



```

FFFFFFFFF  AAAAAA  LL  SSSSSSSS  TTTTTTTTTT  AAAAAA  TTTTTTTTTT  EEEEEEEEE
FFFFFFFFF  AAAAAA  LL  SSSSSSSS  TTTTTTTTTT  AAAAAA  TTTTTTTTTT  EEEEEEEEE
FF         AA      AA  LL  SS         TT         AA      AA  TT         EE
FF         AA      AA  LL  SS         TT         AA      AA  TT         EE
FF         AA      AA  LL  SS         TT         AA      AA  TT         EE
FF         AA      AA  LL  SS         TT         AA      AA  TT         EE
FFFFFFFFF  AA      AA  LL  SSSSSS  TT         AA      AA  TT         EEEEEEE
FFFFFFFFF  AA      AA  LL  SSSSSS  TT         AA      AA  TT         EEEEEEE
FF         AAAAAAAAAA LL  SS         TT         AAAAAAAAAA TT         EE
FF         AAAAAAAAAA LL  SS         TT         AAAAAAAAAA TT         EE
FF         AA      AA  LL  SS         TT         AA      AA  TT         EE
FF         AA      AA  LL  SS         TT         AA      AA  TT         EE
FF         AA      AA  LLLLLLLLLL SSSSSSSS TT         AA      AA  TT         EEEEEEEEE
FF         AA      AA  LLLLLLLLLL SSSSSSSS TT         AA      AA  TT         EEEEEEEEE

```

```

LL         IIIIII  SSSSSSSS
LL         IIIIII  SSSSSSSS
LL         II     SS
LL         II     SS
LL         II     SS
LL         II     SS
LL         II     SSSSSS
LL         II     SSSSSS
LL         II     SS
LL         II     SS
LL         II     SS
LL         II     SS
LLLLLLLLLL IIIIII  SSSSSSSS
LLLLLLLLLL IIIIII  SSSSSSSS

```

(2) 65  
(3) 174  
(5) 246  
(5) 247  
(6) 270  
(7) 323  
(8) 375  
(9) 410  
(10) 438  
(11) 474  
(12) 503  
(13) 543  
(14) 576  
(15) 618  
(16) 640  
(17) 662  
(18) 677

DECLARATIONS  
FALSSTATE - STATE TABLE MANAGER  
FALSSTATE TABLE - FAL STATE TRANSITION TABLE  
ST0 -- INITIALIZATION  
ST1 -- FILE ACCESS  
ST2 -- RECORD ACCESS  
ST3 -- FILE CLOSE  
ST4 -- RAM RETRIEVAL  
ST5 -- RAM STORAGE  
ST6 -- FTM RETRIEVAL  
ST7 -- FTM STORAGE  
ST8 -- DIRECTORY LIST  
ST9 -- WILDCARD FILE RETRIEVAL  
ST10 -- WILDCARD FILE DELETION  
ST11 -- WILDCARD FILE EXECUTION  
ST12 -- FILE RENAME  
ST13 -- WILDCARD RENAME

```
0000 1 .TITLE FALSTATE - STATE TRANSITION PROCESSING
0000 2 .IDENT 'V04-000'
0000 3
0000 4
0000 5 :*****
0000 6 :*
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0000 23 :* SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.
0000 24 :*
0000 25 :*
0000 26 :*****
0000 27 :
0000 28
0000 29 :++
0000 30 : Facility: FAL (DECnet File Access Listener)
0000 31 :
0000 32 : Abstract:
0000 33 :
0000 34 : This module contains the state table manager and the state transition
0000 35 : table for FAL.
0000 36 :
0000 37 : Environment: VAX/VMS, user mode
0000 38 :
0000 39 : Author: James A. Krycka, Creation Date: 17-JUN-1977
0000 40 :
0000 41 : Modified By:
0000 42 :
0000 43 : V03-005 JAK0135 J A Krycka 05-MAR-1984
0000 44 : Correct occurrence of duplicate label in state table ST13 for
0000 45 : wildcard rename.
0000 46 :
0000 47 : V03-004 JAK0128 J A Krycka 16-SEP-1983
0000 48 : CRC check data that is being discarded during file transfer
0000 49 : error recovery.
0000 50 :
0000 51 : V03-003 JAK0120 J A Krycka 29-JUL-1983
0000 52 : Provide better error recovery in the file transfer mode storage
0000 53 : state (ST7) and minor cleanup in other file transfer mode
0000 54 : states (ST4, ST5, and ST6).
0000 55 :
0000 56 : V03-002 JAK0104 J A Krycka 19-APR-1982
0000 57 : Changes to support optimized file transfer mode storage and
```

0000 58 :  
0000 59 :  
0000 60 :  
0000 61 :  
0000 62 :  
0000 63 :--

retrieval.

V03-001 KRM0073 K Malik 23-Nov-1982  
Support the DAP RENAME operation.

```

0000 65          .SBTTL  DECLARATIONS
0000 66
0000 67  :
0000 68  : Include Files:
0000 69  :
0000 70
0000 71          $DAPHDRDEF          ; Define DAP message header
0000 72          $DAPACCDEF          ; Define DAP Access message
0000 73          $DAPCTLDEF          ; Define DAP Control message
0000 74          $DAPCONDEF          ; Define DAP Continue Transfer message
0000 75          $DAPCMPDEF          ; Define DAP Access Complete message
0000 76          $FALWRKDEF          ; Define FAL Work Area symbols
0000 77
0000 78  :
0000 79  : Macros:
0000 80  :
0000 81  :++
0000 82  : STATE_INIT initializes the state transition table, where:
0000 83  :
0000 84  : LABEL = the global symbol to denote the start of the table.
0000 85  :--
0000 86
0000 87          .MACRO STATE_INIT      LABEL
0000 88          .ALIGN LONG
0000 89 LABEL::
0000 90 COUNT...=0
0000 91          .ENDM STATE_INIT
0000 92
0000 93  :++
0000 94  : STATE defines a transfer of control point in the state transition table
0000 95  : (i.e., the state of a new state), where:
0000 96  :
0000 97  : NAME = the name of the state.
0000 98  :--
0000 99
0000 100         .MACRO STATE NAME
0000 101 NAME=COUNT...
0000 102         .ENDM STATE
0000 103
0000 104  :++
0000 105  : TRAN defines a state transition table entry, where:
0000 106  :
0000 107  : VALUE = the value to compare against the state transition value.
0000 108  : (Null denotes that state value is a match.)
0000 109  : ACTION = address of optional action routine to execute.
0000 110  : (Null denotes no action routine to execute.)
0000 111  : SUCCESS = name of the state to goto on action routine success.
0000 112  : (If no action routine is specified, then this path is taken.)
0000 113  : (Null denotes goto next transition entry.)
0000 114  : FAILURE = name of the state to goto on action routine failure.
0000 115  : (Null denotes goto next transition entry.)
0000 116  :--
0000 117
0000 118         .MACRO TRAN VALUE,ACTION,SUCCESS,FAILURE
0000 119         .IF B VALUE
0000 120         .WORD M_MATCH
0000 121         .IFF

