





```

1 0001 0 MODULE STR$RIGHT ( ! Extract a substr on the right
2 0002 0
3 0003 0 IDENT = '1-013' ! File: STRRIGHT.B32 Edit: RKR1013
4 0004 0
5 0005 0 ) =
6 0006 1 BEGIN
7 0007 1
8 0008 1 *****
9 0009 1 *
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27 0027 1 *
28 0028 1 *
29 0029 1 *****
30 0030 1
31 0031 1
32 0032 1 ++
33 0033 1 FACILITY: String support library
34 0034 1
35 0035 1 ABSTRACT:
36 0036 1
37 0037 1 This module extracts a substring according to the
38 0038 1 BASIC-PLUS-2 syntax. It finds the substring of a main string
39 0039 1 starting at the character position specified by the input
40 0040 1 parameter and continues through the last character of the
41 0041 1 string. This substring is copied to the destination string.
42 0042 1
43 0043 1 ENVIRONMENT: User mode, AST level or not or mixed
44 0044 1
45 0045 1 AUTHOR: R. Will, CREATION DATE: 19-Feb-79
46 0046 1
47 0047 1 MODIFIED BY:
48 0048 1
49 0049 1 R. Will, 19-Feb-79: VERSION 01
50 0050 1 1-001 - Original
51 0051 1 1-002 - Change linkage and call to COPY routine. 15-mar-79
52 0052 1 1-003 - Change string linkages to start with STR$. JBS 04-JUN-1979
53 0053 1 1-004 - Change call to STR$$COPY. JBS 16-JUL-1979
54 0054 1 1-006 - Define an aux variable to improve the code generated.
55 0055 1 JBS 11-OCT-1979
56 0056 1 1-007 - Change name to STR$, string cleanup. RW 31-Oct-79
57 0057 1 1-008 - Change to new interlock macros. JBS 06-NOV-1979

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58 0058 1 : 1-009 - Use string interlocks from CALL entry. RW 15-Nov-79
59 0059 1 : 1-010 - String speedup, remove edit 9. RW 8-Jan-1980
60 0060 1 : 1-011 - Enhance to recognize additional classes of descriptors by
61 0061 1 : using $STR$GET_LEN_ADDR to extract length and address of
62 0062 1 : 1st data byte from descriptor. Remove all string interlocking
63 0063 1 : code. RKR 27-APR-81
64 0064 1 : 1-012 - Speed up code. RKR 7-OCT-1981.
65 0065 1 : 1-013 - Use STR$COPY R R8 for copy operation. Use $STR$SIGNAL_FATAL
66 0066 1 : instead of $STR$CHECK_STATUS. RKR 18-NOV-1981.
67 0067 1 : --
68 0068 1 :
69 0069 1 : <BLF/PAGE>
```

```
71 0070 1  !
72 0071 1  ! SWITCHES:
73 0072 1  !
74 0073 1  !
75 0074 1  SWITCHES ADDRESSING MODE
76 0075 1  (EXTERNAL = GENERAL, NONEXTERNAL = WORD_RELATIVE);
77 0076 1  !
78 0077 1  !
79 0078 1  ! LINKAGES:
80 0079 1  !
81 0080 1  !
82 0081 1  REQUIRE 'RTLIN:STRLNK';           ! Use require file with string linkage
83 0266 1  !
84 0267 1  !
85 0268 1  ! TABLE OF CONTENTS:
86 0269 1  !
87 0270 1  !
88 0271 1  FORWARD ROUTINE
89 0272 1  STR$RIGHT,           ! Find the RIGHT of a str, CALL
90 0273 1  STR$RIGHT_RB : STR$JSB_RIGHT; ! Find the RIGHT of a str, JSB
91 0274 1  !
92 0275 1  !
93 0276 1  ! INCLUDE FILES:
94 0277 1  !
95 0278 1  !
96 0279 1  REQUIRE 'RTLIN:RTLPSECT';       ! Declare PSECTs code
97 0374 1  !
98 0375 1  REQUIRE 'RTLIN:STRMACROS';     ! use string macros to code
99 1291 1  !
100 1292 1  LIBRARY 'RTLSTARLE';          ! STARLET library for macros and symbol
101 1293 1  !
102 1294 1  !
103 1295 1  ! MACROS: NONE
104 1296 1  !
105 1297 1  !
106 1298 1  !
107 1299 1  ! EQUATED SYMBOLS: NONE
108 1300 1  !
109 1301 1  !
110 1302 1  !
111 1303 1  ! PSECT DECLARATIONS
112 1304 1  !
113 1305 1  !
114 1306 1  DECLARE_PSECTS (STR);
115 1307 1  !
116 1308 1  !
117 1309 1  ! OWN STORAGE: NONE
118 1310 1  !
119 1311 1  !
120 1312 1  !
121 1313 1  ! EXTERNAL REFERENCES:
122 1314 1  !
123 1315 1  !
124 1316 1  EXTERNAL ROUTINE
125 1317 1  LIB$STOP,           ! signal fatal errors
126 1318 1  STR$COPY_R_RB : STR$JSB_COPY_R ; ! Routine to do the copy
127 1319 1  !
```

