

ZIP/390 : Application Programming Interface

Avec les APIs ZIP/390, tout programmeur se retrouvera aisément dans les exemples ci-après.
Quelques exemples en Assembleur, COBOL et CICS ...

MVS et VSE

Compression en ASSEMBLER

- ACTION=ZIP
- Compression « ZIP390.FILE1.TXT » vers « ZIP390.FILE1.ZIP »

```
*-----*
      CALL ZIPAPI,ZIPPARMS,VL
*-----*
ZIPPARMS DS 0H
* PARMs END WITH X'00' – MAX LENGTH OF PARM IS 80 BYTES
* ALL PARMs END WITH X'00'
      DC CL8'ZIPPARMS'          START OF PARMs
      DC C'ACTION=ZIP'
      DC X'00'
      DC C'IFILE=DSN/ZIP390.FILE1.TXT'
      DC X'00'
      DC C'ARCHIVE=DSN/ZIP390.FILE1.ZIP'
      DC X'00'
*-----*
      DC X'00'                  END OF ZIPPARMS
*-----*
```

Compression en COBOL

- ACTION=ZIP
- Compression « ZIP390.FILE1.TXT » vers « ZIP390.FILE1.ZIP »

```
WORKING-STORAGE SECTION.
01 ZIPPARMS.
   05 PARMSTART PIC X(8) VALUE 'ZIPPARMS'.
   05 FILLER PIC X(10) VALUE 'ACTION=ZIP'.
   05 FILLER PIC X(1) VALUE X'00'.
   05 FILLER PIC X(35) VALUE 'IFILE=DSN/ZIP390.FILE1.TXT'.
   05 FILLER PIC X(1) VALUE X'00'.
   05 FILLER PIC X(36) VALUE 'ARCHIVE=DSN/ZIP390.FILE1.ZIP'.
   05 FILLER PIC X(1) VALUE X'00'.
   05 PARMEND PIC X(1) VALUE X'00'.
PROCEDURE DIVISION.
      CALL 'ZIPAPI' USING ZIPPARMS
      RETURNING RETURN-CODE.
```



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Cryptage AES en COBOL

```
ENCRYPT.  
    SET Z-ENCRYPT TO TRUE.  
    SET Z-FIRST-ONLY TO TRUE.  
    SET Z-AES-128 TO TRUE.  
    SET Z-CRYPTO-MODE-OFB TO TRUE.  
    SET Z-CRYPTO-FACILITY-ZIP TO TRUE.  
* NEXT ONLY SUPPORT Z-AES-128 AND DOES NOT SUPPORT  
* Z-CRYPTO-MODE-CFB  
* ALSO YOUR zSeries HARDWARE MUST HAVE CPACF ENABLED  
* SET Z-CRYPTO-FACILITY-CPACF TO TRUE.  
    MOVE MY-IV TO Z-CRYPTO-IV.  
    MOVE MY-KEY TO Z-CRYPTO-KEY.  
    MOVE LOW-VALUES TO OUTPUT-DATA.  
* SET LENGTH OF INPUT/OUTPUT BUFFERS  
    MOVE LENGTH OF INPUT-DATA TO Z-INPUT-BUFFER-LENGTH.  
    MOVE LENGTH OF OUTPUT-DATA TO Z-OUTPUT-BUFFER-LENGTH.  
* D21ZSETP WILL SET THE ADDRESS OF PARM1 IN PARM2  
    CALL 'D21ZSETP' USING INPUT-DATA, Z-INPUT-BUFFER-PTR.  
    CALL 'D21ZSETP' USING OUTPUT-DATA, Z-OUTPUT-BUFFER-PTR.
```

Exemple de compression GZIP

```
    MOVE LENGTH OF INPUT-DATA TO Z-INPUT-BUFFER-LENGTH.  
    MOVE LENGTH OF OUTPUT-DATA TO Z-OUTPUT-BUFFER-LENGTH.  
    CALL 'D21ZSETP' USING INPUT-DATA, Z-INPUT-BUFFER-PTR.  
    CALL 'D21ZSETP' USING OUTPUT-DATA, Z-OUTPUT-BUFFER-PTR.  
    MOVE LENGTH OF ZIP390 TO Z-CA-LENGTH.  
* SET ACTION (ZIP, UNZIP, GZIP, GUNZIP, etc.)  
    SET Z-GZIP TO TRUE  
* PERFORM TRANSLATION  
    SET Z-TEXT TO TRUE
```



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CICS

Invocation via CICS

```
EXEC CICS LINK PROGRAM('ZIPCICS')
      COMMAREA(ZIP390) LENGTH(Z-CA-LENGTH)
      END-EXEC.
```