```

```

0000 122      .WORD  VALUE@8
0000 123      .ENDC
0000 124      .IF B   SUCCESS
0000 125      .BYTE  COUNT...+1
0000 126      .IFF
0000 127      .BYTE  SUCCESS
0000 128      .ENDC
0000 129      .IF B   FAILURE
0000 130      .BYTE  COUNT...+1
0000 131      .IFF
0000 132      .BYTE  FAILURE
0000 133      .ENDC
0000 134      .IF B   ACTION
0000 135      .ADDRESS 0
0000 136      .IFF
0000 137      .ADDRESS ACTION
0000 138      .ENDC
0000 139      COUNT...=COUNT...+1
0000 140      .ENDM  TRAN
0000 141
0000 142      :++
0000 143      : RETURN defines a state transition table entry that directs the transition
0000 144      : table manager (FAL$STATE) to exit to its caller.
0000 145      :--
0000 146
0000 147      .MACRO RETURN
0000 148      .QUAD  M_EXIT
0000 149      .ENDM  RETURN
0000 150
0000 151      :
0000 152      : Equated Symbols:
0000 153      :
0000 154      : State table entry offsets:
0000 155      :
0000 156
00000000 0000 157 V_MATCH=0
00000001 0000 158 M_MATCH=<1@V_MATCH>
00000001 0000 159 V_EXIT=1
00000002 0000 160 M_EXIT=<1@V_EXIT>
00000000 0000 161 FLAGS=0
00000001 0000 162 VALUE=1
00000002 0000 163 SUCCESS=2
00000003 0000 164 FAILURE=3
00000004 0000 165 ACTION=4
0000 166
0000 167      ASSUME  FAL$Q_FLG EQ 0
0000 168
0000 169      :
0000 170      : Own Storage:
0000 171      :
0000 172      : None

```

```

0000 174      .SBTTL FALSSTATE - STATE TABLE MANAGER
00000000 175      .PSECT FALS$CODE      NOSHR,EXE,RD,NOWRT,BYTE
0000 176
0000 177      :++
0000 178      : Functional Description:
0000 179      :
0000 180      :     FALSSTATE controls the execution of FAL by maintaining its state context
0000 181      :     and executing action routines as directed by the state transition table.
0000 182      :
0000 183      : Calling Sequence:
0000 184      :
0000 185      :     BSBW  FALSSTATE
0000 186      :
0000 187      : Input Parameters:
0000 188      :
0000 189      :     R2      Address of state transition table
0000 190      :     R8      Address of FAL work area
0000 191      :     R9      Address of DAP control block
0000 192      :     R10     Address of FAB
0000 193      :     R11     Address of RAB
0000 194      :
0000 195      : Implicit Inputs:
0000 196      :
0000 197      :     FALSQ_STATE_CTX
0000 198      :     FALS$B_VALUE
0000 199      :
0000 200      : Output Parameters:
0000 201      :
0000 202      :     R0-R7   Destroyed
0000 203      :
0000 204      : Implicit Outputs:
0000 205      :
0000 206      :     FALSQ_STATE_CTX
0000 207      :     FALS$B_VALUE
0000 208      :
0000 209      : Completion Codes:
0000 210      :
0000 211      :     Each action routine is required to return a success/failure (or a
0000 212      :     true/false) code in R0 which is used by FALSSTATE to determine the
0000 213      :     next state to enter.
0000 214      :
0000 215      : Side Effects:
0000 216      :
0000 217      :     None
0000 218      :
0000 219      :--

```



```

      53  52  D0  0000  221 FAL$STATE::      ; Entry point
      37 63  01  0000  222      MOVL      R2,R3      ; Initialize state transition
      0C 63  00  0003  223      ; entry address
      10 A8  01  A3  91  0003  224 10$:  BBS      #V_EXIT,FLAGS(R3),50$ ; Branch if end of table
      0C 63  00  0007  225      BBS      #V_MATCH,FLAGS(R3),20$ ; Branch if any value is a match
      10 A8  01  A3  91  0008  226      CMPB     VALUE(R3),FAL$B_VALUE(R8) ; Is state value a match?
      05  13  0010  227      BEQL     20$      ; Branch if yes
      53  08  C0  0012  228      ADDL2   #8,R3      ; No, form address of next table entry
      EC  11  0015  229      BRB     10$      ; Try again
      54  04  A3  0017  230 20$:  MOVL     ACTION(R3),R4 ; Get address of action routine
      15  13  0018  231      BEQL     30$      ; Branch if no routine specified
      08 A8  52  7D  001D  232      MOVQ    R2,FAL$Q_STATE_CTX(R8) ; Save state table context <R2,R3>
      64  16  0021  233      JSB     (R4)      ; Execute action routine
      52  08  A8  7D  0023  234      MOVQ    FAL$Q_STATE_CTX(R8),R2 ; Restore state table context <R2,R3>
      08  08  50  E8  0027  235      BLBS   R0,30$    ; Branch on success
      54  03  A3  08  00  EF  002A  236      EXTZV  #0,#8,FAILURE(R3),R4 ; Get failure table entry index
      06  11  0030  237      BRB     40$      ; (as an unsigned integer value)
      54  02  A3  08  00  EF  0032  238 30$:  EXTZV  #0,#8,SUCCESS(R3),R4 ; Get success table entry index
      0038  239      ; (as an unsigned integer value)
      53  6244  7E  0038  240 40$:  MOVAQ   (R2)[R4],R3 ; Compute address of new table entry
      003C  241      ; taking advantage of the fact that
      003C  242      ; each entry is 8 bytes long
      C5  11  003C  243      BRB     10$      ; Start again
      05  003E  244 50$:  RSB     ; Exit

