAL	C	I,T

Index	Item name	Type	Description	Library	SSC	Reason
1.5.4 (cont.)	KWDSCAN	IIFn	Searches a 'keyword index' for a section which includes all of a set of keywords nominated by the caller.	Subsys	D	I,T
	MATCHADDR	IIFn	Scans an area of store for a given pattern of bytes.	ERCLIB:GENERAL	C	I,T
	SAMEBYTES	IIFn	Compares areas of virtual store.	Subsys	C	I,T
	STARTSWITH	IIFn	Checks whether one string starts with another.	Subsys	C	I,T
	STOREMATCH	IIFn	Compares areas of virtual store.	Subsys	C	I,T
	TRAILSPACES	IIFn	Counts trailing spaces in a string.	Subsys	C	I,T
	CHOPLDR	IRtn	Removes leading characters from a string.	Subsys	C	I,T
	DESPACE	IRtn	Replaces groups of contiguous multiple spaces in a string by a single space.	ERCLIB:GENERAL	C	I,T
	EMAS3ETOI	IRtn	Converts specified bytes of data from EBCDIC to ISO.	Subsys	C	I,T
	EMAS3HTOS	IRtn	Represents an integer as a string of up to eight hexadecimal digits.	Subsys	C	T
	EMAS3ITOE	IRtn	Converts specified bytes of data from ISO to EBCDIC.	Subsys	C	I,T
	EMAS3ITOS	IRtn	Returns a string representing the value in decimal of the integer given.	Subsys	C	T
	EMAS3MOVESTRING	IRtn	Performs a translation on a string so that it may be passed between programs written in different languages.	Subsys	C	I,T
	EMAS3MOVESTRINGIN	IRtn	Performs a translation on an input string so that it may be passed between programs written in different languages.	Subsys	C	I,T
	EMAS3MOVESTRINGOUT	IRtn	Performs a translation on an output string so that it may be passed between programs written in different languages.	Subsys	C	I,T
	EMAS3UCSTRING	IRtn	Translates all lower case letters in the given string into upper case.	Subsys	C	T
	EMAS3UCTRANSULATE	IRtn	Translates into upper case all lower case letters in the given area of virtual store.	Subsys	C	T
	HSTOI	IRtn	Converts a string of hexadecimal digits to an integer value.	ERCLIB:GENERAL	D	I,T
	NSTOLRS	IRtn	Converts a string of numbers to an array of longreal values.	ERCLIB:GENERAL	D	I,T
	NSTORS	IRtn	Converts a string of numbers to an array of real values.	ERCLIB:GENERAL	D	I,T
	STOLR	IRtn	Converts a string of numerals to a longreal value.	ERCLIB:GENERAL	D	I,T
	STOR	IRtn	Converts a string of numerals to a real value.	ERCLIB:GENERAL	D	I,T
	STRINGFILL	IRtn	Pads out a string to a given length.	CONLIB:GENERAL	D	I,T
	FROMSTR	ISFn	A version of SUBSTRING which returns a null string if called incorrectly.	ERCLIB:GENERAL	C	I,T
	ITOB5	ISFn	Converts an integer to a bit-pattern string.	ERCLIB:GENERAL	D	I,T
	ITOHS	ISFn	Converts a binary pattern to a string of hexadecimal digits.	ERCLIB:GENERAL	D	I,T
	ITOSTR	ISFn	Mimics the IMP function WRITE, producing a string result.	ERCLIB:GENERAL	D	I,T
	PSTOI	ISFn	Returns a value which is the binary representation of the positive integer represented by a string.	Subsys	C	I,T
	RTOSTR	ISFn	Mimics the IMP function PRINT, producing a string result.	ERCLIB:GENERAL	D	I,T
	SEPARATE	ISFn	Separates a string of text into substrings between commas.	ERCLIB:GENERAL	D	I,T
1.5.5 Program Control & Information						
1.5.5	#LISTED	Comd	Lists all known facts about the file or device defined as a channel.	Subsys	D	I,T
	CLEAR	Comd	Clears channel definitions set up by DEFINE.	Subsys	A	
	CURRENTREFS	Comd	Prints a list of currently active references.	Subsys	C	I,T
	DATASPACE	Comd	Allows users to set up a data area in a file to satisfy data references while loading.	Subsys	C	I,T
	DEFINE	Comd	Links input/output channel to file or device.	Subsys	A	
	EXECUTE	Comd	The same as RUN, but the load level is unaltered.	Subsys	C	I,T
	IBMEEXEC	Comd	Executes a fully link-edited VSS load module.	ERCLIB:VSSDIR	C	A,I,T

Index	Item name	Type	Description	Library	SSC	Reason
1.5.5 (cont.)	IBMEJECTEXT	Comd	Loads, links and executes a TEXT file.	ERCLIB:VSSDIR	C	A,I,T
	LOADEDENTRIES	Comd	Prints a list of entries loaded by the caller.	Subsys	C	I,T
	LOADEDFILES	Comd	Prints a list of currently loaded files.	Subsys	C	I,T
	LOADPARM	Comd	Allows loader run time options to be set.	Subsys	B	T
	PACKTEST	Comd	Selects the test version of the nominated package for use in the current job or session.	PLULIB:PACKDIR	D	I,T
	PCLEAR	Comd	Clears all entries from the PDEFINE table.	Subsys	C	I
	PDEFINE	Comd	Builds a table of equivalence between Pascal bound names and EMAS files.	Subsys	C	I
	PRELOAD	Comd	Causes an object file to be permanently loaded.	Subsys	B	T
	RUN	Comd	Runs a compiled program.	Subsys	A	
	SIMRUN	Comd	Runs a SIMULA program compiled by SIMCOMP and linked by SIMLINK.	ERCLIB:VSSDIR	C	A,I,T
	VCLEAR	Comd	Clears channel definitions set up by VDEFINE.	Subsys	C	
	VDEFINE	Comd	Sets up default definitions for use within VSS packages.	Subsys	C	
	VGLOBAL	Comd	Sets up default parameters for the VSS packages IBMASSEMBLE and IBMEJECTEXT.	Subsys	C	I,T
	DEFINFO	IRtn	Provides information on links between channel numbers and files.	Subsys	D	I,T
	DFDFIN	IRtn	Allows a program or command to redefine temporarily the source for input on stream 0.	Subsys	C	A,I,T
	DFDOUT	IRtn	Allows a program or command to redefine temporarily the destination for output on stream 0.	Subsys	C	A,I,T
	EMAS3CLAIMCHANNEL	IRtn	Provides a currently unused i/o channel number for use in EMAS3DEFINE and subsequent i/o operations.	Subsys	C	T
	EMAS3CLOSE	IRtn	Closes the channel when reading or writing is complete.	Subsys	C	I,T
	EMAS3DEFINE	IRtn	Associates a channel number with either a device or a file.	Subsys	C	I,T
	EMAS3ENTER	IRtn	Enters a procedure previously loaded by a call of EMAS3LOADEP.	Subsys	C	T
	EMAS3INTERRUPT	IRtn	Provides the multiple-character string (if any) which has been typed in response to an Int: prompt at the interactive terminal.	Subsys	C	T
	EMAS3LOADEP	IRtn	Invokes the Subsystem loader to perform a cascade load for the specified entrypoint.	Subsys	C	T
	EMAS3RETURNCODE	IRtn	Supplies the return code set by the call of EMAS3SETRETURNCODE (qv) in the previous command.	Subsys	C	T
	EMAS3SETRETURNCODE	IRtn	Reports the success or error when a Subsystem or user-written command is completed.	Subsys	C	T
	REPORTON	IRtn	Allows users to reroute stream 0 output to another channel.	Subsys	C	I,T
	TIMEMESSAGE	IRtn	Timing program execution.	CONLIB:GENERAL	D	I,T
	VSSCMD	IRtn	Routine for executing MVS programs.	ERCLIB:VSSDIR	D	A,I,T
	VSS	Pack	Executes MVS programs.	ERCLIB:VSSDIR	C	A,I,T
	#LOUIET	Comd	Switches off all loader warning messages.	Subsys	C	I,T
1.5.6	Diagnostics					
	#DUMP	Comd	Dumps a specified area of virtual memory.	Subsys	C	I,T
	#DUMPPFILE	Comd	Dumps specified area of file.	Subsys	C	I,T
	#MON	Comd	Monitors CPU time and page turns.	Subsys	C	I,T
	#MONLOAD	Comd	Sets the level of monitoring.	Subsys	B	T
	#N	Comd	Cancels all #MON and #MONLOAD settings.	Subsys	C	I,T
	#PCOM	Comd	Prints the contents of a location.	Subsys	C	I,T
	#PMESS	Comd	Prints the Subsystem Error Message for faultnumber 'fn'.	Subsys	C	I,T
	#PVM	Comd	Displays virtual memory.	Subsys	C	I,T
	#REGS	Comd	Prints contents of Amdahl's registers at the time of last hardware-detected program failure.	Subsys	C	I,T
	#SCOM	Comd	Sets the contents of a location.	Subsys	C	I,T
	#SNAP	Comd	Dumps specified area of virtual memory.	Subsys	C	I,T

