Identification Division.
Program-ID. J7200521.

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* Encapsulate the CICS WRITE OPERATOR function. Caller must
* specify a message number, which will be prefixed with 'UDOT'
* and a message type of 'I' (Informational), 'W' (Warning),
* 'E' (Error), or 'S' (Severe).
* Good practice is to document the message, currently the place
to do that is in MVS/QuickRef. These messages will be used
by on-call and operations staff in problem resolution
situations - do your best to help them out with meaningful
diagnostics in the message and good documentation of the
message.

* In order to avoid issues with the WRITE OPERATOR CICS API
not being threadsafe, it is encapsulated here in its own
program object and we LINK to it instead of dynamically
CALLing it.

* The CICS Programming Guide has a good explanation of
* threadsafe and its implications.

* Sample Use:

*Working-Storage Section.
*01 CONSTANTS.
* 05 MYNAME PIC X(008) VALUE 'J8675309'.
* 05 CICS-ERR-TXT-PGM PIC X(008) VALUE 'J7200501'.
* 05 CICS-WTO-PGM PIC X(008) VALUE 'J7200521'.
* 05 MSG-NB PIC X(004) VALUE '0005'.

*01 WORK-AREAS.
* 05 CICS-RESP PIC S9(008) COMP-5.
* 05 CICS-RESP2 PIC S9(008) COMP-5.
* 05 WTO-CA-LN PIC 9(008) COMP-5.
* 05 DATA-TXT PIC X(025)
  * VALUE 'Test message'.

*01 WTO-CA.
* COPY J7200521 REPLACING ==:PRFX:== BY ==WTO-==.

*Procedure Division.
*  MOVE LENGTH OF DATA-TXT TO WTO-TXT-LN
*  MOVE DATA-TXT TO WTO-TXT
*  MOVE '0005' TO WTO-MSG-NB
*  SET WTO-MSG-TY-ERR TO TRUE
*  MOVE MYNAME TO WTO-CALLER
*  MOVE LENGTH OF WTO-CA TO WTO-CA-LN
*  EXEC CICS LINK
  *     PROGRAM(CICS-WTO-PGM)
  *     COMMAREA(WTO-CA)
  *     LENGTH(WTO-CA-LN)
  *     RESP(CICS-RESP)
  *     RESP2(CICS-RESP2)
*  END-EXEC

*  IF WTO-RC-NORMAL AND CICS-RESP = DFHRESP(NORMAL)
    *     CONTINUE
  * ELSE
    *     ...error handling
*  END-IF

* Return Codes:
* 0 - Success
* 4 - Invalid parameter(s)
An error message will be DISPLAYed
* 16 - Failure

Environment Division.
Configuration Section.
Data Division.
Working-Storage Section.
01 CONSTATS.
  05 MYNAME PIC X(008) VALUE 'J7200521'.
  05 CICS-ERR-PGM PIC X(008) VALUE 'J7200501'.
  05 ERR-MSG-PRFX PIC X(004) VALUE 'UDOT'.

01 WORK-AREAS.
  05 ERR-MSG-LN PIC 9(008) COMP-5 VALUE 1.
  05 CICS-APPL-ID PIC X(008) VALUE SPACES.
  05 THIS-USERID PIC X(008) VALUE SPACES.
  05 ERR-MSG-WTO.
    10 PIC X(050) OCCURS 13.
    10 PIC X(040).
  05 CICS-API-FAILED PIC X(030) VALUE SPACES.
  05 CICS-API-FAILED-LOC PIC X(004) VALUE SPACES.
  05 CICS-RESP-TXT PIC X(025) VALUE SPACES.
  05 CICS-RESP-DSPL PIC 9(010) VALUE ZEROES.
  05 CICS-RESP-DSPL-X REDEFINES CICS-RESP-DSPL PIC X(010).
  05 CICS-RESP2-DSPL PIC 9(010) VALUE ZEROES.
  05 CICS-RESP2-DSPL-X REDEFINES CICS-RESP2-DSPL PIC X(010).

Linkage Section.
01 DFHCOMMAREA.
   COPY J7200521 REPLACING ==:PRFX:== BY ==LS-==.

Procedure Division Using
   DFHCOMMAREA
   .

