
SSSSSSSS	HH	HH	UU	UU	TTTTTTTTTT	DDDDDDDD	000000	WW	WW	NN	NN
SSSSSSSS	HH	HH	UU	UU	TTTTTTTTTT	DDDDDDDD	000000	WW	WW	NN	NN
SS	HH	HH	UU	UU	TT	DD	DD	00	00	WW	NN
SS	HH	HH	UU	UU	TT	DD	DD	00	00	WW	NN
SS	HH	HH	UU	UU	TT	DD	DD	00	00	WW	NN
SS	HH	HH	UU	UU	TT	DD	DD	00	00	WW	NN
SSSSSS	HHHHHHHHHH	UU	UU	UU	TT	DD	DD	00	00	WW	NN
SSSSSS	HHHHHHHHHH	UU	UU	UU	TT	DD	DD	00	00	WW	NN
SS	HH	HH	UU	UU	TT	DD	DD	00	00	WW	NN
SS	HH	HH	UU	UU	TT	DD	DD	00	00	WW	NN
SS	HH	HH	UU	UU	TT	DD	DD	00	00	WW	NN
SS	HH	HH	UU	UU	TT	DD	DD	00	00	WW	NN
SSSSSSSS	HH	HH	UUUUUUUUUU	UUUUUUUUUU	TT	DDDDDDDD	000000	WW	WW	NN	NN
SSSSSSSS	HH	HH	UUUUUUUUUU	UUUUUUUUUU	TT	DDDDDDDD	000000	WW	WW	NN	NN

```

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
LLLLLLLLLLL IIIIIIII   SSSSSSSS
LLLLLLLLLLL IIIIIIII   SSSSSSSS

```



```
1 0001 0 MODULE OPC$SHUTDOWN (
2 0002 0 LANGUAGE (BLISS32),
3 0003 0 IDENT = 'V04-000'
4 0004 0 ) =
5 0005 0
6 0006 0 *****
7 0007 0 *
8 0008 0 * COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
9 0009 0 * DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.
10 0010 0 * ALL RIGHTS RESERVED.
11 0011 0 *
12 0012 0 * THIS SOFTWARE IS FURNISHED UNDER A LICENSE AND MAY BE USED AND COPIED
13 0013 0 * ONLY IN ACCORDANCE WITH THE TERMS OF SUCH LICENSE AND WITH THE
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17 0017 0 * TRANSFERRED.
18 0018 0 *
19 0019 0 * THE INFORMATION IN THIS SOFTWARE IS SUBJECT TO CHANGE WITHOUT NOTICE
20 0020 0 * AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY DIGITAL EQUIPMENT
21 0021 0 * CORPORATION.
22 0022 0 *
23 0023 0 * DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS
24 0024 0 * SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.
25 0025 0 *
26 0026 0 *
27 0027 0 *****
28 0028 0
29 0029 0 ++
30 0030 0 FACILITY:
31 0031 0
32 0032 0 OPCOM
33 0033 0
34 0034 0 ABSTRACT:
35 0035 0
36 0036 0 This module contains the specialized logic to service
37 0037 0 a particular type of request sent by a user to OPCOM.
38 0038 0
39 0039 0 Environment:
40 0040 0
41 0041 0 VAX/VMS operating system.
42 0042 0
43 0043 0 Author:
44 0044 0
45 0045 0 Steven T. Jeffreys
46 0046 0
47 0047 0 Creation date:
48 0048 0
49 0049 0 March 10, 1981
50 0050 0
51 0051 0 Revision history:
52 0052 0
53 0053 0 V03-003 CWH3003 CW Hobbs 25-Jul-1984
54 0054 0 Improve shutdown by bumping the cluster I/O parameters so that
55 0055 0 all the messages can be sent immediately.
56 0056 0
57 0057 0 V03-002 CWH3169 CW Hobbs 5-May-1984
```