```

```

003F 246 .SBTTL FAL$STATE_TABLE - FAL STATE TRANSITION TABLE
003F 247 .SBTTL STO -- INITIALIZATION
00000000 248 .PSECT FAL$STATE_TABLE SHR,NOEXE,RD,NOWRT,QUAD
0000 249
0000 250 :++
0000 251 : Define beginning (entry point) of state transition table.
0000 252 :--
0000 253
0000 254 STATE_INIT FAL$STATE_TABLE
0000 255
0000 256 :++
0000 257 : Initialization state (also called setup state in DAP specification).
0000 258 :
0000 259 : Note: Success from FAL$INIT means that a Configuration message has been
0000 260 : received; failure denotes that one has not been received.
0000 261 :--
0000 262 : State Value Action-Routine Success Failure Comments
0000 263
0000 264 STATE STC
0000 265 TRAN , FAL$INIT, ST1, ; See note above
0008 266 TRAN , FAL$NEXT_MSG, , STO
0010 267 TRAN DAP$K_CNF_MSG, FAL$DECODE_CNF, ST1, STO
0018 268 TRAN , FAL$OUT_OF_SEQ, STO, STO
  
```

```

0020 270 .SBTTL ST1 -- FILE ACCESS
0020 271
0020 272 :++
0020 273 : Generalized file access state.
0020 274 :
0020 275 : Note: The check for a Continue Transfer message and response of an Access
0020 276 : Complete message in state ST1 is to help solve an error recovery problem
0020 277 : for wildcard file deletion and wildcard file execution.
0020 278 :--
0020 279 :
0020 280 : State Value Action-Routine Success Failure Comments
0020 281 STATE ST1
0020 282 TRAN DAPSK_NEXT_MSG, FALS$NEXT_MSG, $TO, ST1
0028 283 TRAN DAPSK_CNF_MSG, FALS$DECODE_CNF, $TO, ST1
0030 284 TRAN DAPSK_ATT_MSG, FALS$DECODE_ATT, ST1, ST1
0038 285 TRAN DAPSK_ACC_MSG, FALS$DECODE_ACC, ST1_1, ST1
0040 286 TRAN DAPSK_TIM_MSG, FALS$DECODE_TIM, ST1, ST1
0048 287 TRAN DAPSK_PRO_MSG, FALS$DECODE_PRO, ST1, ST1
0050 288 TRAN DAPSK_ALL_MSG, FALS$DECODE_ALL, ST1, ST1
0058 289 TRAN DAPSK_KEY_MSG, FALS$DECODE_KEY, ST1, ST1
0060 290 TRAN DAPSK_CON_MSG, FALS$DIR_END, $TO, $TO ; See note above
0068 291 TRAN , FALS$OUT_OF_SEQ, ST1, ST1
0070 292
0070 293 STATE ST1_1
0070 294 TRAN DAPSK_OPEN, FALS$FIL_PARSE, ST1_1A, $TO
0078 295 TRAN DAPSK_CREATE, FALS$CREATE, ST2, $TO
0080 296 TRAN DAPSK_DIR_LIST, FALS$DIR_PARSE, ST8, $TO
0088 297 TRAN DAPSK_ERASE, FALS$FIL_PARSE, ST1_1B, $TO
0090 298 TRAN DAPSK_SUBMIT, FALS$SUBMIT, ST2, $TO
0098 299 TRAN DAPSK_EXECUTE, FALS$FIL_PARSE, ST1_1C, $TO
00A0 300 TRAN DAPSK_LOAD, FALS$OPEN, ST1_1D, $TO
00A8 301 TRAN DAPSK_RENAME, FALS$FIL_PARSE, ST1_1E, $TO
00B0 302 TRAN , FALS$INV_ACCFUNC, ST1, ST1
00B8 303
00B8 304 STATE ST1_1A
00B8 305 TRAN , FALS$CHECK_WILD, ST9, $TO ; True/False
00C0 306 TRAN , FALS$OPEN, ST2, $TO
00C8 307
00C8 308 STATE ST1_1B
00C8 309 TRAN , FALS$CHECK_WILD, ST10, $TO ; True/False
00D0 310 TRAN , FALS$ERASE, $TO, $TO
00D8 311
00D8 312 STATE ST1_1C
00D8 313 TRAN , FALS$CHECK_WILD, ST11, $TO ; True/False
00E0 314 TRAN , FALS$EXECUTE, $TO, $TO
00E8 315
00E8 316 STATE ST1_1D
00E8 317 TRAN , FALS$LOAD_IMAGE, EXIT, EXIT ; VMS specific
00F0 318
00F0 319 STATE ST1_1E
00F0 320 TRAN , FALS$INIT_RENAME, $TO, $TO
00F8 321 TRAN , FALS$CHECK_WILD, ST13, ST12 ; True/False

```





```

0270 410 .SBTTL ST4 -- RAM RETRIEVAL
0270 411
0270 412 :++
0270 413 : Record access mode retrieval state (for $GET/$READ).
0270 414 :
0270 415 : Send the specified record/block to the partner process. Engage in error
0270 416 : recovery dialogue on encountering an end-of-file condition or on an error
0270 417 : in accessing the data.
0270 418 :--
0270 419 : State Value Action-Routine Success Failure Comments
0270 420 :
0270 421 STATE ST4
0270 422 TRAN , FALSRETRV_RAM, ST2, ST4A
0278 423 :
0278 424 STATE ST4A
0278 425 TRAN , FALS$NEXT_MSG, ST4A
0280 426 TRAN DAP$K_CTL_MSG, FALS$DECODE_CTL, ST2_1, ST4A
0288 427 TRAN DAP$K_CMP_MSG, FALS$DECODE_CMP, ST2_2, ST4A
0290 428 TRAN DAP$K_CON_MSG, FALS$DECODE_CON, ST4A_1, ST4A
0298 429 TRAN , FALS$OUT_OF_SEQ, ST4A, ST4A
02A0 430 :
02A0 431 STATE ST4A_1
02A0 432 TRAN DAP$K_ABORT, ST4A, EXIT ; Ok to allow it
02A8 433 TRAN DAP$K_RESUME, ST4A, EXIT ; Inappropriate
02B0 434 TRAN DAP$K_RETRY, ST4, EXIT
02B8 435 TRAN DAP$K_SKIP_REC, FALS$UNS_CONFUNC, ST4A, ST4A
02C0 436 TRAN , FALS$INV_CONFUNC, ST4A, ST4A