Index	Item name	Type	Description	Library	SSC	Reason
1.5.6 (cont.)	#SNAPCH	Comd	Translates the specified area of VM into ISO and prints it.	Subsys	C	I,T
	#SNAPCODE	Comd	Decompiles code into a form of host machine assembler and prints it.	Subsys	C	I,T
	DUMPCODE	Comd	Prints machine code from a section of virtual memory.	ERCLIB:GENERAL	C	I,T
	DUMPFIL	Comd	Prints a hex dump of a file.	ERCLIB:GENERAL	C	I,T
	DUMPPVM	Comd	Prints a hexadecimal dump of an area of virtual memory.	ERCLIB:GENERAL	C	I,T
	EBCDICDUMP	Comd	Prints a hex dump from virtual memory with EBCDIC interpretation of characters.	ERCLIB:GENERAL	C	I,T
	IBMCODE	Comd	De-assembler into 370-XA machine code.	ERCLIB:GENERAL	C	I,T
	QENV	Comd	Identifies the environment from which it was called.	ERCLIB:GENERAL	D	I,T
	RECODE	Comd	Places de-compiled host machine assembler from a file to a device.	ERCLIB:GENERAL	C	I,T
	RECODELINES	Comd	De-assembles host machine code from IMP object file to a file or device.	ERCLIB:GENERAL	C	I,T
	SIZE OF	IFn	Returns the number of bytes occupied by the variable named as the parameter.	Subsys	C	I,T
	DUMP	IRtn	Prints a hex dump of virtual memory.	ERCLIB:GENERAL	C	I,T
	EMAS3COMREG	IRtn	Supplies the current contents of word N of the Subsystem internal communication region.	Subsys	C	T
	EMAS3ERROR	IRtn	Writes a message to the terminal to say where it was called from.	Subsys	C	I,T
	EMAS3FAILUREMESSAGE	IRtn	Returns the failure message corresponding to the Subsystem error flag provided.	Subsys	C	T
	EMAS3SETCOMREG	IRtn	Sets a given value in a particular Subsystem communication word.	Subsys	C	T
	EMAS3SETFNAME	IRtn	Sets the Subsystem identifier field to given text.	Subsys	C	T
	VAL	IRtn	Tells if permission is set for user's access to virtual memory.	ERCLIB:GENERAL	C	I,T
	UDERRS	ISFn	Returns the message text interpreting a Director error number.	ERCLIB:GENERAL	C	I,T
1.5.7	Contingency Handling					
	PTRAP	Comd	Prints details of traps set.	Subsys	C	I,T
	EMAS3ALLOWINTERRUPTS	IRtn	Allows asynchronous events to interrupt the process again.	Subsys	C	I,T
	EMAS3DISCARDTRAP	IRtn	Discards a contingency trap.	Subsys	C	T
	EMAS3EVENTDATA	IRtn	Describes the process state at the most recent contingency.	Subsys	C	T
	EMAS3GIVEEVENT	IRtn	Returns the class and subclass of the most recent contingency.	Subsys	C	T
	EMAS3SETTRAP	IRtn	Sets a trap to "catch" occurrences of contingencies of given class and subclass.	Subsys	C	T
	EMAS3SIGNAL	IRtn	Causes transfer of control as though an event (contingency) of given class and subclass had occurred.	Subsys	C	T
	EMAS3TRAP	IRtn	Indicates that the current procedure or its enclosed subroutines may wish to trap one or more classes of contingency.	Subsys	C	T
	EMAS3TRIGGERTRAP	IRtn	Causes transfer of control as though an event (contingency) of given class and subclass had occurred.	Subsys	C	T
	EMAS3UNSETTRAP	IRtn	Unsets a trap set by a previous call of EMAS3SETTRAP (q.v.).	Subsys	C	T
1.5.8	Parameter Handling					
	#NOTE	Comd	Controls printing produced by EMAS3MONPARAMS (qv).	Subsys	C	I,T
	CHECKINTEGER	Comd	Allows user to exercise PAM checking routine at Command level.	Subsys	D	I,T
	CHECKLONGREAL	Comd	Allows user to exercise PAM checking routine at Command level.	Subsys	D	I,T
	CHECKSTRING	Comd	Allows user to exercise PAM checking routine at Command level.	Subsys	D	I,T
	CASTOUT	IRtn	Removes spaces from a string and translates any lower-case letters to upper case.	Subsys	C	I,T
	EMAS3GETRESTOFLINE	IRtn	Provides those characters from the parameters supplied which have not been "consumed" by earlier calls on PAM procedures.	Subsys	C	I,T
	EMAS3INTEGER	IRtn	Produces an integer parameter value.	Subsys	C	T
	EMAS3LASTPARAM	IRtn	Gives the actual text that was used to derive the value for the most recently acquired parameter.	Subsys	C	I,T

Index	Item name	Type	Description	Library	SSC	Reason
1.5.8 (cont.)	EMAS3LINE	IRtn	Returns the remainder of the parameter line and clears it.	Subsys	C	T
	EMAS3LONGREAL	IRtn	Produces a longreal parameter value.	Subsys	C	T
	EMAS3MONPARAMS	IRtn	Performs monitoring of the parameters passed to the routine calling it.	Subsys	C	I,T
	EMAS3STRING	IRtn	Produces a string parameter value.	Subsys	C	T
	QUERYPROMPTS	IRtn	Controls parameter prompting in commands called from programs.	Subsys	C	I,T
	BIGOUTROUTE	ISFn	Returns string for part of EMAS3INTEGER vector for output files	CONLIB:GENERAL	D	I,T
1.6 File Command handling						
1.6	FMACRO	Comd	Performs a number of commands on a number of files.	ERCLIB:GENERAL	D	I,T
	LMACRO	Comd	Performs a set of commands on a number of files.	ERCLIB:GENERAL	D	I,T
	PDMACRO	Comd	Performs a number of commands on pdfile members.	ERCLIB:GENERAL	D	I,T
1.7 Jobs (all)						
1.7	CPULIMIT	Comd	Sets the time limit for each subsequent command.	Subsys	B	T
1.7.1 Jobs (background)						
1.7.1	AWAITRESTORES	Comd	Delays detached job until necessary RESTORES performed.	Subsys	B	T
	BATCH	Comd	Interrogates batch job queue.	Subsys	A	
	BINTT	Comd	Interrupts background jobs (Int:T) from foreground process.	Subsys	C	I,T
	DELAYJOB	Comd	Reruns a background job at regular intervals.	CONLIB:GENERAL	D	T
	*DELETEDOC	Comd	Deletes a job or file or transfer request which is currently queued or active.	Subsys	A	
	DETA	Comd	Handy version of DETACH.	ERCLIB:GENERAL	D	I,T
	DETACH	Comd	Detaches a job into the background job queue.	Subsys	A	
	NDELETEDOC	Comd	Deletes a document sent by using NLIST.	Subsys	C	I,T
1.7.2 Jobs (foreground)						
1.7.2	OBEY	Comd	Obeys a file containing a sequence of commands and data.	Subsys	A	
1.8 Tape Handling						
1.8	COPYTAPE	Comd	Copies whole tapes or files from tapes.	Subsys	B	T
	DEFINEMT	Comd	Links input/output channel to a file on magnetic tape.	Subsys	B	T
	FROMTAPE	Comd	Copies files from IBM standard tapes to EMAS-3 files.	Subsys	B	T
	HOLDMT	Comd	Magnetic tape is not to be rewound when a file on the tape is closed.	Subsys	C	I,T
	RELEASEMT	Comd	Unloads a specified magnetic tape.	Subsys	C	I,T
	TAPEANAL	Comd	Analyses the contents of a tape file.	Subsys	B	T
	TOTAPE	Comd	Writes files to IBM standard labelled tapes or to unlabelled tapes.	Subsys	B	T
	WRULTAPE	Comd	Writes a file to an unlabelled magnetic tape.	KNTLIB:GENERAL	C	A,I,M,T
1.9.1 System Information						
1.9.1	ALERT	Comd	Prints news of changes to the System.	Subsys	A	
	EPOCH	Comd	Prints time of next scheduled system close-down	KNTLIB:GENERAL	C	M,T
	FUNDS	Comd	Tells amount of Funds left, name of Group Holder and whether scarcity.	Subsys	A	
	RUON	Comd	Finds out if a user is on the computer.	ERCLIB:GENERAL	D	I,T
	SSVSN	Comd	Prints Subsystem version, as given at log-on.	Subsys	D	I,T

Index	Item name	Type	Description	Library	SSC	Reason
1.9.1 (cont.)	TIM	Comd	Prints the time of day.	ERCLIB:GENERAL	C	I,T
	TIME	Comd	Prints the day, date and time of day on current output stream.	ERCLIB:GENERAL	C	I
	USERS	Comd	Prints the number of users.	Subsys	A	
	WHOSON	Comd	Finds out which users are on the computer.	ERCLIB:GENERAL	D	I,T
	XTALKREV	Comd	Prints date and version of X-Talk on EMAS.	MICROS:EMASLIB	D	I,T
1.9.2 User Information						
	HELP	Comd	Provides help on various Computing Service facilities.	Subsys	A	
	NAGHELP	Comd	Provides help on NAG Fortran Mk 11 and NAG Graphics Mk 1 Libraries.	ERCLIB:NAGLIB	C	I,M,T
	PACKERROR	Comd	Calls VIEW to test contents of file PLULIB:ERROR which contains information relating to known errors in CAST packages.	PLULIB:PACKDIR	D	I,T
	PACKHELP	Comd	Lists HELP information about packages.	PLULIB:PACKDIR	B	
	PACKLIST	Comd	Prints a list of PLU packages available, including pre-release versions.	PLULIB:PACKDIR	D	I
	PACKUSE	Comd	Reports on user's use of a nominated package, or use of all packages.	PLULIB:PACKDIR	D	I,T
	*VIEW	Comd	Displays pages of text from a file.	Subsys	A	
	EMAS3HELPIINFO	IRtn	Sets the help field required by PAM.	Subsys	C	I,T
1.9.3 Utility						
	DIARY	Comd	Maintains a personal diary.	CONLIB:GENERAL	D	I
	QUIP	IRtn	Prints a quip.	CONLIB:GENERAL	D	I,T
2 FILE UTILITIES						
2.1 File Comparison						
	CHECKENDS	Comd	Compares the contents of two files of any type.	ERCLIB:GENERAL	C	I,T
	COMPARE	Comd	Compares two character files line by line.	ERCLIB:GENERAL	C	T
	CONTRAST	Comd	Compares any two files regardless of type.	ERCLIB:GENERAL	D	T
	TEXTCOMPARE	Comd	Compares the textual contents of two character files.	ERCLIB:GENERAL	C	T
	YCOMP	Comd	Makes a binary comparison of two files of any type.	ERCLIB:GENERAL	C	T
2.1.1 File Comparison (PD)						
	PDCHECK	Comd	Compares members of pdfiles and ordinary files with the same name.	ERCLIB:GENERAL	C	T
	PDVERIFY	Comd	Compares two pdfiles and reports on differences.	ERCLIB:GENERAL	C	T
2.2 File Copying						
	COPF	Comd	Copies files including non-standard files.	ERCLIB:GENERAL	C	I,T
	COPY	Comd	Copies one file into another.	Subsys	A	
	COPY2	Comd	Copies files including members of members of a pdfile.	Subsys	D	I,T
	COPYLNF	Comd	Copies VSS files of format stream, sequential or line.	ERCLIB:VSSDIR	C	A,I,T
2.2.1 File Copying (PD)						
	FROMPD	Comd	Copies pdfile members into separate files.	ERCLIB:GENERAL	D	I
	GROUPTOPD	Comd	Copies files within a group into members of a pdfile.	Subsys	B	
	PDEXT	Comd	Copies pdfile members.	ERCLIB:GENERAL	C	I,T