OPC\$SHUTDOWN
V04-000

I 8
16-Sep-1984 01:56:13
14-Sep-1984 12:50:57

VAX-11 Bliss-32 V4.0-742
[OPCOM.SRC]SHUTDOWN.B32;1

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(1)

:	58	0058	0	:		
:	59	0059	0	:		Second pass for cluster-wide OPCOM:
:	60	0060	0	:		- Add code to SHUTDOWN jacket routines to crash the
:	61	0061	0	:		cluster on command.
:	62	0062	0	:		
:	63	0063	0	:	V03-001	CWH3001 CW Hobbs 30-Jul-1983
:	64	0064	0	:		Various and sundry things to make OPCOM distributed
:	65	0065	0	:		across the cluster.
:	66	0066	0	:	V02-002	STJ0167 Steven T. Jeffreys, 08-Feb-1982
:	67	0067	0	:		Removed reference to LIB\$PUT_OUTPUT.
:	68	0068	0	:		
:	69	0069	0	:	--	

OP
V0


```

: 71      0070 1 BEGIN
: 72      0071 1
: 73      0072 1 LIBRARY 'SYSS$LIBRARY:LIB.L32';
: 74      0073 1 LIBRARY 'LIB$:OPCOMLIB';
: 75      0074 1
: 76      0075 1 FORWARD ROUTINE
: 77      0076 1 SHUTDOWN_HANDLER : NOVALUE,
: 78      0077 1 SHUTDOWN_CLM_HANDLER : NOVALUE;
: 79      0078 1
: 80      0079 1 EXTERNAL ROUTINE
: 81      0080 1 CLUSCOMM_SEND : NOVALUE,
: 82      0081 1 DUMP_LOG_FILE : NOVALUE,
: 83      0082 1 SHUTDOWN_LOOP : NOVALUE;
: 84      0083 1
: 85      0084 1 EXTERNAL
: 86      0085 1 COD_BUSY_MAX,
: 87      0086 1 COD_BUSY_NODE,
: 88      0087 1 LCL_CSID;
: 89      0088 1
: 90      0089 1 BUILTIN
: 91      0090 1 INSQUE,
: 92      0091 1 REMQUE;

```

! Start of SHUTDOWN

! Maximum concurrent messages
! Maximum concurrent messages to single node

! Insert entry onto a queue
! Remove entry from a queue

```

94 0092 1 GLOBAL ROUTINE SHUTDOWN_HANDLER (BUFFER_DESC) : NOVALUE =
95 0093 1
96 0094 1 ++
97 0095 1 Functional description:
98 0096 1
99 0097 1     This routine is the handler for all SHUTDOWN messages received by OPCOM.
100 0098 1
101 0099 1
102 0100 1 Input:
103 0101 1
104 0102 1     BUFFER_DESC : The address of a quadword buffer descriptor that
105 0103 1                   describes the buffer containing the message.
106 0104 1
107 0105 1 Implicit Input:
108 0106 1
109 0107 1     None.
110 0108 1
111 0109 1 Output:
112 0110 1
113 0111 1     None.
114 0112 1
115 0113 1 Implicit output:
116 0114 1
117 0115 1     Some accounting data will be updated
118 0116 1     to reflect the receipt of the message.
119 0117 1
120 0118 1 Side effects:
121 0119 1
122 0120 1     None.
123 0121 1
124 0122 1 Routine value:
125 0123 1
126 0124 1     None.
127 0125 1 --
128 0126 1
129 0127 2 BEGIN                                ! Start of SHUTDOWN_HANDLER
130 0128 2
131 0129 2 MAP
132 0130 2     BUFFER_DESC      : $ref_bblock;
133 0131 2
134 0132 2 BIND
135 0133 2     PRIV = (.BUFFER_DESC [DSC$A_POINTER])+4 : $bblock;
136 0134 2
137 0135 2 LOCAL
138 0136 2     REQ                : $ref_bblock,
139 0137 2     STATUS              : LONG;
140 0138 2
141 0139 2
142 0140 2 Require cmkrnl privs to shut it down
143 0141 2
144 0142 2 IF NOT .priv [prv$cmkrnl]
145 0143 2 THEN
146 0144 2     RETURN DUMP_LOG_FILE (.buffer_desc, %ASCII 'Shutdown message received without sufficient privs');
147 0145 2
148 0146 2 If the request does not contain enough data,
149 0147 2 then it cannot be processed. Ignore it.
150 0148 2