Définition de la COMMAREA

```
*-----*
* This commarea is pass to either ZIP390 or ZIPCICS *
*-----*
01 ZIP390.
  10 Z-ID PIC X(6) VALUE 'ZIP390'.
  10 Z-CA-LENGTH PIC S9(4) VALUE 0 COMP.
  10 Z-RETURN-CODE PIC S9(8) VALUE 0 COMP.
    88 Z-RETURN-NORMAL VALUE 0.
    88 Z-RETURN-ERR-ANY VALUE -1.
    88 Z-RETURN-ERR-STREAM VALUE -2.
    88 Z-RETURN-ERR-DATA VALUE -3.
    88 Z-RETURN-ERR-MEM VALUE -4.
    88 Z-RETURN-ERR-BUF VALUE -5.
    88 Z-RETURN-ERR-VER VALUE -6.
    88 Z-RETURN-ERR-LEN VALUE -7.
    88 Z-RETURN-BAD-CRYPTOFACILITY VALUE -50.
    88 Z-RETURN-BAD-CRYPTOMETHOD VALUE -51.
    88 Z-RETURN-BAD-CRYPTOMODE VALUE -52.
    88 Z-RETURN-BAD-CRYPTOBIT VALUE -53.
    88 Z-RETURN-NO-PASSWORD VALUE -60.
    88 Z-RETURN-BAD-PASSWORD VALUE -61.
    88 Z-RETURN-SHORT-PASSWORD VALUE -62.
    88 Z-RETURN-LONG-PASSWORD VALUE -63.
    88 Z-RETURN-EXPIRED-LICENSE VALUE -80.
    88 Z-RETURN-NOT-LICENSED VALUE -81.
    88 Z-RETURN-BAD-ACTION VALUE -86.
    88 Z-RETURN-BAD-CRC VALUE -87.
    88 Z-RETURN-SIZE-ERR VALUE -88.
    88 Z-RETURN-AUTHENTICATE-ERR VALUE -89.
  10 Z-ACTION PIC X(1) VALUE X'03'.
    88 Z-ZIP VALUE X'01'.
    88 Z-UNZIP VALUE X'02'.
    88 Z-GZIP VALUE X'03'.
    88 Z-GUNZIP VALUE X'04'.
    88 Z-DEFLATE VALUE X'05'.
    88 Z-INFLATE VALUE X'06'.
    88 Z-FCMPR VALUE X'07'.
    88 Z-FUNCMPR VALUE X'08'.
    88 Z-SUNZIP VALUE X'09'.
    88 Z-ENCRYPT VALUE X'11'.
    88 Z-DECRYPT VALUE X'12'.
    88 Z-FILELIST VALUE X'20'.
    88 Z-VIEW-CONSOLE VALUE X'21'.
    88 Z-VIEW-PRINTER VALUE X'22'.
  10 Z-ARCHIVE PIC X(1) VALUE X'00'.
    88 Z-CREATE-ARCHIVE VALUE X'00'.
```