Index	Item name	Type	Description	Library	SSC	Reason	
2.2.1 (cont.)	PDINS	Comd	Copies pdf file members.	ERCLIB:GENERAL	C	I,T	
	PDREP	Comd	Copies pdf file members.	ERCLIB:GENERAL	C	I,T	
	PDTGROUP	Comd	Copies members of a pdf file into files within a group.	Subsys	B		
	TOPD	Comd	Copies a number of files into a pdf file.	ERCLIB:GENERAL	D	I	
2.3	File Editing	Comd	Alters a byte within virtual memory.	Subsys	C	I,T	
		Comd	Alters a string within virtual memory.	Subsys	C	I,T	
		Comd	Alters a text within virtual memory.	Subsys	D	I,T	
		Comd	Alters a word within virtual memory.	Subsys	C	I,T	
		Comd	Puts newpage character at start of text file.	ERCLIB:GENERAL	C	T	
		Comd	Similar to ECCE, for a file of any type.	ERCLIB:GENERAL	D	I,T	
		Comd	Converts text to all upper or lower case.	ERCLIB:GENERAL	D	I,T	
		Comd	Converts the character code of a file to another code.	ERCLIB:GENERAL	D	I,T	
		Comd	Overlays several input files to produce a composite output file.	ERCLIB:GENERAL	C	I,T	
		Comd	Removes non-printing characters from a file.	ERCLIB:GENERAL	D	I,T	
		Comd	Substitutes spaces for horizontal tab characters.	ERCLIB:GENERAL	C	I,T	
		Comd	Replaces repeated fields in a file by blanks.	ERCLIB:GENERAL	D	T	
		Comd	Performs double quote deletion on a character file.	CONLIB:GENERAL	D	I,T	
		Comd	An interactive text editor.	ERCLIB:GENERAL	D	I,T	
		Comd	An interactive text editor.	Subsys	A		
		Comd	Pads out the lines of a character file to a specified line length.	Subsys	A		
		Comd	Joins files together columnwise.	ERCLIB:GENERAL	D	I,T	
		Comd	Removes trailing spaces from lines in a character file.	CONLIB:GENERAL	D	I,T	
		Comd	Enables the user to change a specified byte in a file.	ERCLIB:GENERAL	D	I,T	
		Comd	A screen editor.	ERCLIB:GENERAL	C	I,T	
		Comd	Enables the user to change a specified half-word in a file.	Subsys	B	T	
		Comd	Removes trailing spaces from text.	ERCLIB:GENERAL	C	I,T	
		Comd	A tool for detailed examination and simple editing of any file.	KNTLIB:GENERAL	C	M,T	
		Comd	Enables the user to change a specified word in a file.	ERCLIB:GENERAL	C	I,T	
		Comd	Copies the tail end of a file to another file or to the line printer.	ERCLIB:GENERAL	C	I,T	
		Comd	Translates one group of characters into another.	KNTLIB:GENERAL	C	M,T	
		Comd	Inverse of DITTO (qv).	KNTLIB:GENERAL	C	I,M,T	
		Comd	The interactive text editor, ECCE, for video terminals.	CONLIB:GENERAL	D	I,T	
		Comd	Specified bytes of virtual storage are set equal to the given value.	ERCLIB:GENERAL	D	I,T	
		IRtn	Adjusts the value of a variable in a 'safe' way.	Subsys	C	T	
		IRtn	Specified bytes of data are moved from one virtual address to another virtual address.	Subsys	C	I,T	
		IRtn		Subsys	C	T	
2.4	File Handling	Comd	Connects a file in write mode and prints the connect address.	Subsys	D	I,T	
		Comd	Reads card images from a character file and builds a view file.	ERCLIB:GENERAL	D	I,T	
		Comd	Concatenates text files.	ERCLIB:GENERAL	C	I,T	
		Comd	Concatenates files, grouping them together under another file name.	Subsys	A		
		Comd	Converts a data file into a character file.	Subsys	B	T	
		Comd	Decrypts the contents of an encrypted text file.	PLULIB:PACKDIR	J	A,T	

Index	Item name	Type	Description	Library	SSC	Reason
2.4 (cont.)	DISCONNECT	Comd	Disconnects a file from virtual memory.	Subsys	A	
	ENCRYPT	Comd	Encrypts the contents of a text file.	PLULIB:PACKDIR	B	A,T
	JOINSQ	Comd	Joins sequential files, provided they have compatible formats.	ERCLIB:VSSDIR	C	A,I,T
	LINECOUNT	Comd	Replaces repeated lines by a single copy with a frequency count.	CONLIB:GENERAL	D	I,T
	LOOK	Comd	Invokes the editor to examine a file but not alter it.	Subsys	A	
	MERGEFILES	Comd	Merges contents of two or more files into one ordered file.	ERCLIB:SORTMERGE	C	I
	MERGENES	Comd	Merges two file taking alternate lines from each.	CONLIB:GENERAL	D	I,T
	NEWGEN	Comd	Replaces contents of an existing file with contents of a new file, this new file is then destroyed.	Subsys	B	T
	POSTSEND	Comd	Decrypts files encrypted using PRESEND.	PLULIB:PACKDIR	B	A,T
	PRESEND	Comd	Encrypts text file prior to export to external site.	PLULIB:PACKDIR	B	A,T
	RESETLOADER	Comd	Unloads any loaded files.	Subsys	B	T
	SELECTLINES	Comd	Selects lines from a file based on keys in another file.	CONLIB:GENERAL	D	I,T
	SHOW	Comd	Invokes ECCE to examine but not alter a file.	Subsys	A	T
	TESTFILE	Comd	Checks the order of contents of a file.	ERCLIB:SORTMERGE	C	I
	TESTUNIQUE	Comd	Tests that each line in a file is unique.	CONLIB:GENERAL	D	I,T
	TRANSLATE	Comd	Translates a field in a file.	CONLIB:GENERAL	D	I,T
	TSEARCH	Comd	Searches a file for a piece of text.	ERCLIB:GENERAL	C	T
	TSEARCHALL	Comd	Searches a file and prints each occurrence of text found.	ERCLIB:GENERAL	C	T
	UNLINECOUNT	Comd	Inverse of LINECOUNT (qv).	CONLIB:GENERAL	D	I,T
	USEGROUP	Comd	Selects default group.	Subsys	A	
	VLIBFROMUPDS	Comd	Converts an unloaded partitioned data set (old F80 or new VS format) into a VSS library.	ERCLIB:VSSDIR	C	A,I,T
	VMACLIB	Comd	Dumps or generates a maclib containing macros or copy sections.	ERCLIB:VSSDIR	C	A,I,T
	VREBLOCK	Comd	Takes individual records and forms a blocked record file, i.e. opposite of VUNBLOCK.	ERCLIB:VSSDIR	C	A,I,T
	VSHOW	Comd	Invokes VECCE to examine but not alter a file.	ERCLIB:GENERAL	D	I,T
	VSSLIB	Comd	Manipulates a VSS partitioned data set or library file.	ERCLIB:VSSDIR	C	A,I,T
	VUNBLOCK	Comd	Converts a blocked format file to an unblocked format file.	ERCLIB:VSSDIR	C	A,I,T
	*WCOUNT	Comd	Counts and prints numbers of lines, words and characters in file.	ERCLIB:VSSDIR	C	A,I,T
	YSEARCH	Comd	Prompts for a file which is to be binary searched for a byte pattern.	KNTLIB:GENERAL	C	M,T
	EMAS3CHANGEFILESIZE	IRtn	Alters the physical size of a file.	ERCLIB:GENERAL	C	T
	EMAS3CONNECT	IRtn	Connects, and supplies the connect address of, the file or pdf file member.	Subsys	C	T
	EMAS3DISCONNECT	IRtn	Disconnects a file from the virtual memory.	Subsys	C	T
	EMAS3NEWGEN	IRtn	Provides a mechanism for updating a file even though it may be currently in use.	Subsys	C	T
	EMAS3TRIM	IRtn	Causes the physical size of the file to be adjusted (if necessary) according to the data size field (Word 0) of the file header.	Subsys	C	T
	FCRLOPEN	IRtn	Opens one or more files for access by FCREADLINE.	CONLIB:GENERAL	D	I,T
	FCRLOSELINP	IRtn	Selects an input file for reading by FCREADLINE etc.	CONLIB:GENERAL	D	I,T
	NWFILEAD	IRtn	Connects a file in write mode, but if file already exists then it is connected in newcopy mode.	ERCLIB:GENERAL	C	I,T
	RDFILEAD	IRtn	Connects a file in the most suitable or possible mode for reading.	ERCLIB:GENERAL	C	I,T
	TPFILEAD	IRtn	Connects a file in write mode, but the file is created on a temporary basis only.	ERCLIB:GENERAL	C	I,T
	WRFILEAD	IRtn	Connects a file in write-mode.	ERCLIB:GENERAL	C	I,T
2.4.1 File Handling (PD)	PDTOTEXT	Comd	Converts a pdf file to a character file.	Subsys	D	I,T
	TEXTTOPD	Comd	Converts a character file to a pdf file.	Subsys	D	I,T
	UPDATE	Comd	Use with PDCHECK to update pdf files.	ERCLIB:GENERAL	D	I,T

Index	Item name	Type	Description	Library	SSC	Reason
2.5	File Listing					
	ADD, ADDRESSES	Comd	Stores, categorizes and edits addresses, and produces selected lists and printed labels.	CONLIB:GENERAL	D	I,T
	COLUMNLIST	Comd	Lists a file in columns to a device or file.	CONLIB:GENERAL	D	I,T
	DELIVER	Comd	Sets delivery information for user's output.	Subsys	A	
	DUMPLINF	Comd	Prints a full hex dump of a VSS line, sequential or stream file.	ERCLIB:VSSDIR	C	A,I,T
	EXFILE	Comd	Extracts specified lines from a file and lists them to a line printer.	ERCLIB:GENERAL	C	I,T
	LABS	Comd	Produces a set of printed labels.	ERCLIB:GENERAL	C	I,T
	LANDNUM	Comd	Numbers the lines in a character file and lists it.	ERCLIB:GENERAL	C	I,T
	LINENO	Comd	Produces a line numbered listing of a character file.	KNTLIB:GENERAL	C	M,T
	LIST	Comd	Lists character files to an output device.	Subsys	A	
	LISTLINF	Comd	Lists a VSS line file, including the numbers and lengths of its lines.	ERCLIB:VSSDIR	C	A,I,T
	LISTN	Comd	Lists a character file to several different destinations.	ERCLIB:GENERAL	D	I,T
	LISTNEW,TIDYLISTNEW	Comd	Lists a file only if it has been altered since last listed by this command.	ERCLIB:GENERAL	D	I,T
	NLIST	Comd	Lists a file to an output device not directly accessible to host.	Subsys	B	T
	SEND	Comd	Lists and destroys a file.	Subsys	A	
	TEMPDELIVER	Comd	Sets a temporary delivery information for user's output.	Subsys	A	T
	EMAS3SENDFILE	IRtn	The named file belonging to the process owner is sent to a specified output queue.	Subsys	C	T
2.5.1	File Listing (PD)					
	LISTPD	Comd	Lists members of a pdfile.	KNTLIB:GENERAL	C	M,T
2.6	File Management					
	ARCHIVE	Comd	Marks files for archiving.	Subsys	A	
	ARCHIVERMIT	Comd	Sets or returns access permission for archived files.	Subsys	B	M,T
	ARCHSORT	Comd	Sorts archived file names into reverse alphabetical order disregarding date archived.	ERCLIB:GENERAL	C	I,T
	CANCELPERMISSIONS	Comd	Resets all whole-index permissions and all file permissions to their default values.	Subsys	D	A,I,T
	CHECKFILE	Comd	Examines a file for possible corruption.	ERCLIB:GENERAL	C	I
	CHERISH	Comd	Marks files for back-up.	Subsys	A	
	DELETERECOVER	Comd	Deletes a RECOVER request.	Subsys	C	T
	DELETERESTORE	Comd	Deletes a RESTORE request.	Subsys	C	T
	DESTROY	Comd	Destroys files.	Subsys	A	
	DESTROYGROUP	Comd	Destroys a group and the files it contains.	Subsys	B	M
	DISCARD	Comd	Destroys archived files.	Subsys	A	
	HAZARD	Comd	Un-CHERISHes a file.	Subsys	A	
	KILFIL	Comd	Destroys files.	Subsys	A	
	LISTPERM	Comd	Reports on any of user's files whose permissions differ from the standard.	KNTLIB:GENERAL	C	A,M,T
	NEWGROUP	Comd	Creates a new, empty group.	ERCLIB:GENERAL	C	I,T
	NEWSMFILE	Comd	Creates an unstructured file of a certain size for use by direct mapping.	Subsys	A	
	PERMIT	Comd	Sets the access permission for any file.	Subsys	A	T
	RECOVER	Comd	Brings back an archived file from EMAS 2900 host to EMAS-3 host.	Subsys	B	
	RENAME	Comd	Changes the name of a file.	Subsys	A	
	RESTORE	Comd	Brings back an archived file.	Subsys	A	
	SETSOCODE	Comd	Marks a sequential file as ISO or EBCDIC without altering the data in the file.	ERCLIB:VSSDIR	C	A,I,T
	VCREATEF	Comd	Creates an empty VSS line file.	ERCLIB:VSSDIR	C	A,I,T