```

```

02C8 438 .SBTTL ST5 -- RAM STORAGE
02C8 439
02C8 440 :++
02C8 441 : Record access mode storage state (for $PUT/$WRITE).
02C8 442 :
02C8 443 : Store each record/block received from the partner process until directed
02C8 444 : to perform another function. Engage in error recovery dialogue on an error
02C8 445 : in storing the data.
02C8 446 :--
02C8 447 :
02C8 448 : State Value Action-Routine Success Failure Comments
02C8 449 STATE ST5
02C8 450 TRAN
02D0 451 TRAN DAPSK_DAT_MSG, FALS$NEXT_MSG, ST5, ST5
02D8 452 TRAN DAPSK_CTL_MSG, FALS$STORE_RAM, ST5, ST5A
02E0 453 TRAN DAPSK_CMP_MSG, FALS$DECODE_CTL, ST2_1, ST5
02E8 454 TRAN , FALS$DECODE_CMP, ST2_2, ST5
02F0 455 TRAN , FALS$OUT_OF_SEQ, ST5, ST5
02F0 456 STATE ST5A
02F0 457 TRAN
02F8 458 TRAN DAPSK_CON_MSG, FALS$INTE_MSG, ST5A, ST5A
0300 459 TRAN , FALS$DECODE_CON, ST5A_1, ST5A
0308 460 STATE ST5A_1
0308 461 TRAN
0310 462 TRAN DAPSK_ABORT, FALS$OUT_OF_SEQ, ST5B, EXIT
0318 463 TRAN DAPSK_RESUME, FALS$SUNS_CONFUNC, ST5A, ST5A
0318 464 TRAN DAPSK_RETRY, FALS$SUNS_CONFUNC, ST5A, ST5A
0320 465 TRAN DAPSK_SKIP_REC, ST5, EXIT
0328 466 TRAN , FALS$INV_CONFUNC, ST5A, ST5A
0330 467 STATE ST5B
0330 468 TRAN
0330 469 TRAN
0338 470 TRAN DAPSK_CMP_MSG, FALS$NEXT_MSG, ST2_2, ST5B
0340 471 TRAN DAPSK_DAT_MSG, FALS$DISCARD_DAT, ST5B, EXIT
0348 472 TRAN , FALS$OUT_OF_SEQ, ST5B, ST5B

```

```

0350 474 .SBTTL ST6 -- FTM RETRIEVAL
0350 475
0350 476 :++
0350 477 : File transfer mode retrieval state (for $GET/$READ).
0350 478 :
0350 479 : Send each record/block remaining in the file to the partner process. Engage
0350 480 : in error recovery dialogue on encountering an end-of-file condition, on an
0350 481 : error in accessing the data, or if directed by partner to stop before the
0350 482 : end-of-file is reached.
0350 483 :--
0350 484 :
0350 485 : State Value Action-Routine Success Failure Comments
0350 486 STATE ST6
0350 487 TRAN FAL$TEST_MSG, ST6A,
0358 488 TRAN FAL$RETRV_FTM, ST6, ST6A
0360 489
0360 490 STATE ST6A
0360 491 TRAN FAL$NEXT_MSG, ST6A
0368 492 TRAN DAP$K_CMP_MSG, FAL$DECODE_CMP, ST2_2, ST6A
0370 493 TRAN DAP$K_CON_MSG, FAL$DECODE_CON, ST6A_1, ST6A
0378 494 TRAN FAL$OUT_OF_SEQ, ST6A, ST6A
0380 495
0380 496 STATE ST6A_1
0380 497 TRAN DAP$K_ABORT, ST6A, EXIT ; 0% to allow it
0388 498 TRAN DAP$K_RESUME, ST6, EXIT ; Same as retry
0390 499 TRAN DAP$K_RETRY, ST6, EXIT
0398 500 TRAN DAP$K_SKIP_REC, FAL$UNS_CONFUNC, ST6A, ST6A
03A0 501 TRAN FAL$INV_CONFUNC, ST6A, ST6A

```



```

03A8 503 .SBTTL ST7 -- FTM STORAGE
03A8 504
03A8 505 :++
03A8 506 : File transfer mode storage/append state (for $PUT/$WRITE).
03A8 507 :
03A8 508 : Store each record/block received from partner process until directed to stop.
03A8 509 : Engage in error recovery dialogue on an error in accessing the file.
03A8 510 :--
03A8 511 :
03A8 512 : State Value Action-Routine Success Failure Comments
03A8 513 STATE ST7
03A8 514 TRAN DAPSK_DAT_MSG, FALS$NEXT_MSG, ST7, ST7
03B0 515 TRAN DAPSK_DAT_MSG, FALS$STORE_FTM, $ST7, ST7A
03B8 516 TRAN DAPSK_CMP_MSG, FALS$STORE_END, ST7_1, ST7_2
03C0 517 TRAN , FALS$OUT_OF_SEQ, ST7, ST7
03C8 518
03C8 519 STATE ST7_1
03C8 520 TRAN , FALS$DECODE_CMP, ST2_2, ST7
03D0 521
03D0 522 STATE ST7_2
03D0 523 TRAN , FALS$SAVE_MSG, ST7A, EXIT
03D8 524
03D8 525 STATE ST7A
03D8 526 TRAN DAPSK_CON_MSG, FALS$INTE_MSG, ST7A, ST7A
03E0 527 TRAN DAPSK_CON_MSG, FALS$DECODE_CON, $ST7A_1, ST7A
03E8 528 TRAN , FALS$OUT_OF_SEQ, ST7A, ST7A
03F0 529
03F0 530 STATE ST7A_1
03F0 531 TRAN DAPSK_ABORT, FALS$BIT_BUCKET, ST7B, EXIT
03F8 532 TRAN DAPSK_RESUME, FALS$UNS_CONFUNC, ST7A, ST7A
0400 533 TRAN DAPSK_RETRY, FALS$UNS_CONFUNC, ST7A, ST7A
0408 534 TRAN DAPSK_SKIP_REC, FALS$BIT_BUCKET, ST7, EXIT
0410 535 TRAN , FALS$INV_CONFUNC, ST7A, ST7A
0418 536
0418 537 STATE ST7B
0418 538 TRAN DAPSK_CMP_MSG, FALS$NEXT_MSG, ST7B, : Discard DAT
0420 539 TRAN DAPSK_CMP_MSG, FALS$DECODE_CMP, $ST2_2, ST7B : msgs in pipe
0428 540 TRAN DAPSK_DAT_MSG, FALS$DISCARD_DAT, ST7B, EXIT : until CMP msg
0430 541 TRAN , FALS$OUT_OF_SEQ, ST7B, ST7B : is received