```



```

151      0149 3 IF .buffer_desc [dsc$w_length] LSS (opc$k_shutdown_min_size + opc$k_comhdrsiz)
152      0150 THEN
153      0151     RETURN;
154      0152
155      0153     ! Get a pointer to the message from the user
156      0154     !
157      0155     req = .buffer_desc [dsc$a_pointer] + opc$k_comhdrsiz;
158      0156     !
159      0157     ! If a cluster shutdown, then shut everything down
160      0158     !
161      0159     IF .$bblock [req [opc$l_rq_options], opc$v_cluster]
162      0160     THEN
163      0161         BEGIN
164      0162             LOCAL
165      0163                 message : $bblock [shut_k_min_size];
166      0164                 CH$FILL (0, shut_k_min_size, message);
167      0165                 message [clm_b_rqstcode] = opc$x_clusmsg;
168      0166                 message [clm_b_clm_code] = clm_shutdown;
169      0167                 message [clm_b_ds_version] = shut_k_ds_version;
170      0168                 message [clm_b_sw_version] = opc$k_sw_version;
171      0169                 message [clm_w_length] = shut_k_min_size;
172      0170                 message [clm_l_csid] = .lcl_csid;
173      0171                 cod_busy_max = 64;
174      0172                 cod_busy_node = 4;
175      0173                 cluscomm_send (-1, shut_k_min_size, message);
176      0174             END;
177      0175
178      0176     ! Now do the evil deed
179      0177     !
180      0178     $CMKRNL (ROUTIN=shutdown_loop);
181      0179
182      0180     RETURN;
183      0181 1 END;

```

```
! End of SHUTDOWN_HANDLER
```

```
.TITLE OPC$SHUTDOWN
.IDENT \V04-000\

.PSECT $SPLIT$,NOWRT,NOEXE,2

67 61 73 73 65 6D 20 6E 77 6F 64 74 75 68 53 00000 P.AAB: .ASCII \Shutdown message received without suffic\ ;
68 74 69 77 20 64 65 76 69 65 63 65 72 20 65 0000F :
                                     63 69 66 66 75 73 20 74 75 6F 0001E :
                                00 00 73 76 69 72 70 20 74 6E 65 69 00028 :
                                               010E0032' 00034 P.AAA: .ASCII \ient privs\<0><0> :
                                               00000000' 00038 .LONG 17694770 :
                                                                .ADDRESS P.AAB :

.EXTRN CLUSCOMM_SEND, DUMP_LOG_FILE
.EXTRN SHUTDOWN_LOOP, COD_BUSY_MAX
.EXTRN COD_BUSY_NODE, LCL_CSID
.EXTRN SYS$CMKRNL

.PSECT $CODE$,NOWRT,2

                               003C 00000
                              5E      OC C2 00002
                              52     AC DO 00005
                               04

.ENTRY SHUTDOWN_HANDLER, Save R2,R3,R4,R5           : 0092
SUBL2 #12, SP                                         : 
MOVL BUFFER_DESC, R2                                 : 0133
```

OPC\$SHUTDOWN
V04-000

M 8
16-Sep-1984 01:56:13
14-Sep-1984 12:50:57

VAX-11 Bliss-32 V4.0-742
[OPCOM.SRC]SHUTDOWN.B32;1

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(3)