Index	Item name	Type	Description	Library	SSC	Reason
2.6 (cont.)	WIPEFILE	Comd	Destroys file after replacing contents with blanks.	Subsys	D	I,T
	EMAS3CHANGEACCESS	IRtn	Changes the current connection mode of a file.	Subsys	C	T
	EMAS3CHECKNAME	IRtn	Establishes the correctness and attributes of a filename.	Subsys	C	T
	EMAS3DESTROY	IRtn	Destroys a file or pdfile member.	Subsys	C	T
	EMAS3EXIST	IRtn	Checks if file does exist and the caller has at least read-access.	Subsys	C	T
	EMAS3EXISTTYPE	IRtn	Returns the type of the file if it exists and the caller has permission to access it.	Subsys	C	T
	EMAS3OUTFILE	IRtn	Provides a new, all-zero named file of required size.	Subsys	C	T
	EMAS3RENAME	IRtn	Changes the name of a file.	Subsys	C	T
	EMAS3SETWORK	IRtn	Sets up a work file primarily used by compilers.	Subsys	C	T
2.6.1 File Management (PD)						
	NEWPDFILE	Comd	Creates a new, empty pdfile.	Subsys	A	
	PDEL	Comd	Deletes pdfile members.	ERCLIB:GENERAL	C	I,T
	PDES	Comd	Destroys pdfile members.	ERCLIB:GENERAL	C	I,T
	PDREN	Comd	Changes name of members of a pdfile.	ERCLIB:GENERAL	C	I,T
	EMAS3MODPDFILE	IRtn	Provides services for the manipulation of partitioned files.	Subsys	C	T
2.7 File Transfer						
	ACCEPT	Comd	Accepts a file on OFFER by another user.	Subsys	A	
	FROMBUSH	Comd	Transfers a file from BUSH machine.	ERCLIB:GENERAL	D	I,L,T
	FROMEMAS	Comd	Transfers a file from EMAS machine.	ERCLIB:GENERAL	D	I,L,T
	FROMEMASA	Comd	Transfers a file from EMASA machine.	ERCLIB:GENERAL	D	I,T
	FROMEMASB	Comd	Transfers a file from EMASB machine.	ERCLIB:GENERAL	D	I,T
	FROMFSTORE	Comd	Transfers a file from the Filestore.	ERCLIB:GENERAL	C	I,T
	FSTCOPYDOWN	Comd	Reconstructs an EMAS file from an image of that file as transferred to the Filestore and back again.	ERCLIB:GENERAL	C	I,T
	FSTORE	Comd	Transfers files to and from the Filestore.	ERCLIB:GENERAL	C	I,T
	GET	Comd	Transfers a file from an external host machine.	ERCLIB:GENERAL	D	I,T
	GET1	Comd	Transfers a file from an external host machine.	ERCLIB:GENERAL	D	I,T
	GIVEFILE	Comd	Transfers a file to a microcomputer from EMAS-A using X-Talk protocol.	MICROS:EMASLIB	D	I
	HOSTS	Comd	Gives information on all aspects of the service offered by a remote system.	Subsys	C	T
	KERMIT	Comd	Transfers a file between a microcomputer and EMAS-A using Kermit protocol.	MICROS:EMASLIB	B	
	OFFER	Comd	Offers a file to another user.	Subsys	A	
	PUT	Comd	Transfers a file to an external host machine.	ERCLIB:GENERAL	D	I,T
	PUT1	Comd	Transfers a file to an external host machine.	ERCLIB:GENERAL	D	I,T
	TAKEFILE	Comd	Transfers a file from a microcomputer to EMAS-A using X-Talk protocol.	MICROS:EMASLIB	D	I
	TO72	Comd	Transfers a file to EMAS machine.	ERCLIB:GENERAL	D	I,L,T
	TO80	Comd	Transfers a file to BUSH machine.	ERCLIB:GENERAL	D	I,L,T
	TO88	Comd	Transfers a file to BUSH machine.	ERCLIB:GENERAL	D	I,L,T
	TOBUSH	Comd	Transfers a file to BUSH machine.	ERCLIB:GENERAL	D	I,L,T
	TOEMAS	Comd	Transfers a file to EMAS machine.	ERCLIB:GENERAL	D	I,L,T
	TOEMASA	Comd	Transfers a file to EMAS-A machine.	ERCLIB:GENERAL	D	I,T
	TOEMASB	Comd	Transfers a file to EMAS-B machine.	ERCLIB:GENERAL	D	I,T
	TOFSTORE	Comd	Sends files to the Filestore.	ERCLIB:GENERAL	C	I,T

Index	Item name	Type	Description	Library	SSC	Reason
2.7 (cont.)	TRANSFER	Comd	Transfers a file from one computer to another.	Subsys	A	
	TRANSFERS	Comd	Gives information on file transfer requests which are queued or active.	Subsys	A	
2.8 File Information						
2.8	ANALYSE	Comd	Gives information about a file.	Subsys	A	
	COUNT	Comd	Counts the number of occurrences of specified code value in any character file.	ERCLIB:GENERAL	D	I,T
	*DOCUMENTS	Comd	Gives information on jobs, files and transfer requests which are queued or active.	Subsys	A	
	FILECHECK	Comd	Checks on the state of files in the masterfile set up by FILESETUP.	ERCLIB:GENERAL	C	I,T
	FILES	Comd	Lists the names of user's files.	Subsys	A	
	FILESETUP	Comd	Sets up masterfile of information for FILECHECK.	ERCLIB:GENERAL	D	I,T
	FILESUMMARY	Comd	Gives information about some or all of a user's files.	ERCLIB:GENERAL	D	I,T
	FILEUPDATE	Comd	Updates masterfile created by FILESETUP and used by FILECHECK.	ERCLIB:GENERAL	D	I,T
	MAXLN	Comd	Reports the length and position of the longest line in any character file and the total number of lines.	KNTLIB:GENERAL	D	I,T
	NDOCUMENTS	Comd	Gives information on document sent by using NLIST.	Subsys	C	I,T
	NLINES	Comd	Counts the number of lines, and their length, of any character file.	ERCLIB:GENERAL	C	I,T
	NOPRINT	Comd	Checks for non-printing characters in a file.	ERCLIB:GENERAL	C	I,T
	OUTPUT	Comd	Interrogates queue of output files.	Subsys	A	
	QINFO	Comd	Describes in one line each file in given list.	ERCLIB:GENERAL	C	I,T
	SCANLNF	Comd	Gives the numbers and lengths of lines in a VSS line file.	ERCLIB:VSSDIR	C	A,I,T
	SORTSIZE	Comd	Lists permanent files in descending order of size.	ERCLIB:GENERAL	D	I,T
	VFILETYPE	Comd	Prints the type (stream, sequential or line) of the VSS file.	ERCLIB:VSSDIR	C	A,I,T
2.8.1	VLOADLIB	Comd	Gives a map of a VSS partitioned data set which is assumed to be a loadlib.	ERCLIB:VSSDIR	C	A,I,T
	FILETYPE	IIFn	Tells you what type a file is, character, binary etc.	ERCLIB:GENERAL	C	I,T
2.8.1 File Information (PD)						
2.8.1	PDANAL	Comd	Analyses a pdfile giving members in alphabetical order.	ERCLIB:GENERAL	D	I,T
	REPORT	Comd	Checks a pdfile and reports the members altered within a given time.	ERCLIB:GENERAL	D	I,T
3 LANGUAGES, COMPILERS and UTILITIES						
3.0 Compiler Utility						
3.0	INITPARM	Comd	Specifies initial settings for PARM.	Subsys	A	T
	PARM	Comd	Sets compile time parameters.	Subsys	A	
3.0.1 Object Utility						
3.0.1	IBMLKED	Comd	Link edits an object, or TEXT, file together with routines from libraries to produce a load module.	ERCLIB:VSSDIR	C	A,I,M,T
	LINK	Comd	Groups object files into a single object file.	Subsys A I,T		
	MODIFY	Comd	Modifies the attributes of an EMAS-3 object file.	Subsys	B	T
	OBJANAL	Comd	Analyses an object file and its structure.	ERCLIB:GENERAL	D	I,T
	VZAP	Comd	Patches a member of a VSS load library.	ERCLIB:VSSDIR	C	A,I,T
3.1 ALGOL Compiler						
3.1	ALGOL	Comd	Compiles Algol60 programs.	Subsys	C	A,M,T
	ALGOL					