   SET LS-RC-NORMAL TO TRUE
   INITIALIZE ERR-MSG-WTO
   PERFORM 0100-EDIT-PARMS
IF LS-RC-NORMAL
 CONTINUE
ELSE
 EXEC CICS RETURN END-EXEC
END-IF

EXEC CICS ASSIGN
    APPLID(CICS-APPL-ID)
    USERID(THIS-USERID)
    NOHANDLE
END-EXEC

MOVE EIBRESP TO LS-RESP
MOVE EIBRESP2 TO LS-RESP2

IF EIBRESP = DFHRESP( NORMAL )
    PERFORM 9040-FMT-MSG-01
    PERFORM 9100-WTO
ELSE
    * The documentation for CICS TS 2.2 doesn't list any
    * way for the above CICS ASSIGN call to fail, but this
    * routine is likely to be called as an application is
    * failing. Hence the "belt _and_ suspenders" technique.
    MOVE 'ASSIGN' TO CICS-API-FAILED
    MOVE 'MAIN' TO CICS-API-FAILED-LOC
    PERFORM 9200-DSPL-CICS-ERR
    SET LS-RC-BAD TO TRUE
END-IF

EXEC CICS RETURN END-EXEC
.

0100-EDIT-PARMS.
IF LS-MSG-TY-VALID
 CONTINUE
ELSE
 DISPLAY
    MYNAME
    ' message type ('
    LS-MSG-TY
    ') is invalid. Valid values are I W E S.'
    SET LS-RC-INVD-PARM TO TRUE
END-IF

IF LS-TXT-LN-VALID
 CONTINUE
ELSE
  DISPLAY
    MYNAME
    ' message length ('
    LS-TXT-LN
    ') is invalid. 0 < length <= 690.'
    SET LS-RC-INVD-PARM TO TRUE
END-IF.

9040-FMT-MSG-01.

MOVE SPACES TO ERR-MSG-WTO
MOVE +1 TO ERR-MSG-LN
STRING
  ERR-MSG-PRFX
    DELIMITED BY SIZE
  LS-MSG-NB
    DELIMITED BY SIZE
  LS-MSG-TY
    DELIMITED BY SIZE
  SPACE
    DELIMITED BY SIZE
  CICS-APPL-ID
    DELIMITED BY SIZE
  SPACE
    DELIMITED BY SIZE
  EIBTRNID
    DELIMITED BY SIZE
  SPACE
    DELIMITED BY SIZE
  LS-CALLER
    DELIMITED BY SIZE
  SPACE
    DELIMITED BY SIZE
  THIS-USERID
    DELIMITED BY SIZE
  SPACE
    DELIMITED BY SIZE
  LS-TXT(1:LS-TXT-LN)
    DELIMITED BY SIZE
INTO
  ERR-MSG-WTO
WITH POINTER
  ERR-MSG-LN
END-STRING
9100-WTO.

* The NOHANDLE is here because if an error occurs during
* error processing, an abend is too likely to create an
* abend loop.
*
EXEC CICS
   WRITE OPERATOR
   TEXT(ERR-MSG-WTO)
   TEXTLENGTH(ERR-MSG-LN)
   NOHANDLE
END-EXEC

MOVE EIBRESP TO LS-RESP
MOVE EIBRESP2 TO LS-RESP2
IF EIBRESP = DFHRESP(NORMAL)
   CONTINUE
ELSE
   MOVE 'WRITE OPERATOR' TO CICS-API-FAILED
   MOVE '9100' TO CICS-API-FAILED-LOC
   SET LS-RC-BAD TO TRUE
   PERFORM 9200-DSPL-CICS-ERR
END-IF

9200-DSPL-CICS-ERR.

* This is really a last ditch effort at error determination. If
* the ASSIGN or WRITE OPERATOR calls fail, this paragraph will
* provide at least some indication of the problem.
*
CALL CICS-ERR-PGM USING
   LS-RESP
   CICS-RESP-TXT
END-CALL
MOVE LS-RESP TO CICS-RESP-DSPL
MOVE LS-RESP2 TO CICS-RESP2-DSPL
DISPLAY
   MYNAME
   SPACE
   CICS-API-FAILED
   ' FAILED AT '
   CICS-API-FAILED-LOC
SPACE
' RESP = '
CICS-RESP-DSPL
' RESP TEXT = '
CICS-RESP-TXT
' RESP2 = '
CICS-RESP2-DSPL
' CALLER = '
LS-CALLER
' MESSAGE # = '
LS-MSG-NB
' MESSAGE TYPE = '
LS-MSG-TY
' WTO TEXT LENGTH = '
LS-TXT-LN
' WTO TEXT = '
LS-TXT(1:LS-TXT-LN)
.