50	04	A2		04	C1	00009	ADDL3	#4, 4(R2), R0	:	
		OC		60	E8	0000E	BLBS	(R0), 1\$	:	0142
			0000'	CF	9F	00011	PUSHAB	P.AAA	:	0144
				52	DD	00015	PUSHL	R2	:	
	0000G	CF		02	FB	00017	CALLS	#2, DUMP_LOG_FILE	:	
		3F		04	0001C		RET		:	
				62	B1	0001D	1\$: CMPW	(R2), #63	:	0149
50	04	A2		46	1B	00020	BLEQU	3\$	:	
		30		26	C1	00022	ADDL3	#38, 4(R2), REQ	:	0155
OC		6E	06	A0	E9	00027	BLBC	6(REQ), 2\$	:	0159
00				00	2C	0002B	MOVC5	#0, (SP), #0, #12, MESSAGE	:	0164
		6E		6E	00030				:	
	02	AE	1313	8F	B0	00031	MOVW	#4883, MESSAGE	:	0165
	08	AE	000C0903	8F	D0	00036	MOVL	#788739, MESSAGE+2	:	0167
	0000G	CF	0000G	CF	D0	0003E	MOVL	LCL_CSID, MESSAGE+8	:	0170
	0000G	CF	40	8F	9A	00044	MOVZBL	#64, COD_BUSY_MAX	:	0171
				04	D0	0004A	MOVL	#4, COD_BUSY_NODE	:	0172
				5E	DD	0004F	PUSHL	SP	:	0173
				0C	DD	00051	PUSHL	#12	:	
	0000G	7E		01	CE	00053	MNEGL	#1, -(SP)	:	
		CF		03	FB	00056	CALLS	#3, CLUSCOMM_SEND	:	
				7E	D4	0005B	2\$: CLRL	-(SP)	:	0178
			0000G	CF	9F	0005D	PUSHAB	SHUTDOWN_LOOP	:	
	00000000G	00		02	FB	00061	CALLS	#2, SYS\$CMKRNL	:	
				04	00068	3\$: RET			:	0181

; Routine Size: 105 bytes, Routine Base: \$CODE\$ + 0000


```

: 185 0182 1 GLOBAL ROUTINE SHUTDOWN_CLM_HANDLER (BUFFER_DESC : $ref_bblock, CLM : $ref_bblock, LEN) : NOVALUE =
: 186 0183 1
: 187 0184 1 ++
: 188 0185 1 Functional description:
: 189 0186 1
: 190 0187 1 This routine is the handler for all SHUTDOWN messages received by OPCOM from other nodes.
: 191 0188 1
: 192 0189 1
: 193 0190 1 Input:
: 194 0191 1
: 195 0192 1 BUFFER_DESC - pointer to message from remote node, including $SENDPR header
: 196 0193 1 CLM - pointer to CLM structure
: 197 0194 1 LEN - length of LEN
: 198 0195 1
: 199 0196 1 Implicit Input:
: 200 0197 1 None.
: 201 0198 1
: 202 0199 1 Output:
: 203 0200 1 None.
: 204 0201 1
: 205 0202 1 Routine value:
: 206 0203 1 None.
: 207 0204 1 --
: 208 0205 1
: 209 0206 2 BEGIN ! Start of SHUTDOWN_CLM_HANDLER
: 210 0207 2
: 211 0208 2
: 212 0209 2 Check the version number of the message. If the message is from any other version,
: 213 0210 2 simply ignore it.
: 214 0211 2
: 215 0212 2 IF .CLM [CLM_B_DS_VERSION] NEQ SHUT_K_DS_VERSION
: 216 0213 2 THEN
: 217 0214 2 RETURN DUMP_LOG_FILE (.BUFFER_DESC, %ASCII 'CLM__SHUTDOWN mismatch');
: 218 0215 2
: 219 0216 2
: 220 0217 2 Bring things to a halt
: 221 0218 2
: 222 0219 2 $CMKRNL (ROUTIN=shutdown_loop);
: 223 0220 2
: 224 0221 2 RETURN;
: 225 0222 1 END; ! End of SHUTDOWN_CLM_HANDLER
```

```

6D 20 4E 57 4F 44 54 55 48 53 5F 5F 4D 4C 43 0003C P.AAD: .ASCII \CLM__SHUTDOWN mismatch\<0><0>
00 00 68 63 74 61 6D 73 69 0004B
010E0016 00054 P.AAC: .LONG 17694742
00000000 00058 .ADDRESS P.AAD
```

```
.PSECT $CODE$,NOWRT,2
```

```
50 08 AC 0000 0000
DO 00002
```

```
.ENTRY SHUTDOWN_CLM_HANDLER, Save nothing
MOVL CLM, R0
```

```
: 0182
: 0212
```