Index	Item name	Type	Description	Library	SSC	Reason
3.2	ASSEMBLER Compiler IBMASSEMBLE IBMLINES RECODEVM	Comd Comd Comd	Standard IBM Assembler as used on MVS and other systems. Places de-compiled 370-XA assembler from object file into file or device. De-assembles an area of virtual memory into a file or device.	ERCLIB:VSSDIR ERCLIB:GENERAL ERCLIB:GENERAL	C C C	A,I,M,T I,T I,T
3.3.1	BASIC Utility DETOKENISE	Comd	Converts BBC BASIC program and data files to a format usable on EMAS.	MICROS:EMASLIB	D	I,T
3.6	FORTRAN Compiler *BFORTRAN FORTRAN PDFORTRAN	Comd Comd Comd	Detaches a job calling the FORTRAN compiler. Compiles Fortran 77 programs. Compiles pdfile member and if successful creates member of an object pdfile.	ERCLIB:GENERAL Subsys ERCLIB:GENERAL	D A D	I,T I,T
3.6.1	FORTRAN Utility FORTPRINT	Comd	Prints Fortran programs on an Epson printer.	CONLIB:GENERAL	D	I,T
3.7	IMP Compiler *BIBMIMP *BIMP IMP PIM	Comd Comd Comd Comd	Detaches a job calling the IBM IMP80 compiler. Detaches a job calling the IMP compiler. Compiles IMP80 programs. Calls the IMP compiler.	ERCLIB:GENERAL ERCLIB:GENERAL Subsys ERCLIB:GENERAL	D D B C	I,T I,T T I,T
3.7.1	IMP Utility GENINDEX IMPPRINT LCIMPKEYS PDIMP PERCENTIN PERCENTOUT PROCLIST *SOAP UCIMPKEYS VIS XREF	Comd Comd Comd Comd Comd Comd Comd Comd Comd Comd Comd Comd	Cross-reference utility for IMP programs. Prints IMP programs on an Epson printer Alters all %... type IMP source keywords to lower case letters. Compiles pdfile member and if successful creates member of an object pdfile. Inserts percent signs before lower case keywords in an IMP source file. Removes percent signs from before keywords in an IMP source file. Lists IMP routines, functions and maps in alphabetical order. Formats IMP source programs. Alters all %... type IMP source keywords to upper case letters. Checks the syntax of an IMP source file. Produces a cross-reference table from an IMP compiler-listing file.	KNTLIB:GENERAL CONLIB:GENERAL CONLIB:GENERAL ERCLIB:GENERAL CONLIB:GENERAL CONLIB:GENERAL ERCLIB:GENERAL CONLIB:GENERAL ERCLIB:GENERAL Subsys	C D D D D D D D D D	M,T I,T I,T I,T I,T I,T I,T I,T I,T I,T
3.11	PASCAL Compiler *BPASCAL PASCAL PDPASCAL	Comd Comd Comd	Detaches a job calling the PASCAL compiler. Compiles PASCAL programs. Compiles pdfile member and if successful creates member of an object pdfile.	ERCLIB:GENERAL Subsys ERCLIB:GENERAL	C A D	I,T I,T
3.11.1	PASCAL Utility PCHECK PFPLIST	Comd Comd	Checks the syntax and type conformance of a Pascal source file. Counts functions and procedures in a PASCAL compiler-listing file.	Subsys ERCLIB:GENERAL	C D	I,T I,T

Index	Item name	Type	Description	Library	SSC	Reason
3.14	SIMULA Compiler SIMCOMP	Comd	Compiles SIMULA67 programs.	ERCLIB:VSSDIR	C	A,M,T
3.14.1	SIMULA Utility SIMLINK	Comd	Links the object output of SIMCOMP with the SIMULA run time library to produce a load module.	ERCLIB:VSSDIR	C	A,I,M,T
4	APPLICATIONS (GENERAL)					
4.1	Databases *DATALIB	Comd	A VIEW system giving details of data holdings and access facilities of the Data Library Service.	PLULIB:PACKDIR	D	A,I,M,T
4.1.1	Data Validation MATCH	IFn	Validates data strings against specified format.	CONLIB:GENERAL	D	I,T
4.1.2	Database Handling CATALOG FAMULUS *SASPAC CENSUS DATAC	Pack Pack Pack Prog Prog	Indexing and retrieval system. FAMULUS77 indexing and retrieval system. Complementary to CATALOG: common file format. Analyses small area statistics from census data. Interface to some census data facilities. User-friendly interface to the CENSUS package.	PLULIB:PACKDIR PLULIB:PACKDIR PLULIB:PACKDIR PLULIB:PACKDIR PLULIB:PACKDIR	C C B C B	I,T A,T M,T A,I,M,T A,M,T
4.1.3	Sorting SORTFILE NAG M01 SORT	Comd FRtn Rout	Sorts contents of one or more files. Sorts numbers or characters. Internal sorting of records held in memory or files connected in virtual memory.	ERCLIB:SORTMERGE ERCLIB:NAGLIB ERCLIB:SORTMERGE	C B C	I M,T I
4.2	Graphics Drafting EASYMENU GPLAYOUT NOTICEMAP TEKDRAW GINO EDWIN ASPEX NOTICE, DRAWWRITE SYMVU EASYGRAPH CALCOMPICS GRAPHPACK	Comd Comd Comd Comd FRtn IRtn Pack Pack Pack Prog Rout Rout	Easy introduction to EASYGRAPH. Picture editor, to alter and merge plotfiles. Creates file of NOTICE instructions to draw certain maps. Draws logic diagrams. Subroutine library of GINO-F multi-purpose graphics routines. General purpose device-independent graphics routines. Three dimensional surface plotting. Easy method of drawing posters. Three dimensional surfaces and histograms. Easy method of drawing graphs. Calcomp simulation routines. Standard IMP/FORTRAN routines to create diagrams.	ERCLIB:GRAPHICS ERCLIB:GRAPHICS ERCLIB:GRAPHICS ERCLIB:GRAPHICS PLULIB:GINODIR ERCLIB:GRAPHICS PLULIB:PACKDIR ERCLIB:GRAPHICS PLULIB:PACKDIR ERCLIB:GRAPHICS ERCLIB:CALCOMPICS ERCLIB:GRAPHICS	D C D D C C D C B D A B	I,T T I,T A,I,T T A,T T I,T M,T I,T T T

Index	Item name	Type	Description	Library	SSC	Reason
4.2.1	Contouring					
	GPCP	Pack	General purpose contouring program.	PLULIB:PACKDIR	D	M,T
	CNTOUR	Rout	Old version of DCNTUR contour drawing routines.	ERCLIB:CALCOMPICS	C	I,T
	CONTOUR, CONTUR	Rout	Old versions of DCONTOUR, DCONTR contour drawing routines.	ERCLIB:GRAPHICS	C	I,T
	DCNTUR	Rout	Contour drawing routines.	ERCLIB:CALCOMPICS	D	I,T
	DCONTOUR, DCONTR	Rout	Contour drawing routines.	ERCLIB:GRAPHICS	D	I,T
4.2.2	Graphics File Handling					
	GRANALYSE	Comd	Analyses RCO plotfiles from an ordinary terminal.	ERCLIB:GRAPHICS	C	I,T
	GRCONVERT	Comd	Converts existing RCO plotfile for new plotter.	ERCLIB:GRAPHICS	C	I,T
4.2.3	Graphics Display					
	BDRAWPICTURE	Comd	Detaches a job calling DRAWPICTURE.	ERCLIB:GRAPHICS	D	I,M,T
	DRAWPICTURE	Comd	Sends RCO plotfiles to graphical devices.	ERCLIB:GRAPHICS	D	I,M,T
	GPLIST	Comd	Graph plotter equivalent of LIST.	ERCLIB:GRAPHICS	C	I,T
	GPSEND	Comd	Graph plotter equivalent of SEND.	ERCLIB:GRAPHICS	D	I,T
	GRAFLOT	Comd	Copies a drawing created by TEKDRAW to a graphical device.	ERCLIB:GRAPHICS	D	A,I,T
	SHOWOFF	Comd	Demonstrates capabilities of terminal on which it is running by outputting a series of graphical examples. EDWIN based.	ERCLIB:GRAPHICS	D	I,M,T
4.2.4	Image Processing					
	SPIDER	FRtn	Image data enhancement and recognition.	PLULIB:PACKDIR	D	M,T
4.3	Mathematical					
	NAG A02	FRtn	Complex Arithmetic.	ERCLIB:NAGLIB	B	M,T
	NAG C02	FRtn	Zeros of Polynomials.	ERCLIB:NAGLIB	B	M,T
	NAG C05	FRtn	Roots of one or more Transcendental Equations.	ERCLIB:NAGLIB	B	M,T
	NAG C06	FRtn	Fast Fourier transforms and summation of series.	ERCLIB:NAGLIB	B	M,T
	NAG D01	FRtn	Quadrature.	ERCLIB:NAGLIB	B	M,T
	NAG D02	FRtn	Ordinary Differential Equations.	ERCLIB:NAGLIB	B	M,T
	NAG D03	FRtn	Partial Differential Equations.	ERCLIB:NAGLIB	B	M,T
	NAG D04	FRtn	Numerical Differentiation.	ERCLIB:NAGLIB	B	M,T
	NAG D05	FRtn	Integral Equations.	ERCLIB:NAGLIB	B	M,T
	NAG E01	FRtn	Interpolation.	ERCLIB:NAGLIB	B	M,T
	NAG E02	FRtn	Curve and Surface Fitting.	ERCLIB:NAGLIB	B	M,T
	NAG E04	FRtn	Minimizing or Maximizing a Function.	ERCLIB:NAGLIB	B	M,T
	NAG F01	FRtn	Matrix Operations, including Inversion.	ERCLIB:NAGLIB	B	M,T
	NAG F02	FRtn	Eigenvalues and Eigenvectors.	ERCLIB:NAGLIB	B	M,T
	NAG F03	FRtn	Determinants.	ERCLIB:NAGLIB	B	M,T
	NAG F04	FRtn	Simultaneous Linear Equations.	ERCLIB:NAGLIB	B	M,T
	NAG F05	FRtn	Orthogonalisation.	ERCLIB:NAGLIB	B	M,T
	NAG S	FRtn	Special functions.	ERCLIB:NAGLIB	B	M,T
	CALCULATOR	Prog	Desk calculator program.	ERCLIB:NAGLIB	B	M,T
	*CURVEFIT	Prog	Fits polynomials and splines to data points.	ERCLIB:GENERAL	D	I,T
				ERCLIB:GRAPHICS	D	I,T

Index	Item name	Type	Description	Library	SSC	Reason
4.4	Statistical					
	SPSSETOA	Comd	Converts EMAS 2900 SPSSX system file to EMAS-3 form.	PLULIB:PACKDIR	D	I
	NAG G01	FRtn	Simple Calculations on Statistical Data.	ERCLIB:NAGLIB	B	M,T
	NAG G02	FRtn	Correlation and Regression Analysis.	ERCLIB:NAGLIB	B	M,T
	NAG G04	FRtn	Analysis of Variance.	ERCLIB:NAGLIB	B	M,T
	NAG G05	FRtn	Random Number Generators.	ERCLIB:NAGLIB	B	M,T
	NAG G08	FRtn	Non-parametric Statistics.	ERCLIB:NAGLIB	B	M,T
	BMDP	Pack	Wide range of statistical techniques.	PLULIB:PACKDIR	B	M,T
	CLUSCOM	Pack	Builds a command file for CLUSTAN.	PLULIB:PACKDIR	C	A,I,M,T
	CLUSTAN	Pack	Cluster analysis.	PLULIB:PACKDIR	C	A,M,T
	DSIGNX	Pack	Generates randomised experimental designs.	PLULIB:PACKDIR	D	A,M,T
	EDEX	Pack	Analysis of experiments with a factorial structure.	PLULIB:PACKDIR	D	A,M,T
	GENSTAT	Pack	Data manipulation and statistical analysis.	PLULIB:PACKDIR	B	A,M,T
	GLIM	Pack	Generalized linear interactive modelling.	PLULIB:PACKDIR	C	A,M,T
	INGRID	Pack	Grid analysis package.	PLULIB:PACKDIR	D	A,I,T
	LIMDEP	Pack	Parameter estimation.	PLULIB:PACKDIR	D	A,I,M,T
	MINITAB	Pack	Easy to use statistical package.	PLULIB:PACKDIR	C	A,M,T
	MLP	Pack	Maximum likelihood package.	PLULIB:PACKDIR	D	A,M,T
	SCSS	Pack	Interactive survey analysis package.	PLULIB:PACKDIR	B	A,M,T
	SPSSX	Pack	Data management and analysis package.	PLULIB:PACKDIR	B	M
	SUPERCARP	Pack	Subpopulation and stratum means, totals, and proportions, goodness of fit and test of independence for two-way tables.	PLULIB:PACKDIR	D	A,I,T
	VARCL	Prog	Variance component analysis for the random covariates problem.	PLULIB:PACKDIR	D	I,T
4.4.1	Time Series					
	NAG G13	FRtn	Time series analysis.	ERCLIB:NAGLIB	B	M,T
	ISCOL	Pack	Time series analysis and forecasting.	PLULIB:PACKDIR	D	A,M,T
	TSP	Pack	Time series analysis.	PLULIB:PACKDIR	C	A,M,T
	TSA	Prog	Time series analysis.	PLULIB:PACKDIR	B	A,M,T
5	APPLICATIONS (DISCIPLINE ORIENTATED)					
5.1	Economics					
	SHAZAM	Pack	Econometric information processing system.	PLULIB:PACKDIR	D	I,M,T
5.3	Geographical/Mapping					
	NGRTOEN	Comd	Converts a file of National Grid references to X and Y coordinates.	CONLIB:GENERAL	D	I,T
	NGRTOEN2	Comd	Converts a file of National Grid references and comments to X and Y coordinates.	CONLIB:GENERAL	D	I,T
	NGRTOLL	Comd	Converts a file of National Grid references to latitudes and longitudes.	CONLIB:GENERAL	D	I,T
	NGRENTOLL	FRtn	Converts National Grid references to latitudes and longitudes.	CONLIB:GENERAL	D	I,T
	NGCOORDS	IRtn	Converts National Grid references to X and Y coordinates.	CONLIB:GENERAL	D	I,T
	CAMAPED	Pack	Maps Edinburgh by 1971 enumeration districts on a line printer.	PLULIB:PACKDIR	B	A,M,T
	CAMAPGB1	Pack	Maps British data by parish on a line printer.	PLULIB:PACKDIR	B	A,M,T