```

```

0438 543 .SBTTL ST8 -- DIRECTORY LIST
0438 544
0438 545 :++
0438 546 : Directory list retrieval state.
0438 547 :
0438 548 : Send a file specification and requested file attributes for each directory
0438 549 : found to partner process. Engage in error recovery dialogue on an error in
0438 550 : accessing directory information or if directed by partner to stop before
0438 551 : the function is completed.
0438 552 :--
0438 553 :
0438 554 : State Value Action-Routine Success Failure Comments
0438 555 STATE ST8
0438 556 TRAN , FALSTEST_MSG, ST8A,
0440 557 TRAN , FAL$DIR_SEARCH, ST8A,
0448 558 TRAN , FAL$CHECK_NMF, ST0, ST8 ; True/False
0450 559
0450 560 STATE ST8A
0450 561 TRAN ,
0458 562 TRAN DAP$K_CMP_MSG, FAL$NEXT_MSG, ST8A, ST8A
0460 563 TRAN DAP$K_CON_MSG, FAL$DECODE_CMP, ST8A_1, ST8A
0468 564 TRAN , FAL$DECODE_CON, ST8A_2, ST8A
0470 565 TRAN , FAL$OUT_OF_SEQ, ST8A, ST8A
0470 566 STATE ST8A_1
0470 567 TRAN DAP$K_CLOSE, FAL$DIR_END, ST0, EXIT
0478 568 TRAN DAP$K_TERMINATE, FAL$DIR_END, ST0, ST3 ; Inappropriate
0480 569 TRAN , FAL$OUT_OF_SEQ, ST8A, ST8A
0488 570
0488 571 STATE ST8A_2
0488 572 TRAN DAP$K_SKIP_REC, ST8, EXIT ; Goto next file
0490 573 TRAN DAP$K_RETRY, FAL$UNS_CONFUNC, ST8A, ST8A
0498 574 TRAN , FAL$INV_CONFUNC, ST8A, ST8A

```

```

04A0 576 .SBTTL ST9 -- WILDCARD FILE RETRIEVAL
04A0 577
04A0 578 :++
04A0 579 : Wildcard file retrieval state.
04A0 580 :--
04A0 581 :
04A0 582 : State Value Action-Routine Success Failure Comments
04A0 583 STATE ST9
04A0 584 TRAN , FAL$TEST_MSG, ST9A,
04A8 585 TRAN , FAL$FIL_SEARCH, ST9A,
04B0 586 TRAN , FAL$CHECK_NMF, ST0, ; True/False
04B8 587 TRAN , FAL$OPEN, ST9A, ST9A
04C0 588
04C0 589 STATE ST9A
04C0 590 TRAN , FAL$NEXT_MSG, ST9A, ST9A
04C8 591 TRAN DAP$K_CTL_MSG, FAL$DECODE_CTL, ST9A_1, ST9A
04D0 592 TRAN DAP$K_CMP_MSG, FAL$DECODE_CMP, ST9A_2, ST9A
04D8 593 TRAN DAP$K_CON_MSG, FAL$DECODE_CON, ST9A_3, ST9A
04E0 594 TRAN , FAL$OUT_OF_SEQ, ST9A, ST9A
04E8 595
04E8 596 STATE ST9A_1
04E8 597 TRAN DAP$K_CONNECT, FAL$CONNECT, ST9A, ST9A
04F0 598 TRAN DAP$K_GET_READ, FAL$CHECK_FTM, ST9B, EXIT
04F8 599 TRAN , FAL$INV_CTLFUNC, ST9A, ST9A
0500 600
0500 601 STATE ST9A_2
0500 602 TRAN DAP$K_DISCONN, FAL$DISCONNECT, ST9A, ST9A
0508 603 TRAN DAP$K_CLOSE, FAL$CLOSE, ST9, ST9A ; Goto next file
0510 604 TRAN DAP$K_SKIP_FILE, ST9, EXIT ; Goto next file
0518 605 TRAN DAP$K_TERMINATE, FAL$CLOSE, ST0, ST9A ; Stop operation
0520 606 TRAN , FAL$INV_CMPFUNC, ST9A, ST9A
0528 607
0528 608 STATE ST9A_3
0528 609 TRAN DAP$K_RESUME, ST9B, EXIT ; Same as retry
0530 610 TRAN DAP$K_RETRY, ST9B, EXIT
0538 611 TRAN DAP$K_SKIP_REC, FAL$UNS_CONFUNC, ST9A, ST9A
0540 612 TRAN , FAL$INV_CONFUNC, ST9A, ST9A
0548 613
0548 614 STATE ST9B
0548 615 TRAN , FAL$TEST_MSG, ST9A,
0550 616 TRAN , FAL$RETRV_FTM, ST9B, ST9A

```



```

05A0 640 .SBTTL ST11 -- WILDCARD FILE EXECUTION
05A0 641
05A0 642 :++
05A0 643 : Wildcard file execution state.
05A0 644 :--
05A0 645 :
05A0 646 : State Value Action-Routine Success Failure Comments
05A0 647 STATE ST11
05A0 648 TRAN , FALSFIL_SEARCH, ST0
05A8 649 TRAN , FALSCHK_NMF, ST0 ; True/False
05B0 650 TRAN , FALSEXECUTE, ST11, ST11A
05B8 651
05B8 652 STATE ST11A
05B8 653 TRAN DAPSK_CON_MSG, FALSNEXT_MSG, ST11A, ST11A
05C0 654 TRAN FALSDECODE_CON, ST11A_1, ST11A
05C8 655 TRAN , FALSOUT_OF_SEQ, ST11A, ST11A
05D0 656
05D0 657 STATE ST11A_1
05D0 658 TRAN DAPSK_SKIP_REC, ST11, EXIT
05D8 659 TRAN DAPSK_RETRY, FALSUNS_CONFUNC, ST11A, ST11A
05E0 660 TRAN , FALSINV_CONFUNC, ST11A, ST11A