STRRIGHT  
1-013

: 128  
: 129  
: 130

1320 1 EXTERNAL LITERAL  
1321 1 STRS\_NORMAL  
1322 1 STRS\_ILLSTRPOS;

J 5  
16-Sep-1984 01:48:25 VAX-11 Bliss-32 V4.0-742  
14-Sep-1984 12:40:15 [LIBRTL.SRC]STRRIGHT.B32;1

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! Successful completion  
. pos was - or > str length

```

132 1323 1 GLOBAL ROUTINE STR$RIGHT (           ! Extract a substr on the right
133 1324 1
134 1325 1     DEST_DESC,           ! Pointer to destination descriptor
135 1326 1     SRC_DESC,           ! Pointer to source descriptor
136 1327 1     CHAR_POS         ! First character to be included
137 1328 1
138 1329 1           ) =
139 1330 1
140 1331 1
141 1332 1  **
142 1333 1  FUNCTIONAL DESCRIPTION:
143 1334 1
144 1335 1  This routine extracts the characters starting at the
145 1336 1  character position in the source string specified by the input
146 1337 1  parameter and continuing through the last character of the
147 1338 1  source string and copies that substring
148 1339 1  to the destination string (by JSB to STR$COPY_R_R8) according
149 1340 1  to the syntax of the class of the destination string.
150 1341 1  If the input character position is < 2 then the entire source
151 1342 1  string is copied.  If the input character position is > the
152 1343 1  length of the source string, then the destination string becomes
153 1344 1  a null string.  It computes the RIGHT by JSBing to the JSB entry
154 1345 1  point.
155 1346 1  FORMAL PARAMETERS:
156 1347 1
157 1348 1     DEST_DESC.wt.dx       pointer to destination string descriptor
158 1349 1     SRC_DESC.rt.dx        pointer to source string descriptor
159 1350 1     CHAR_POS.rl.r        character position in source to start
160 1351 1                      substring
161 1352 1
162 1353 1  IMPLICIT INPUTS:
163 1354 1
164 1355 1     NONE
165 1356 1
166 1357 1  IMPLICIT OUTPUTS:
167 1358 1
168 1359 1     NONE
169 1360 1
170 1361 1  COMPLETION CODES:
171 1362 1
172 1363 1     same as STR$RIGHT_R8
173 1364 1
174 1365 1  SIDE EFFECTS:
175 1366 1
176 1367 1     same as STR$RIGHT_R8 since it JSBs to that routine.
177 1368 1
178 1369 1  --
179 1370 1
180 1371 2  BEGIN
181 1372 2
182 1373 2  MAP
183 1374 2     SRC_DESC : REF $STR$DESCRIPTOR,
184 1375 2     DEST_DESC : REF $STR$DESCRIPTOR;
185 1376 2
186 1377 2  RETURN STR$RIGHT_R8 (DEST_DESC [0,0,0,0],
187 1378 2     SRC_DESC [0,0,0,0],
188 1379 2     ..CHAR_POS);

```

STR\$RIGHT  
1-013

L 5  
16-Sep-1984 01:48:25 VAX-11 Bliss-32 V4.0-742  
14-Sep-1984 12:40:15 [LIBRTL.SRC]STRRIGHT.B32;1

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ST  
1-

: 189 1380 1 END;