Index	Item name	Type	Description	Library	SSC	Reason
5.3 (cont.)	CAMAPGB2	Pack	Slower Fortran version of CAMAPGB1.	PLULIB:PACKDIR	B	A,T
	CAMFRAME	Pack	Maps on a line printer according to a user defined framework.	PLULIB:PACKDIR	B	A,M,T
	CAMGRID	Pack	Maps grid square data on a line printer.	PLULIB:PACKDIR	B	A,M,T
	SYMAP	Pack	Graphics display program for line printer output.	PLULIB:PACKDIR	B	M,T
	GAZ	Prog	Obtains grid reference information about place names issued by user.	PLULIB:PACKDIR	B	A,M,T
	GAZF	Prog	Takes place names from an input file and writes grid reference information to an output file.	PLULIB:PACKDIR	B	A,M,T
6	COMMUNICATIONS					
6	Sending/Reading Messages					
	MAIL	Comd	Allows users to send messages to each other.	Subsys	A	
	MESSAGES	Comd	Allows messages to be inhibited or displayed on the screen.	Subsys	B	T
	MSG	Comd	An extension of TELL for sending messages via MAILER.	Subsys	C	T
	SUGGESTION	Comd	Sends a suggestion about EMAS to the System Manager.	Subsys	A	T
	TELL	Comd	Sends a message to another user.	Subsys	A	T
	SSFOFF	IRtn	Inhibits error messages from Subsystem commands called from within a program.	Subsys	C	I,T
	SSFON	IRtn	Allows error messages from Subsystem commands called from within a program.	Subsys	C	I,T
	CHAT	Prog	Allows a group of users to chat to each other.	ERCLIB:GENERAL	C	A,I,M,T
7	TEXT PROCESSING					
7.1	Text Analysis					
	CONCORD	Prog	Word count and concordance text analysis.	ERCLIB:GENERAL	C	I,T
7.2	Text Processing					
	DPLAY	Comd	LAYOUT with output defaulting to Philips GP300 printer format.	ERCLIB:GENERAL	C	I,T
	DPLIST	Comd	A simple text formatting program.	ERCLIB:GENERAL	D	I,T
	INDEX	Comd	Simplifies the preparation of an index for a document.	ERCLIB:GENERAL	C	I,T
	INLAY	Comd	Prepares text file for OLAYOUT.	ERCLIB:GENERAL	D	I,T
	LAYOUT	Comd	Formats text for listing to a variety of printers.	ERCLIB:GENERAL	C	I,T
	LJLAY	Comd	LAYOUT with output defaulting to LaserJet printer format.	ERCLIB:GENERAL	C	A,I,T
	OLAYOUT	Comd	Early form of LAYOUT text formatter.	ERCLIB:GENERAL	C	T
	SANLAY	Comd	LAYOUT with output defaulting to Computer Science Dept Sanders printer format.	ERCLIB:GENERAL	C	A,I,T
	SCRIBE	Comd	Local version of the proprietary text formatting program of the same name.	Subsys	A	
	SPELL	Comd	Checks and corrects the spelling of words in a file by using a standard lexicon.	ERCLIB:GENERAL	C	I,M,T

EMAS-3 SOFTWARE INDEX

STARRED ITEMS

This summary of software items which could have been listed under more than one function embraces only these 12 items which have less obvious additional functions.

Item	Listed Function	Other Functions
BFORTRAN	FORTRAN Compiler	Jobs (background)
BIBMIMP	IMP Compiler	Jobs (background)
BIMP	IMP Compiler	Jobs (background)
BPASCAL	PASCAL Compiler	Jobs (background)
CURVEFIT	Mathematical	Statistical
DATALIB	Databases	User Information
DELETEDOC	Jobs (background)	File Listing, File Transfer
DOCUMENTS	File Information	File Listing, File Transfer, Jobs (background)
SASPAC	Database Handling	Statistical
SOAP	IMP Utility	File Editing
VIEW	User Information	File Handling
WCOUNT	File Handling	Text Analysis

Part III ERCVAX VAX/VMS SERVICE

The ERCVAX service provides a 'standard' VAX/VMS computing service primarily for the exploitation of software applications that cannot be readily provided on the Computing Service's main EMAS services. The applications catered for are:

- Statistical
- Database
- Simulation
- Graphics
- Word Processing

A number of languages are provided, and there are the usual VMS utilities.

There are some items of software contributed by users and those listed here are generally available to non-commercial users of the VAX, but all intending users of the Genetics packages have to be authorized by Dr A.Coulson of Molecular Biology, The King's Buildings.

As with all the Computing Service services, communication facilities for file transfer, electronic mail and interactive access throughout the UK academic community (and beyond) are available.

SSC Changes

As advertised in the September 1986 edition of this Index, the support level for NAGann, POSTCODE and SCRIBE has been lowered from B to C.

VMS Software Index: by item function

Index	Item name	Type	Description	SSC	Reason
2	FILE UTILITIES				
2.3	File Editing				
	ECCE	Comd	An interactive text editor (EU Computer Science).	B	M
	VECCE	Comd	The interactive text editor, ECCE, for video terminals.	D	I,T
2.4	File Handling				
	SORT	Comd	Sorting utility: can also be invoked from programs.	B	M,T
3	LANGUAGES, COMPILERS and UTILITIES				
3.5	C Compiler				
	CC	Comd	DEC 'C' compiler plus VMS extensions and run time library.	B	M,T
3.6	FORTRAN Compiler				
	FORTTRAN	Comd	DEC compiler for FORTRAN77 with VMS compatible extensions.	B	M
3.7	IMP Compiler				
	IMP	Comd	IMP77 compiler (EU Computer Science compiler).	D	I,L,M,T
3.11	PASCAL Compiler				
	PASCAL	Comd	DEC compiler for PASCAL. Conforms to ISO, ANSI standards plus VMS extensions and run time library.	B	M,T
3.13	PROLOG System				
	PROLOG	Comd	PROLOG interpreter written in 'C' by EDCAAD.	D	A,I,M,T
3.14	SIMULA Compiler				
	SIMULA	Comd	Compiles SIMULA67 programs.	C	A,I,T
4	APPLICATIONS (GENERAL)				
4.1.2	Database Handling				
	DATA TRIEVE	Pack	Data management tool for defining, storing, updating and displaying data.	D	M,T
	ORACLE	Pack	Relational database management system.	B	M,T
	SIR	Pack	Data base management system, with relational query language and screen based data entry.	C	M,T
	POSTCODE	Prog	Provides a user friendly interface to the Scottish Postcode Directory.	C	I,M,T
4.2	Graphics Drafting				
	EDWIN	Pack	General purpose device-independent graphics routines.	D	I,M,T
	GKS	Pack	Graphics Kernel System.	D	A,M,T

Index	Item name	Type	Description	SSC	Reason
4.2.2	Graphics File Handling SAS/GRAPH SPSS/Graphics	Pack Pack	Graphics package for SAS. Graphics package for SPSS.	B C	M,T A,M,T
4.2.3	Graphics Display DRAWPICTURE	Comd	Sends EDWIN and RCO plotfiles to graphical devices.	D	I,T
4.3	Mathematical NAG ann	FRtn	Various NAG routines for mathematical functions or operations.	C	I,M,T
4.4	Statistical NAG ann SAS SCA SPSSX	FRtn Pack Pack Pack	Various NAG routines for statistical calculations. Statistical analysis system. Data analysis package. Data management and analysis package.	C C C C	I,M,T M,T M,T M,T
5	APPLICATIONS (DISCIPLINE ORIENTATED)				
5.2	Engineering LUSAS	Pack	Finite element analysis package.	D	A,L,T
5.4	Genetics ELIOPOULOS PSQ, NAQ STADEN UWGCG	Pack Pack Pack Pack	Protein secondary structure prediction. Searching protein and nucleic acid databases. (a) DNA sequencing project management "DBSYSTEM" (b) DNA and protein sequence analysis "DIAGON", "ANALYSEQ", "ANALYSPEP". University of Wisconsin DNA sequence analysis package plus protein & DNA libraries.	D D D D	A,I,L,M,T A,I,L,T A,I,L,M,T A,I,L,T
6	COMMUNICATIONS				
6	Sending/Reading Messages KERMIT XTALK	Comd Comd	Asynchronous file transfer suitable for unreliable connection such as dial-up. Asynchronous text file transfer suitable for reliable, error-free connections, e.g. X25 connections.	B B	M
7	TEXT PROCESSING				
7.2	Text Processing LAYOUT SCRIBE	Comd Comd	Text formatting program. Text formatting program (UNILOGIC version).	D C	I,T I,M

Part IV UNIX on Gould and GEC Machines

The Gould PN9080 and GEC Series 63 machines run the Berkeley 4.3 and AT&T System V Release 2.0 operating systems respectively. 4.3 Unix was developed at the University of California, Berkeley, and has been specifically tailored to meet the needs of the academic and research communities. AT&T System V Unix is regarded as commercially orientated although it is now integrating Berkeley facilities. The Unix Support Manager (Keith Farvis 031-667 1081 ext.2661) or the Unix System Manager (Jimmy Stewart 031-667 1081 ext. 2630) will offer advice to users regarding the appropriate Unix to use to meet their requirements. The Gould and GEC services have been established primarily to meet the needs of the Information Technology School, but 10% of the Gould's capacity is available to other Edinburgh users.