```



```

0608 677 .SBTTL ST13 -- WILDCARD RENAME
0608 678
0608 679 ;++
0608 680 ; Wildcard file rename state.
0608 681 ;--
0608 682 ;
060R 683 ;
0608 684 STATE ST13
0608 685 TRAN
0610 686 TRAN DAPSK_NAM_MSG,
0618 687 TRAN ,
0620 688
0620 689 STATE ST13A
0620 690 TRAN
0628 691 TRAN ;
0630 692 TRAN ;
0638 693
0638 694 STATE ST13B
0638 695 TRAN
0640 696 TRAN DAPSK_CON_MSG,
0648 697 TRAN ,
0650 698
0650 699 STATE ST13B_1
0650 700 TRAN DAPSK_SKIP_REC,
0658 701 TRAN DAPSK_RETRY,
0660 702 TRAN ,

```

State	Value	Action-Routine	Success	Failure	Comments
ST13		FALS\$NEXT_MSG,	ST13A,	ST13	
		FALS\$DECODE_NAM,	ST13,	ST13	
		FALS\$OUT_OF_SEQ,	ST13,	ST13	
ST13A		FALS\$FIL_SEARCH,	ST0,	ST0	
		FALS\$CHECK_NMF,	ST13A,	ST13B	; True/False
		FALS\$RENAME,	ST13A,	ST13B	
ST13B		FALS\$NEXT_MSG,	ST13B_1,	ST13B	
		FALS\$DECODE_CON,	ST13B,	ST13B	
		FALS\$OUT_OF_SEQ,	ST13B,	ST13B	
ST13B_1		FALS\$UNS_CONFUNC,	ST13A,	EXIT	
		FALS\$INV_CONFUNC,	ST13B,	ST13B	
		FALS\$INV_CONFUNC,	ST13B,	ST13B	

0668 704 :++  
0668 705 : Termination state.  
0668 706 :--  
0668 707 :  
0668 708 STATE EXIT  
0668 709 RETURN  
0670 710  
0670 711 .END

: End of module



ACTION = 00000004  
COUNT = 000000CD  
DAPSB\_ACCFUNC 00000040  
DAPSB\_ACCOPT 00000041  
DAPSB\_BITCNT 00000035  
DAPSB\_BLKCNT 00000056  
DAPSB\_CMPFUNC 00000040  
DAPSB\_CONFUNC 00000040  
DAPSB\_CTLFUNC 00000040  
DAPSB\_FAC 00000042  
DAPSB\_FLAGS 00000031  
DAPSB\_KRF 00000047  
DAPSB\_LEN256 00000034  
DAPSB\_LENGTH 00000033  
DAPSB\_RAC 00000046  
DAPSB\_SHR 00000043  
DAPSB\_STREAMID 00000032  
DAPSB\_TYPE 00000030  
DAPSK\_ABORT = 00000003  
DAPSK\_ACC\_MSG = 00000003  
DAPSK\_ALL\_MSG = 0000000B  
DAPSK\_ATT\_MSG = 00000002  
DAPSK\_CHANGE\_B = 00000006  
DAPSK\_CHANGE\_E = 00000007  
DAPSK\_CLOSE = 00000001  
DAPSK\_CMP\_MSG = 00000007  
DAPSK\_CNF\_MSG = 00000001  
DAPSK\_CONNECT = 00000002  
DAPSK\_CON\_MSG = 00000005  
DAPSK\_CREATE = 00000002  
DAPSK\_CTL\_MSG = 00000004  
DAPSK\_DAT\_MSG = 00000008  
DAPSK\_DELETE = 00000005  
DAPSK\_DIR\_LIST = 00000006  
DAPSK\_DISCONN = 00000004  
DAPSK\_DISPLAY = 00000010  
DAPSK\_ERASE = 00000004  
DAPSK\_EXECUTE = 00000008  
DAPSK\_EXTEND\_B = 0000000B  
DAPSK\_EXTEND\_E = 0000000F  
DAPSK\_FIND = 0000000E  
DAPSK\_FLUSH = 0000000C  
DAPSK\_FREE = 0000000A  
DAPSK\_GET\_READ = 00000001  
DAPSK\_KEY\_MSG = 0000000A  
DAPSK\_LOAD = 000000FF  
DAPSK\_NAM\_MSG = 0000000F  
DAPSK\_OPEN = 00000001  
DAPSK\_PRO\_MSG = 0000000E  
DAPSK\_PUT\_WRITE = 00000004  
DAPSK\_RELEASE = 00000009  
DAPSK\_RENAME = 00000003  
DAPSK\_RESET = 00000003  
DAPSK\_RESUME = 00000004  
DAPSK\_RETRY = 00000001  
DAPSK\_REWIND = 00000006  
DAPSK\_SEQ\_ACC = 00000000