03	02	A0	91	00006	CMPB	2(R0), #3
		0D	13	0000A	BEQL	1\$
	0000'	CF	9F	0000C	PUSHAB	P.AAC
	04	AC	DD	00010	PUSHL	BUFFER DESC
0000G	CF	02	FB	00013	CALLS	#2, DUMP_LOG_FILE
			04	00018	RET	
		7E	D4	00019	CLRL	-(SP)
	0000G	CF	9F	0001B	PUSHAB	SHUTDOWN_LOOP
00000000G	00	02	FB	0001F	CALLS	#2, SYS\$CMKRNL
			04	00026	RET	

0214
0219
0222

; Routine Size: 39 bytes, Routine Base: \$CODE\$ + 0069

: 226	0223	1	
: 227	0224	1	END
: 228	0225	0	ELUDOM

! End of SHUTDOWN

PSECT SUMMARY

Name	Bytes	Attributes
\$PLITS	92	NOVEC,NOWRT, RD ,NOEXE,NOSHR, LCL, REL, CON,NOPI,ALIGN(2)
\$CODE\$	144	NOVEC,NOWRT, RD , EXE,NOSHR, LCL, REL, CON,NOPI,ALIGN(2)

Library Statistics

File	Total	Symbols Loaded	Percent	Pages Mapped	Processing Time
\$255\$DUA28:[SYSLIB]LIB.L32;1	18619	7	0	1000	00:01.9
\$255\$DUA28:[OPCOM.OBJ]OPCOMLIB.L32;1	633	16	2	43	00:00.9

COMMAND QUALIFIERS

BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS\$:SHUTDOWN/OBJ=OBJ\$:SHUTDOWN MSRC\$:SHUTDOWN/UPDATE=(ENH\$:SHUTDOWN)


```

230 0226 0 MODULE OPC$SHUTDOWNL (LANGUAGE (BLISS32),
231 0227 0 IDENT = 'V03-001',
232 0228 0 ADDRESSING_MODE (EXTERNAL=LONG_RELATIVE, NONEXTERNAL=LONG_RELATIVE)) =
233 0229 1 BEGIN
234 0230 1
235 0231 1 LIBRARY 'SYS$LIBRARY:LIB.L32';
236 0232 1 LIBRARY 'LIB$:OPCOMLIB';
237 0233 1
238 0234 1 PSECT                                ! Need new module to change code psect
239 0235 1 CODE = _SHUTDOWN                    ! want it page-aligned so that page
240 0236 1 (NOWRITE,EXECUTE,ALIGN(9));        ! faults won't occur at high IPL
241 0237 1
242 0238 1 BUILTIN
243 0239 1 MTPR;
244 0240 1
245 0241 1 GLOBAL ROUTINE SHUTDOWN_LOOP : NOVALUE =
246 0242 1
247 0243 1 !++
248 0244 1 ! Functional description:
249 0245 1 !
250 0246 1 ! This routine does the actual shutdown
251 0247 1 !
252 0248 1 ! Input:
253 0249 1 ! None.
254 0250 1 !
255 0251 1 ! Implicit Input:
256 0252 1 ! None.
257 0253 1 !
258 0254 1 ! Output:
259 0255 1 ! None.
260 0256 1 !
261 0257 1 ! --
262 0258 1
263 0259 2 BEGIN
264 0260 2
265 0261 2 GLOBAL
266 0262 2 LOOPS : VOLATILE;
267 0263 2
268 0264 2 BUILTIN
269 0265 2 BUGW;
270 0266 2
271 0267 2 EXTERNAL LITERAL
272 0268 2 BUG$_OPERCRAH;
273 0269 2
274 0270 2 !
275 0271 2 ! Use the MTPR to fault in both our global page and the rest of the code
276 0272 2 !
277 0273 2 loops = ipl$_synch;
278 0274 2 MTPR (loops, PR$_IPL);
279 0275 2 !
280 0276 2 ! Loop for a second or so to make sure that our messages made it out through the port
281 0277 2 !
282 0278 2 INCR K FROM 0 TO 500000
283 0279 2 DO
284 0280 2 loops = .loops + 1;                                ! Pause for a second
285 0281 2 !
286 0282 2 ! Now bring it to a halt with our specific bugcheck