Although many of the commands, subroutines and applications on both strains of Unix are identical, Berkeley has diverged from AT&T in several important areas. System V Unix has a set of manuals provided by AT&T: 4.3 Unix has a set of 4.3 BSD manuals provided by Gould. Users are referred to this standard documentation, copies of which are held by the User Support Group. The format of this documentation adopts traditional Unix conventions and is sectioned as follows:

1. Commands and Application Programs
2. System Calls
3. Subroutines
4. File Formats
5. Miscellaneous Facilities
6. Games

A permuted index of the above six sections is available in the standard documentation. All of this documentation is also on-line on the Unix systems and can be accessed by using the "man" command, for example

```
$man nroff
```

The underlying Unix philosophy is that specific applications and programs are built by the user interlinking processes which each run one of the commands as specified in Section 1 of the standard documentation. Users are referred to textbooks such as *The Unix System* by S.R.Bourne and *The Unix Environment* by Kernighan and Pike for a more detailed description of these techniques. Additionally the Computing Service has published *An Introduction to UNIX in Edinburgh* which can be obtained from Advisory.

The following two indexes list the commands and subroutines which do not form part of the standard releases and hence are not described in the manufacturer's documentation. The first specifies the additional entries for the Gould PN9080 Berkeley Unix, whilst the second covers the additional facilities on the GEC Series 63 System V Unix.

As Unix is an industry-standard portable operating system many application packages and languages are available both from the originating manufacturer and third party suppliers. These packages are not bundled with Unix and usually involve the payment of a licence fee, which in many cases is subject to discount for academic sites. The Unix Systems Manager keeps copies of these referral catalogues which are available to users for consultation.

SSC Changes

As advertised in the September 1986 edition of this Index, the support level for the following items has been changed:

On the Gould machine: A to B – EDDIR, EDLPR, EDNM and EDRM, C to D – TOP.
On the GEC machine: A to B – EDDIR, EDLPR, EDNM and EDRM.

Gould Berkeley UNIX Software Index: by item function

Index	Item name	Type	Description	SSC	Reason
2	FILE UTILITIES				
2.3	File Editing				
	GNU	Comd	Extensible full screen editor (public domain EMACS).	C	A,M,T
	TOP	Comd	Full screen editor.	D	A,I,M,T
	UEMACS	Comd	EMACS-like full screen editor.	D	A,I,M,T
3	LANGUAGES, COMPILERS and UTILITIES				
3.5	C Compiler				
	C	Comd	Compiles C programs.	B	A,M,T
	C ++	Comd	Object oriented superset of C compiler.	B	A,M,T
3.6	FORTRAN Compiler				
	F77	Comd	An AT&T Fortran-77 compiler.	B	M,T
	COMMON FORTRAN	Comd	An EPCL Common Highspeed Fortran.	B	M,T
3.8	LISP System				
	CLISP	Comd	Common LISP compiler.	D	A,T
3.9	ML Interpreter				
	ML	Comd	An interactive functional programming language.	D	A,T
3.11	PASCAL Compiler				
	PC	Comd	A Berkeley PASCAL.	C	A,M,T
3.13	PROLOG System				
	NIP	Comd	New implementation Prolog compiler.	D	A,T
3.15	SNOBOL Compiler				
	SNOBOL	Comd	Compiles Snobol programs.	D	A,I,T
4	APPLICATIONS (GENERAL)				
4.1.2	Database Handling				
	INGRES	Comd	Commercial Ingres databse management system.	C	A,M,T

Index	Item name	Type	Description	SSC	Reason
6	COMMUNICATIONS				
6	Sending/Reading Messages				
	EDDIR	Comd	Search for name in Edinburgh mail directory.	B	A,T
	EDLPR	Comd	Spool output to Edinburgh network device.	B	A,T
	EDNM	Comd	Register a name in Edinburgh mail directory.	B	A,T
	EDRM	Comd	Remove a name from Edinburgh mail directory.	B	A,T
	HHALIAS	Comd	Registers aliases for names.	C	A,M,T
	HHCP	Comd	Host to host X25 file transfer.	C	A,M,T
	HHMAIL	Comd	Send mail to remote X25 host.	C	A,M,T
	HHQ	Comd	Prints X25 transfer queue.	C	A,M,T
	HHRM	Comd	Remove transfer queue entry.	C	A,M,T
	HHSTORE	Comd	Store transfer attributes.	C	A,M,T
	HHTREE	Comd	Sub-tree file transfer.	C	A,M,T
	NAC	Comd	Network accounting.	C	A,M,T
	ND	Comd	Network directory.	C	A,M,T
	NS	Comd	Network usage.	C	A,M,T
	PAD	Comd	Terminal X-29/TS29 to remote host.	C	A,M,T
7	TEXT PROCESSING				
7.2	Text Processing				
	NROFF	Comd	Text formatter.	C	A,M,T
	TEX/LATEX	Comd	Text formatting system.	D	A,T

GEC AT&T UNIX Software Index: by item function

Index	Item name	Type	Description	SSC	Reason
2	FILE UTILITIES				
2.3	File Editing				
	EMACS	Comd	Extensible full screen editor.	C	A,M,T
	UEMACS	Comd	EMACS-like full screen editor.	D	A,I,M,T
	Vi	Comd	Screen editor.	C	A,M,T
3	LANGUAGES, COMPILERS and UTILITIES				
3.5	C Compiler				
	C	Comd	Compiles C programs.	B	A,M,T
	CC	Comd	C++ C compiler.	C	A,M,T
3.6	FORTRAN Compiler				
	F77	Comd	An AT&T Fortran-77 compiler.	B	M,T
3.8	LISP System				
	FRANZ	Comd	FranzLisp compatibility package.	D	A,T
	LISP	Comd	Cambridge University Lisp.	D	A,T
3.10	MODULA Compiler				
	MC	Comd	Compiles Modula-2 (PASCAL-like language) programs.	D	A,T
3.11	PASCAL Compiler				
	PC	Comd	An ISO PASCAL compiler.	C	A,M,T
3.12	POPLOG Environment				
	CLISP (POPLOG)	Comd	CommonLisp integrated with Pop2 and Prolog.	D	A,T
	POP11 (POPLOG)	Comd	Pop2 integrated with CommonLisp and Prolog.	D	A,T
	PROLOG (POPLOG)	Comd	Prolog integrated with CommonLisp and Pop2.	D	A,T
3.13	PROLOG System				
	CPROLOG	Comd	A Prolog interpreter.	D	A,T
	NIP	Comd	New implementation Prolog compiler.	D	A,T
4	APPLICATIONS (GENERAL)				
4.4	Statistical				
	MINITAB	Comd	Easy to use statistical package.	C	A,M,T

Index	Item name	Type	Description	SSC	Reason
6	COMMUNICATIONS				
6	Sending/Reading Messages				
	EDDIR	Comd	Search for name in Edinburgh mail directory.	B	A,T
	EDLPR	Comd	Spool output to Edinburgh network device.	B	A,T
	EDNM	Comd	Register a name in Edinburgh mail directory.	B	A,T
	EDRM	Comd	Remove a name from Edinburgh mail directory.	B	A,T
	HHALIAS	Comd	Registers aliases for names.	C	A,M,T
	HHCP	Comd	Host to host X25 file transfer.	C	A,M,T
	HHMAIL	Comd	Send mail to remote X25 host.	C	A,M,T
	HHQ	Comd	Prints X25 transfer queue.	C	A,M,T
	HHRM	Comd	Remove transfer queue entry.	C	A,M,T
	HHSTORE	Comd	Store transfer attributes.	C	A,M,T
	HHTREE	Comd	Sub-tree file transtfer.	C	A,M,T
	NAC	Comd	Network accounting.	C	A,M,T
	ND	Comd	Network directory.	C	A,M,T
	NS	Comd	Network usage.	C	A,M,T
	PAD	Comd	Terminal X-29/TS29 to remote host.	C	A,M,T
	RN	Comd	Usenet interface.	C	A,M,T
7	TEXT PROCESSING				
7.2	Text Processing				
	NROFF	Comd	Text formatter.	C	A,M,T
	TEX/LATEX	Comd	Text formatting system.	D	A,T
	TROFF	Comd	Typesetter formatter.	C	A,M,T

COMPUTING SERVICE SOFTWARE SUPPORT CATEGORIES (SSC)
(based on the IUCC scheme)

User Assistance	Error Correction	Support Life
A Full: sufficient for experienced or first time computer users, i.e. courses, full documentation. Advice to personal and telephone callers.	Priority: verified, published and corrected as a matter of urgency.	Guaranteed: support level guaranteed for one academic year with six months notice of intention to downgrade.
B Standard: sufficient for experienced computer users unfamiliar with the software concerned, i.e. full documentation. Advice available by appointment.	Normal: verified and published as a matter of urgency. Corrected when convenient.	As in A above.
C Partial: sufficient for users generally familiar with the software concerned but who require more information to use it efficiently. Adequate documentation and limited advice.	Deferred: verified and published when convenient and corrected at leisure.	Not guaranteed: support level and specification not permanent but we will endeavour to give adequate notice of intention to downgrade.
D Minimal: sufficient for users generally familiar with the software concerned to make some use of it, i.e. limited documentation. Advice not available.	None: verified and published when convenient.	Not guaranteed: support level and specification not permanent.

EMAS 2900 DIRECTORIES

Subsys

The 195 items in Subsys are automatically accessible by all users of EMAS 2900. These items include all the EMAS 2900 Subsystem commands, the balance being made up of similar widely useful items.

This directory is maintained by the System Manager.

DAPSYS

The 13 items in DAPSYS are only accessible to users on the 2976 (host name EMAS) who have included DAPSYS.DAPDIR in their directory search list.

This directory is maintained by Mike Brown.

ERCLIB

The 74 items in ERCLIB are items written by ERCC, chapters of the NAG library, or imported text handling items. There are 9 distinct directories under username ERCLIB (ALGOL, CALCOMPICS, GENERAL, GRAPHICS, IMPSPEC, NAGFORTRAN, NAGSPEC, RELAYDIR, SORTMERGE): the relevant directory needs to be in the user's search list before the item can be accessed.

These directories are maintained by Malcolm Brown.

PLULIB

The 87 items in PLULIB were mounted on EMAS 2900 by PLU. A large number (37) of these items are for statistical applications, and many of the remainder are for graphical displays. All 87 items are accessible via directory PLULIB.PACKDIR: however, CAMAPGB1, CAMAPGB2, CSO, DATAC, GAZ, RAPPORT, SASPAC and UMAPIT are only accessible on the 2988 (host name BUSH).

Many of the library programs on EMAS, such as GENSTAT and SPSS-X, have been acquired on the explicit condition or implicit understanding that any results from them published by users should include a reference to the program.

Another common condition is that the programs be used only for teaching or research; they should not be used for commercial purposes without prior agreement. Further information on obtaining such agreement is available in the first instance from the Advisory service.