DAPSK\_SKIP\_FILE = 00000005  
DAPSK\_SKIP\_REC = 00000002  
DAPSK\_SPACE\_BW = 00000012  
DAPSK\_SPACE\_FW = 00000011  
DAPSK\_SUBMIT = 00000007  
DAPSK\_TERMINATE = 00000008  
DAPSK\_TIM\_MSG = 0000000D  
DAPSK\_TRUNCATE = 00000007  
DAPSK\_UPDATE = 00000003  
DAPSL\_FOP2 00000044  
DAPSL\_ROP 00000050  
DAPSM\_BITCNT = 00000008  
DAPSM\_BLKCNT = 00000040  
DAPSM\_DSP\_3NAM = 00000200  
DAPSM\_GET = 00000002  
DAPSM\_GO\_NOGO = 00000010  
DAPSM\_MSE = 00000010  
DAPSM\_SEGMENT = 00000040  
DAPSM\_TMP1\$ = 00000008  
DAPSM\_TMP2\$ = FFF80000  
DAPSQ\_FILESPEC 00000044  
DAPSQ\_KEY 00000048  
DAPSQ\_PASSWORD 00000050  
DAPSQ\_SYSPEC 00000038  
DAPSW\_CHECK 00000042  
DAPSW\_CTLMENU 00000044  
DAPSW\_DISPLAY1 0000004C  
DAPSW\_DISPLAY2 00000054  
EXIT = 000000CD  
FAILURE = 00000003  
FALSBIT\_BUCKET \*\*\*\*\* X 03  
FALSB\_ACCFUNC 000001F6  
FALSB\_ACCOPT 000001F5  
FALSB\_DATATYPE 000001F4  
FALSB\_DISABLE 00000006  
FALSB\_ENABLE 00000005  
FALSB\_LOGGING 00000004  
FALSB\_MISCOPT 00000007  
FALSB\_RAC 000001F7  
FALSB\_RBK\_CACHE 00000012  
FALSB\_RCVBUFIDX 00000011  
FALSB\_VALUE 00000010  
FALSCHANGE \*\*\*\*\* X 03  
FALSCHECK\_FTM \*\*\*\*\* X 03  
FALSCHECK\_NMF \*\*\*\*\* X 03  
FALSCHECK\_WILD \*\*\*\*\* X 03  
FALSCLOSE \*\*\*\*\* X 03  
FALSCONNECT \*\*\*\*\* X 03  
FALSCREATE \*\*\*\*\* X 03  
FALSC\_WRKBLN 00002000  
FALSDECODE\_ACC \*\*\*\*\* X 03  
FALSDECODE\_ALL \*\*\*\*\* X 03  
FALSDECODE\_ATT \*\*\*\*\* X 03  
FALSDECODE\_CMP \*\*\*\*\* X 03  
FALSDECODE\_CNF \*\*\*\*\* X 03  
FALSDECODE\_CON \*\*\*\*\* X 03  
FALSDECODE\_CTL \*\*\*\*\* X 03

FALSDECODE\_KEY \*\*\*\*\* X 03  
FALSDECODE\_NAM \*\*\*\*\* X 03  
FALSDECODE\_PRO \*\*\*\*\* X 03  
FALSDECODE\_TIM \*\*\*\*\* X 03  
FALSDELETE \*\*\*\*\* X 03  
FALSDIR\_END \*\*\*\*\* X 03  
FALSDIR\_PARSE \*\*\*\*\* X 03  
FALSDIR\_SEARCH \*\*\*\*\* X 03  
FALSDISCARD\_DAT \*\*\*\*\* X 03  
FALSDISCONNECT \*\*\*\*\* X 03  
FALSDISPLAY \*\*\*\*\* X 03  
FALSERASE \*\*\*\*\* X 03  
FALSEXECUTE \*\*\*\*\* X 03  
FALSXTEND \*\*\*\*\* X 03  
FALSFIL\_PARSE \*\*\*\*\* X 03  
FALSFIL\_SEARCH \*\*\*\*\* X 03  
FALSFINB \*\*\*\*\* X 03  
FALSFLUSH \*\*\*\*\* X 03  
FALSFREE \*\*\*\*\* X 03  
FALSINIT \*\*\*\*\* X 03  
FALSINIT\_RENAME \*\*\*\*\* X 03  
FALSINIT\_XABCHN \*\*\*\*\* X 03  
FALSINTE\_MSG \*\*\*\*\* X 03  
FALSINV\_ACCFUNC \*\*\*\*\* X 03  
FALSINV\_CMPFUNC \*\*\*\*\* X 03  
FALSINV\_CONFUNC \*\*\*\*\* X 03  
FALSINV\_CTLFUNC \*\*\*\*\* X 03  
FALSK\_WRKBLN 00002000  
FALSLOAD\_IMAGE \*\*\*\*\* X 03  
FALS\_LALXAB 00000C00  
FALS\_LALLXABINI 00000074  
FALS\_LCHAIN\_NXT 0000007C  
FALS\_LDATXAB 00000320  
FALS\_LFAB 00000200  
FALS\_LFAB2 00000800  
FALS\_LFHGXAB 000002F4  
FALS\_LFOP 000001F8  
FALS\_LKEYNAM 00001C00  
FALS\_LKEYXAB 00001000  
FALS\_LKEYXABINI 00000078  
FALS\_LNAM 00000294  
FALS\_LNAM2 00000850  
FALS\_LNUMBER 000001FC  
FALS\_LPROXAB 0000034C  
FALS\_LRAB 00000250  
FALS\_LRCVBUF 0000005C  
FALS\_LRDTXAB 000003B0  
FALS\_LRMS\_PTR 0000006C  
FALS\_LSTB 000000C0  
FALS\_LSUMXAB 000003A4  
FALS\_TEMP 000003F4  
FALS\_USE\_SC1 000000A8  
FALS\_USE\_SC2 000000AC  
FALS\_USE\_VER 000000A4  
FALS\_NEXT\_MSG \*\*\*\*\* X 03  
FALS\_OPEN \*\*\*\*\* X 03  
FALS\_OUT\_OF\_SEQ \*\*\*\*\* X 03