```

```

: 287      0283 2 !
: 288      0284 2 BUGW (BUG$_OPERCASH OR 4);
: 289      0285 2
: 290      0286 2 RETURN;
: 291      0287 1 END;

```

```

                                .TITLE OPC$SHUTDOWNL
                                .IDENT  \V03-001\
                                .PSECT  $GLOBAL$,NOEXE,2
                                00000 LOOPS:: .BLKB  4
                                .EXTRN  BUG$_OPERCASH
                                .PSECT  _SHUTDOWN_,NOWRT,9
                                .ENTRY  SHUTDOWN_LOOP, Save R2
                                MOVAB   LOOPS, R2
                                MOVL    #8, LOOPS
                                MTPR    LOOPS, #18
                                CLRL    K
                                INCL    LOOPS
                                AOBLEQ  #500000, K, 1$
                                BUGW    <BUG$_OPERCASH!4>
                                .WORD   <BUG$_OPERCASH!4>
                                RET

```

```

                                0004 00000
52 00000000' EF 9E 00002
62          08 D0 00009
12          62 DA 0000C
                    50 D4 0000F
                    62 D6 00011 1$:
F6          50 0007A120 8F F3 00013
                                FEFF 0001B
                                0000* 0001D
                                04 0001F

```

```

: 0241
: 0273
: 0274
: 0278
: 0280
: 0284
: 0287

```

; Routine Size: 32 bytes, Routine Base: _SHUTDOWN_ + 0000

OPC\$SHUTDOWNL
V03-001

E 9
16-Sep-1984 01:56:13 VAX-11 Bliss-32 V4.0-742
14-Sep-1984 12:50:57 [OPCOM.SRC]SHUTDOWN.B32;1

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: 293 0288 1 END
: 294 0289 0 ELUDOM

! End of SHUTDOWN

PSECT SUMMARY

Name	Bytes	Attributes
\$GLOBALS	4	NOVEC, WRT, RD, NOEXE, NOSHR, LCL, REL, CON, NOPIC, ALIGN(2)
SHUTDOWN	32	NOVEC, NOWRT, RD, EXE, NOSHR, LCL, REL, CON, NOPIC, ALIGN(9)

Library Statistics

File	----- Total	Symbols Loaded	----- Percent	Pages Mapped	Processing Time
\$255\$DUA28:[SYSLIB]LIB.L32;1	18619	2	0	1000	00:01.8
_\$255\$DUA28:[OPCOM.OBJ]OPCOMLIB.L32;1	633	0	0	43	00:00.7

COMMAND QUALIFIERS

BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS\$:SHUTDOWN/OBJ=OBJ\$:SHUTDOWN MSRC\$:SHUTDOWN/UPDATE=(ENH\$:SHUTDOWN)

: Size: 176 code + 96 data bytes
: Run Time: 00:10.4
: Elapsed Time: 00:42.9
: Lines/CPU Min: 1668
: Lexemes/CPU-Min: 6687
: Memory Used: 74 pages
: Compilation Complete

0292 AH-BT13A-SE
VAX/VMS V4.0

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