This directory is maintained by Brian Fletcher (CAST).

KNTLIB

The 53 items in KNTLIB cover a wide range of applications, and were imported from the University of Kent at Canterbury. There are 6 distinct directories under username KNTLIB (BASIC, BCPL, DEC, GENERAL, MAPLELIB, SNOBOL): the relevant directory needs to be in the user's search list before the item can be accessed.

These directories are maintained by John Murison.

CONLIB

The 198 items in CONLIB were contributed by EMAS 2900 users to cover a wide range of applications (35 subgroups are represented). There are 7 distinct directories under username CONLIB (EDWINDIR, GENERAL, GRAPHICS, IMP11DIR, PAFECDIR, POLPLOTS, PROLOG); the relevant directory needs to be in the user's search list before the item can be accessed.

These directories are maintained by Malcolm Brown.

MICROS

The 5 items in MICROS are for users of microcomputers. There are 2 distinct directories under username MICROS (EMASLIB and KERMDIR).

These directories are maintained by Kathleen Russell.

EMAS-3 DIRECTORIES

Subsys

The 263 items in Subsys are automatically accessible by all users of EMAS-3. These items include all the EMAS-3 Subsystem commands, the balance being made up of similar widely useful items. 64 of these items have been ascribed to Software Support Category (SSC) A, 35 to B, 143 to C and 21 to D.

This directory is maintained by the System Manager.

ERCLIB

The 240 items in ERCLIB are items written by ERCC, chapters of the NAG library, or imported text handling items. 1 of these items has been ascribed to SSC A, 26 to B, 123 to C and 90 to D. There are 6 distinct directories under username ERCLIB (CALCOMPICS, GENERAL, GRAPHICS, NAGLIB, SORTMERGE, VSSDIR): the relevant directory needs to be in the user's search list before the item can be accessed.

These directories are maintained by John Murison.

PLULIB

The 40 items in PLULIB were mounted on EMAS-3 by PLU. 21 of these items have been ascribed to SSC B, 9 to C and 18 to D. A large proportion of these items are for statistical applications (19 of the 48). All 48 items are accessible via directory PLULIB:PACKDIR.

Many of the library programs on EMAS, such as GENSTAT and SPSS-X, have been acquired on the explicit condition or implicit understanding that any results from them published by users should include a reference to the program.

Another common condition is that the programs be used only for teaching or research; they should not be used for commercial purposes without prior agreement. Further information on obtaining such agreement is available in the first instance from the Advisory service.

This directory is maintained by Brian Fletcher (CAST).

KNTLIB

The 16 items in KNTLIB were imported from the University of Kent at Canterbury. The items cover a wide range of applications, and 15 have been ascribed to SSC C and 1 to D. All 16 items may be accessed via directory KNTLIB:GENERAL.

This directory is maintained by John Murison.

CONLIB

The 39 items in CONLIB were contributed by EMAS-3 users to cover a wide range of applications (35 subgroups are represented). All 39 of these items have been ascribed to SSC D, and are accessible via directory CONLIB:GENERAL.

This directory is maintained by Malcolm Brown.

MICROS

The 5 items in MICROS are for users of microcomputers. 1 of these items has been ascribed to SSC B and 4 to D. All these items may be accessed via directory MICROS:EMASLIB.

This directory is maintained by Kathleen Russell.

FUNCTIONAL GROUPS**1 USER'S EMAS PROCEDURES**

- 1.1 Access to EMAS
- 1.2 Terminal Control and Information
- 1.3 EMAS process control and information
 - 1.3.1 Directory
- 1.4 EMAS Command Handling
 - 1.4.1 Session Information
- 1.5 User's Programs
 - 1.5.1 Date and Time
 - 1.5.2 Input
 - 1.5.3 Output
 - 1.5.4 String handling
 - 1.5.5 Program Control & Information
 - 1.5.6 Diagnostics
 - 1.5.7 Contingency handling
 - 1.5.8 Parameter handling
- 1.6 File Command handling
- 1.7 Jobs (all)
 - 1.7.1 Jobs (background)
 - 1.7.2 Jobs (foreground)
- 1.8 Tape Handling
- 1.9 Services, System & User Information and Utilities
 - 1.9.1 System Information
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2 FILE UTILITIES

- 2.1 File Comparison
 - 2.1.1 File Comparison (PD)
- 2.2 File Copying
 - 2.2.1 File Copying (PD)
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3 LANGUAGES, COMPILERS and UTILITIES

- 3.0 Compiler Utility
 - 3.0.1 Object Utility
- 3.1 ALGOL Compiler
- 3.2 ASSEMBLER Compiler
- 3.3 BASIC Compiler
 - 3.3.1 BASIC Utility
- 3.4 BCPL Compiler
- 3.5 C Compiler
- 3.6 FORTRAN Compiler
 - 3.6.1 FORTRAN Utility
- 3.7 IMP Compiler
 - 3.7.1 IMP Utility
- 3.8 LISP System

- 3.9 ML Interpreter
- 3.10 MODULA Compiler
- 3.11 PASCAL Compiler
- 3.12 POPLOG Environment
- 3.13 PROLOG System
- 3.14 SIMULA Compiler
- 3.15 SNOBOL Compiler

4 APPLICATIONS (GENERAL)

- 4.1 Databases
 - 4.1.1 Data Validation
 - 4.1.2 Database Handling
 - 4.1.3 Sorting
- 4.2 Graphics Drafting
 - 4.2.1 Contouring
 - 4.2.2 Graphics File Handling
 - 4.2.3 Graphics Display
- 4.3 Mathematical
- 4.4 Statistical
 - 4.4.1 Time Series
- 4.5 Software Facility

5 APPLICATIONS (DISCIPLINE ORIENTATED)

- 5.1 Economics
- 5.2 Engineering
- 5.3 Geographical/Mapping
- 5.4 Genetics

6 COMMUNICATIONS

- 6 Sending/Reading Messages

7 TEXT PROCESSING

- 7.1 Text Analysis
- 7.2 Text Processing

FUNCTIONAL DEFINITIONS

FUNCTION

Access to EMAS:	Obtaining and relinquishing access to EMAS-3.
ALGOL Compiler:	Compiling Algol60 programs.
ASSEMBLER Compiler:	Assembling code.
BASIC Compiler:	Compiling Basic programs.
BASIC Utility:	Verifying Basic programs.
BCPL Compiler:	Compiling BCPL programs.
C Compiler:	Compiling C programs.
Compiler Utility:	Modifying a compiler's action.
Contingency handling:	Handling contingencies and events in programs.
Contouring:	Drawing contours.
Databases:	Providing details of data holdings and access facilities of the Data Library.
Data Validation:	Validating data.
Database Handling:	Using databases.
Date and Time:	Handling date and time.
Diagnostics:	Providing diagnostic information about code and processes.
Directory:	Creating and maintaining private directories and to organize directory search lists.
Economics:	Handling econometric information.
EMAS Command Handling:	Simplifying the issuing of commands.
EMAS process control and information:	Defining or displaying properties of particular processes.
Engineering:	Solving stress and heat conduction problems: finite element analysis.
File Command handling:	Performing a set of commands on a number of files.
File Comparison:	Comparing two files.
File Comparison (PD):	Comparing members of pdfiles.
File Copying:	Copying files.
File Copying (PD):	Copying partitioned file members.
File Editing:	Altering one or more characters in a file.
File Handling:	Working on entire files, maybe creating new files.
File Handling (PD):	Working on entire partitioned files.
File Information:	Obtaining characteristics of files.
File Information (PD):	Obtaining information about pdfile members.
File Listing:	Controlling the listing of files.
File Listing (PD):	Controlling the listing of members of partitioned files.
File Management:	Affecting the status and existence of files.
File Management (PD):	Affecting the status and existence of partitioned files.
File Transfer:	Transferring files between users or machines.
FORTRAN Compiler:	Compiling Fortran programs.
FORTRAN Utility:	Aiding Fortran programmers.
Genetics:	Analysing DNA sequences.
Geographical/Mapping:	Mapping geographical data.
Graphics Display:	Displaying plotfiles on a device.
Graphics Drafting:	Drawing graphs.
Graphics File Handling:	Handling graphics output files.
IMP Compiler:	Compiling IMP programs.
IMP Utility:	Assisting IMP programmers.
Input:	Taking data into a program.
Jobs (all):	Limiting background and foreground jobs.
Jobs (background):	Initiating and controlling background jobs.
Jobs (foreground):	Initiating foreground jobs.
LISP System:	Compiling and interpreting LISP programs.
Mathematical:	Transforming a set of numbers into a different set.

ML Interpreter:	Using the interactive functional programming language ML.
MODULA Compiler:	Compiling MODULA programs.
Object Utility:	Altering or analysing object files.
Output:	Printing values.
Parameter Handling:	Handling command parameter lists.
PASCAL Compiler:	Compiling Pascal programs.
POPLOG Environment:	Establishing an environment for AI languages.
Program Control & Information:	Running programs or obtaining information from a program.
PROLOG System:	Compiling and interpreting Prolog statements.
Sending/Reading Messages:	Controlling communication between users.
Session Information:	Obtaining and controlling information about interactive sessions.
SIMULA Compiler:	Compiling SIMULA programs.
SNOBOL Compiler:	Compiling Snobol programs.
Software Facility:	Generating VME/B control statements.
Sorting:	Sorting.
Statistical:	Working on statistical data.
String handling:	Handling strings.
System Information:	Obtaining information about the system.
Tape handling:	Controlling magnetic tapes and copying data to and from such tapes.
Terminal Control and Information:	Affecting the behaviour of or obtaining characteristics of interactive terminals.
Text Analysis:	Analysing texts.
Text Processing:	Formatting text.
Time Series:	Analysing time series.
User Information:	Providing on-line information such as might be published in user manuals, etc., on ERCC services, facilities and software. Note that the on-line text is not necessarily a verbatim version of what would be published in hard copy.
Utility:	Giving reminders from users to themselves.

TYPES OF SOFTWARE

Comd:	An item which is either in the published list of EMAS-3 Subsystem commands or is similar in form. Any information needed (file names and data values) comes via the parameters, although some commands such as editors and one or two others prompt for their information.
FRtn:	One or more Fortran Routines for inclusion in a program.
IIFn:	An IMP Integer Function for inclusion in a program.
IRtn:	One or more IMP Routines for inclusion in a program.
ISFn:	An IMP String Function for inclusion in a program.
Pack:	An item requiring more input than most commands, but which takes parameters to define files and supply controlling information.
Prog:	An item similar to a package but which does not take parameters.
Rout:	A set of Routines in more than one language for inclusion in a program.
Soft:	Not a single item such as those described above but system software providing an alternative method of using a command.

INDEX

Each Index entry has a prefix showing the operating system on which the Item may be found:

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INVITATION

Users' comments on the contents, arrangement, accuracy and usefulness of this User Note will be welcome and should be sent to Neil Hamilton-Smith at EUCS, 1 Roxburgh Street, Edinburgh EH8 9TA; Tel 031-667 1011 ext. 4409 or MAIL to N.HAMILTON-SMITH.