!End of STR\$RIGHT

.TITLE STR\$RIGHT  
.IDENT \1-013\

.EXTRN LIB\$STOP, STR\$COPY\_R\_R8  
.EXTRN STR\$\_NORMAL, STR\$\_ILESTRPOS

.PSECT \_STR\$CODE, NOWRT, SHR, PIC, 2

.ENTRY STR\$RIGHT, Save R2,R3,R4,R5,R6,R7,R8  
MOVL @CHAR\_POS, R2  
MOVQ DEST\_DESC, R0  
BSBW STR\$RIGHT\_R8  
RET

: 1323  
: 1378  
: 1380

52 0C BC D0 00002  
50 04 AC 7D 00006  
0000V 30 0000A  
04 0000D

; Routine Size: 14 bytes, Routine Base: \_STR\$CODE + 0000



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191 1381 1 GLOBAL ROUTINE STR$RIGHT_R8 (           ! Extract a substr on the right
192 1382 1
193 1383 1     DEST_DESC,           ! Pointer to destination descriptor
194 1384 1     SRC_DESC,           ! Pointer to source descriptor
195 1385 1     CHAR_POS           ! First character to be included
196 1386 1
197 1387 1           ) : STR$JSB_RIGHT =
198 1388 1
199 1389 1
200 1390 1 ++
201 1391 1 FUNCTIONAL DESCRIPTION:
202 1392 1     This routine extracts the characters starting at the
203 1393 1     character position in the source string specified by the input
204 1394 1     parameter (where the first character in the string is at
205 1395 1     position 1) and continuing through the last character of the
206 1396 1     source string and copies that substring to the destination
207 1397 1     string (by JSB to STR$COPY_R_R8) according
208 1398 1     to the syntax of the class of the destination string.
209 1399 1     If the input character position is < 2 then the entire source
210 1400 1     string is copied. If the input character position is > the
211 1401 1     length of the source string, then the destination string
212 1402 1     becomes a null string.
213 1403 1
214 1404 1 FORMAL PARAMETERS:
215 1405 1
216 1406 1     DEST_DESC.wt.dx     pointer to destination string descriptor
217 1407 1     SRC_DESC.rt.dx     pointer to source string descriptor
218 1408 1     CHAR_POS.rl.v     character position in src to start
219 1409 1                     substring
220 1410 1
221 1411 1 IMPLICIT INPUTS:
222 1412 1
223 1413 1     NONE
224 1414 1
225 1415 1 IMPLICIT OUTPUTS:
226 1416 1
227 1417 1     NONE
228 1418 1
229 1419 1 COMPLETION CODES:
230 1420 1
231 1421 1     SSS_NORMAL         Success
232 1422 1     STR$_ILLSTRPOS     Character position reference outside of string
233 1423 1     STR$_ILLSTRSPE     End pos < start pos, or length too long
234 1424 1     STR$_NEGSTRLEN     Negative length supplied, 0 used
235 1425 1     STR$_TRU           Truncation occurred in copying to destination
236 1426 1                     (Warning)
237 1427 1
238 1428 1 SIDE EFFECTS:
239 1429 1
240 1430 1     May signal:
241 1431 1     STR$_FATINTERR     Fatal internal error
242 1432 1     STR$_ILLSTRCLA     Illegal (or unsupported) string class
243 1433 1     STR$_INSVIRMEM     Insufficient virtual memory for
244 1434 1                     reallocation of dynamic string
245 1435 1
246 1436 1 --
247 1437 1

```