FALSTATE  
Symbol table

- STATE TRANSITION PROCESSING

E 16

16-SEP-1984 01:47:03  
5-SEP-1984 01:17:27

VAX/VMS Macro V04-00  
[FAL.SRC]FALSTATE.MAR;1

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FAL\$Q_BLD	00000050			FLAGS	= 00000000
FAL\$Q_DIRNAME	00000088			M_EXIT	= 00000002
FAL\$Q_FALLOG	00000090			M_MATCH	= 00000001
FAL\$Q_FLG	00000000			ST0	= 00000000
FAL\$Q_MBX	00000038			ST1	= 00000004
FAL\$Q_MBXIOSB	00000030			ST10	= 000000AB
FAL\$Q_RCV	00000040			ST10A	= 000000AE
FAL\$Q_RCVIOSB	00000020			ST10A_1	= 000000B1
FAL\$Q_RMS	00000064			ST11	= 000000B4
FAL\$Q_STATE_CTX	00000008			ST11A	= 000000B7
FAL\$Q_SYSNET	00000098			ST11A_1	= 000000BA
FAL\$Q_TEMP	000003F8			ST12	= 000000BD
FAL\$Q_VOLNAME	00000080			ST12_1	= 000000C0
FAL\$Q_XMT	00000048			ST13	= 000000C1
FAL\$Q_XMTIOSB	00000028			ST13A	= 000000C4
FAL\$RELEASE	*****	X	03	ST13B	= 000000C7
FAL\$RENAME	*****	X	03	ST13B_1	= 000000CA
FAL\$RESET	*****	X	03	ST1_1	= 0000000E
FAL\$RETRV_FTM	*****	X	03	ST1_1A	= 00000017
FAL\$RETRV_RAM	*****	X	03	ST1_1B	= 00000019
FAL\$REWIND	*****	X	03	ST1_1C	= 0000001B
FAL\$SAVE_MSG	*****	X	03	ST1_1D	= 0000001D
FAL\$SPACE_BW	*****	X	03	ST1_1E	= 0000001E
FAL\$SPACE_FW	*****	X	03	ST2	= 00000020
FAL\$STATE	00000000	RG	02	ST2A	= 00000036
FAL\$STATE_TABLE	00000000	RG	03	ST2B	= 00000039
FAL\$STORE_END	*****	X	03	ST2B_1	= 0000003D
FAL\$STORE_FTM	*****	X	03	ST2_T	= 00000024
FAL\$STORE_RAM	*****	X	03	ST2_2	= 00000034
FAL\$SUBMIT	*****	X	03	ST3	= 0000003F
FAL\$TEST_MSG	*****	X	03	ST3A	= 00000047
FAL\$TRUNCATE	*****	X	03	ST3A_1	= 0000004C
FAL\$T_DAP	00000100			ST3_T	= 00000042
FAL\$T_DIRNAME	00001F00			ST4	= 0000004E
FAL\$T_EXPAND	00000500			ST4A	= 0000004F
FAL\$T_EXPAND2	00000A00			ST4A_1	= 00000054
FAL\$T_FALLOG	00001C00			ST5	= 00000059
FAL\$T_FILESPEC	00000400			ST5A	= 0000005E
FAL\$T_FILESPEC2	00000900			ST5A_1	= 00000061
FAL\$T_KEYBUF	00000700			ST5B	= 00000066
FAL\$T_MBXBUF	00001980			ST6	= 0000006A
FAL\$T_PRTBUF1	00001A00			ST6A	= 0000006C
FAL\$T_PRTBUF2	00001B00			ST6A_1	= 00000070
FAL\$T_RESULT	00000600			ST7	= 00000075
FAL\$T_RESULT2	00000B00			ST7A	= 0000007B
FAL\$T_SYSNET	00001D00			ST7A_1	= 0000007E
FAL\$T_VOLNAME	00001E00			ST7B	= 00000083
FAL\$UNS_CONFUNC	*****	X	03	ST7_1	= 00000079
FAL\$UPDATE	*****	X	03	ST7_2	= 0000007A
FAL\$W_DAPBUFSIZ	0000001A			ST8	= 00000087
FAL\$W_DISPLAY	00000070			ST8A	= 0000008A
FAL\$W_LNKCHN	0000001C			ST8A_1	= 0000008E
FAL\$W_MBXCHN	0000001E			ST8A_2	= 00000091
FAL\$W_QIOBUFSIZ	00000018			ST9	= 00000094
FAL\$W_RECEIVED	00000072			ST9A	= 00000098
FAL\$W_USE_DBS	000000A0			ST9A_1	= 0000009D
FAL\$W_USE_SYS	000000A2			ST9A_2	= 000000A0

ST9A_3	= 000000A5
ST9B	= 000000A9
SUCCESS	= 00000002
VALUE	= 00000001
V_EXIT	= 00000001
V_MATCH	= 00000000

-----+  
! Psect synopsis !  
-----+

PSECT name	Allocation	PSECT No.	Attributes
. ABS .	00000000 ( 0.)	00 ( 0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
\$AB\$\$	00002000 ( 8192.)	01 ( 1.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
FAL\$CODE	0000003F ( 63.)	02 ( 2.)	NOPIC USR CON REL LCL NOSHR EXE RD NOWRT NOVEC BYTE
FAL\$STATE_TABLE	00000670 ( 1648.)	03 ( 3.)	NOPIC USR CON REL LCL SHR NOEXE RD NOWRT NOVEC QUAD

-----+  
! Performance indicators !  
-----+

Phase	Page faults	CPU Time	Elapsed Time
Initialization	29	00:00:00.06	00:00:00.68
Command processing	105	00:00:00.40	00:00:03.97
Pass 1	308	00:00:09.70	00:00:34.94
Symbol table sort	0	00:00:00.54	00:00:01.93
Pass 2	141	00:00:02.14	00:00:07.30
Symbol table output	23	00:00:00.12	00:00:00.44
Psect synopsis output	3	00:00:00.01	00:00:00.02
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	611	00:00:12.97	00:00:49.28

The working set limit was 1350 pages.  
70250 bytes (138 pages) of virtual memory were used to buffer the intermediate code.  
There were 30 pages of symbol table space allocated to hold 597 non-local and 5 local symbols.  
711 source lines were read in Pass 1, producing 26 object records in Pass 2.  
18 pages of virtual memory were used to define 17 macros.

-----+  
! Macro library statistics !  
-----+

Macro library name	Macros defined
_\$255\$DUA28:[FAL.OBJ]FAL.MLB;1	6
-\$255\$DUA28:[SYSLIB]STARLET.MLB;2	4
TOTALS (all libraries)	10

666 GETS were required to define 10 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS\$:FALSTATE/OBJ=OBJ\$:FALSTATE MSRC\$:FALSTATE/UPDATE=(ENH\$:FALSTATE)+LIB\$:FAL/LIB

0175 AH-BT13A-SE  
VAX/VMS V4.0

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The grid contains 144 individual terminal window screenshots, organized in a 12x12 grid. Each window displays a different VAX/VMS command-line interface, showing various system utilities and their outputs. The windows are densely packed and cover most of the page area. Some of the visible window titles include:

- FALDECODE LIS
- FALRMSDAP LIS
- FALSTATE LIS
- FALCODE LIS
- FALLOGGER LIS
- FALMAIN LIS
- FDL
- CREATEFDL MAP