```

248 1438 2 BEGIN
249 1439 2
250 1440 2 LOCAL
251 1441 2     IN_LEN,           ! length of input string
252 1442 2     IN_ADDR,       ! address of 1st data byte of input str
253 1443 2     RETURN_STATUS,  ! keep the status of this routine
254 1444 2     COPY_STATUS,   ! status returned from STR$COPY
255 1445 2     LENGTH;       ! length to be copied
256 1446 2
257 1447 2 MAP
258 1448 2     SRC_DESC : REF $STR$DESCRIPTOR,
259 1449 2     DEST_DESC : REF $STR$DESCRIPTOR;
260 1450 2
261 1451 2     RETURN_STATUS = 1 ;           ! Assume success to follow
262 1452 2
263 1453 2 +
264 1454 2 | compute length and address of 1st data byte of input string
265 1455 2 |
266 1456 2 | $STR$GET_LEN_ADDR ( SRC_DESC, IN_LEN, IN_ADDR ) ;
267 1457 2 |
268 1458 2 +
269 1459 2 | Compute the correct substring and call the COPY routine using
270 1460 2 | the substring length and pointer. LENGTH is length to be skipped is
271 1461 2 | the actual starting position (after testing for errors) - 1
272 1462 2 | (which must be >= 0 and <= src len)
273 1463 2 |
274 1464 2 |
275 1465 2 |
276 1466 2 |
277 1467 2 | BEGIN
278 1468 2 |     IF .IN_LEN LSS .CHAR_POS - 1
279 1469 2 |     THEN
280 1470 2 |         BEGIN
281 1471 2 |             RETURN STATUS = STR$_ILLSTRPOS; ! input start to big
282 1472 2 |             .IN_LEN ! use srclen and
283 1473 2 |         END ! remember error
284 1474 2 |     ELSE .CHAR_POS - 1
285 1475 2 |     END;
286 1476 2 |
287 1477 2 | IF .LENGTH LSS 0 THEN
288 1478 2 |     BEGIN
289 1479 2 |         LENGTH = 0; ! input length is
290 1480 2 |         ! negative
291 1481 2 |         RETURN_STATUS = STR$_ILLSTRPOS; ! use 0 and remember
292 1482 2 |         ! error
293 1483 2 |     END;
294 1484 2 |
295 1485 2 | +
296 1486 2 | copy to destination descriptor for srclen - (startpos - 1) starting
297 1487 2 | srcptr + startpos - 1
298 1488 2 |
299 1489 2 | COPY_STATUS = STR$COPY_R_RB ( .DEST_DESC,
300 1490 2 |     .IN_LEN - .LENGTH,
301 1491 2 |     CH$PLUS (.IN_ADDR, .LENGTH) );
302 1492 2 |
303 1493 2 |
304 1494 2 | IF .COPY_STATUS NEQ SSS NORMAL
    THEN RETURN STATUS = .COPY_STATUS; ! copy truncated, return

```

: 305 1495 2  
: 306 1496 2  
: 307 1497 2  
: 308 1498 2  
: 309 1499 2  
: 310 1500 1

\$STR\$SIGNAL\_FATAL (RETURN\_STATUS);  
RETURN .RETURN\_STATUS;  
END;

: truncate  
: instead of previous status  
: signal fatal errors  
!End of STR\$RIGHT

.EXTRN STR\$ANALYZE\_SDESC\_R1

54		50	D0	00000	STR\$RIGHT R8::	MOVL	R0, R4	1381	
		01	DD	00003		PUSHL	#1	1451	
02	03	A1	91	00005		CMPB	3(SRC_DESC), #2	1456	
		09	1A	00009		BGTRU	1\$		
50		61	3C	0000B		MOVZWL	(SRC_DESC), IN_LEN		
53	04	A1	D0	0000E		MOVL	4(SRC_DESC), IN_ADDR		
		0C	11	00012		BRB	2\$		
50		51	D0	00014	1\$:	MOVL	SRC_DESC, R0		
	00000000G	00	16	00017		JSB	STR\$ANALYZE_SDESC_R1		
53		51	D0	0001D		MOVL	R1, R3		
		52	D7	00020	2\$:	DECL	R2	1467	
52		50	D1	00022		CMPB	IN_LEN, R2		
		0C	18	00025		BGEQ	3\$		
6E	00000000G	8F	D0	00027		MOVL	#STR\$_ILLSTRPOS, RETURN_STATUS	1470	
51		50	D0	0002E		MOVL	IN_LEN, LENGTH	1471	
		03	11	00031		BRB	4\$		
51		52	D0	00033	3\$:	MOVL	R2, LENGTH	1474	
		09	18	00036	4\$:	BGEQ	5\$	1477	
		51	D4	00038		CLRL	LENGTH	1479	
6E	00000000G	8F	D0	0003A		MOVL	#STR\$_ILLSTRPOS, RETURN_STATUS	1481	
		51	C1	00041	5\$:	ADDL3	LENGTH, IN_ADDR, R2	1491	
50		51	C3	00045		SUBL3	LENGTH, IN_LEN, R1	1490	
50		54	D0	00049		MOVL	DEST_DESC, R0	1491	
	00000000G	00	16	0004C		JSB	STR\$COPY R R8		
01		50	D1	00052		CMPB	COPY_STATUS, #1	1493	
		03	13	00055		BEQL	6\$		
6E		50	D0	00057		MOVL	COPY_STATUS, RETURN_STATUS	1494	
10		6E	F8	0005A	6\$:	BLBS	RETURN_STATUS, 7\$	1498	
04	6E	00	ED	0005D		CMPZV	#0, #3, RETURN_STATUS, #4		
		09	12	00062		BNEQ	7\$		
		6E	DD	00064		PUSHL	RETURN_STATUS		
	00000000G	00	01	FB	00066	CALLS	#1, LIB\$STOP		
		50	8E	D0	0006D	7\$:	MOVL	RETURN_STATUS, R0	1499
		05	00	00070		RSB		1500	

: Routine Size: 113 bytes, Routine Base: \_STR\$CODE + 000E

: 311 1501 1  
: 312 1502 1 END  
: 313 1503 1  
: 314 1504 0 ELUDOM

!End of module

PSECT SUMMARY

```
:  
: Name Bytes Attributes  
: _STR$CODE 127 NOVEC,NOWRT, RD , EXE, SHR, LCL, REL, CON, PIC,ALIGN(2)
```

Library Statistics

```
:  
: File Total Symbols Loaded Percent Pages Mapped Processing Time  
: _$255$DUA28:[SYSLIB]STARLET.L32;1 9776 7 0 581 00:00.8
```

COMMAND QUALIFIERS

```
:  
: BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/NOTRACE/LIS=LIS$:STRRIGHT/OBJ=OBJ$:STRRIGHT MSRC$:STRRIGHT/UPDATE=(ENH$:STRRIGHT)
```

```
: Size: 127 code + 0 data bytes  
: Run Time: 00:05.8  
: Elapsed Time: 00:18.6  
: Lines/CPU Min: 15585  
: Lexemes/CPU-Min: 33730  
: Memory Used: 82 pages  
: Compilation Complete
```