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88 Z-CREATE-SE-ARCHIVE VALUE X'01'.
88 Z-ADD-FILE VALUE X'02'.
88 Z-REMOVE-FILE VALUE X'03'.
88 Z-CLOSE-ARCHIVE VALUE X'04'.
10 Z-METHOD PIC X(1) VALUE X'08'.
88 Z-DEFLATED VALUE X'08'.
10 Z-COMPRESSION-LEVEL PIC X(1) VALUE X'05'.
88 Z-NONE VALUE X'00'.
88 Z-SUPERFAST VALUE X'01'.
88 Z-FAST VALUE X'03'.
88 Z-NORMAL VALUE X'05'.
88 Z-HIGH VALUE X'07'.
88 Z-MAXIMUM VALUE X'09'.
10 Z-MODE PIC X(1) VALUE X'01'.
88 Z-TEXT VALUE X'01'.
88 Z-BINARY VALUE X'02'.
10 Z-CALLING PIC X(1) VALUE X'00'.
88 Z-FIRST-ONLY VALUE X'00'.
88 Z-FIRST VALUE X'01'.
88 Z-CONTINUE VALUE X'02'.
88 Z-LAST VALUE X'03'.
10 Z-CALLING-FLUSH PIC X(1) VALUE X'00'.
88 Z-FLUSH-NO VALUE X'00'.
88 Z-FLUSH-PARTIAL VALUE X'01'.
88 Z-FLUSH-SYNC VALUE X'02'.
88 Z-FLUSH-FULL VALUE X'03'.
10 Z-FORCE-CRC PIC X(1) VALUE X'00'.
88 Z-FORCE-CRC-NO VALUE X'00'.
88 Z-FORCE-CRC-YES VALUE X'01'.
10 Z-CRYPTO-IV PIC X(16) VALUE LOW-VALUES.
10 Z-CRYPTO-KEY PIC X(32) VALUE LOW-VALUES.
10 Z-CRYPTO-MODE PIC X(1) VALUE X'00'.
88 Z-CRYPTO-MODE-ECB VALUE X'01'.
88 Z-CRYPTO-MODE-CBC VALUE X'02'.
88 Z-CRYPTO-MODE-CFB VALUE X'03'.
88 Z-CRYPTO-MODE-OFB VALUE X'04'.
88 Z-CRYPTO-MODE-CTR VALUE X'05'.
* Next 2 are Reserved for internal use only
88 Z-CRYPTO-MODE-WZ VALUE X'06'.
88 Z-CRYPTO-MODE-PK VALUE X'07'.
10 Z-CRYPTO-FACILITY PIC X(1) VALUE X'00'.
88 Z-CRYPTO-FACILITY-ZIP VALUE X'00'.
88 Z-CRYPTO-FACILITY-CPACF VALUE X'01'.
* Next 2 are Reserved for future use
88 Z-CRYPTO-FACILITY-ICSF-SW VALUE X'02'.
88 Z-CRYPTO-FACILITY-ICSF-HW VALUE X'03'.
10 Z-SUBTASKS PIC 9(4) VALUE 0 COMP.
10 FILLER PIC X(12) VALUE LOW-VALUES.
10 Z-CRYPTO-METHOD PIC X(8) VALUE LOW-VALUES.
88 Z-AES-128 VALUE 'AES,128'.
88 Z-AES-192 VALUE 'AES,192'.
88 Z-AES-256 VALUE 'AES,256'.
88 Z-ARC4 VALUE 'ARC4'.
88 Z-A2E VALUE 'A2E'.
88 Z-E2A VALUE 'E2A'.
10 Z-COMPRESSION-TIME PIC S9(7) VALUE 0 COMP-3.
10 Z-TRANSLATE-TABLE PIC X(12) VALUE LOW-VALUES.
10 FILLER PIC X(12) VALUE LOW-VALUES.
10 Z-DATE-MMDDYYYY PIC X(8) VALUE LOW-VALUES.
10 Z-TIME-HHMMSS PIC X(6) VALUE LOW-VALUES.



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10 FILLER PIC X(2) VALUE LOW-VALUES.
10 FILLER PIC X(4) VALUE LOW-VALUES.
10 Z-TSQ-LENGTH PIC 9(8) VALUE 24576 COMP.
10 Z-GMT-OFFSET-SECONDS PIC 9(8) VALUE 0 COMP.
10 Z-INPUT-BUFFER-PTR POINTER.
10 Z-INPUT-BUFFER-LENGTH PIC 9(8) VALUE 0 COMP.
10 Z-OUTPUT-BUFFER-PTR POINTER.
10 Z-OUTPUT-BUFFER-LENGTH PIC 9(8) VALUE 0 COMP.
10 Z-OUTPUT-SIZE PIC 9(8) VALUE 0 COMP.
10 Z-INPUT-TSQID PIC X(8) VALUE LOW-VALUES.
10 Z-OUTPUT-TSQID PIC X(8) VALUE LOW-VALUES.
10 Z-TSQ-STORAGE PIC X(4) VALUE 'AUX'.
 88 Z-TSQ-AUX VALUE 'AUX'.
 88 Z-TSQ-MAIN VALUE 'MAIN'.
10 Z-SYSID PIC X(4) VALUE LOW-VALUES.
10 Z-FILE PIC X(128) VALUE LOW-VALUES.
10 FILLER PIC X(64) VALUE LOW-VALUES.
10 Z-PASSWORD PIC X(80) VALUE LOW-VALUES.
10 Z-SEPATH PIC X(32) VALUE LOW-VALUES.

---- BELOW IS SPECIAL USE AND IS "READ ONLY" ----

10 Z-FILE-CRC PIC 9(8) VALUE 0 COMP.
10 Z-FILE-INPUT-SIZE-64 PIC 9(8) VALUE 0 COMP.
10 Z-FILE-INPUT-SIZE PIC 9(8) VALUE 0 COMP.
10 Z-FILE-OUTPUT-SIZE-64 PIC 9(8) VALUE 0 COMP.
10 Z-FILE-OUTPUT-SIZE PIC 9(8) VALUE 0 COMP.
10 Z-EXTRA-FIELD PIC 9(8) VALUE 0 COMP.
10 Z-EXTRA-LEN PIC 9(4) VALUE 0 COMP.
10 FILLER PIC X(2) VALUE LOW-VALUES.
10 FILLER PIC X(4) VALUE LOW-VALUES.
10 Z-SAVE-INPUT-BUFFER-LEN PIC 9(4) VALUE 0 COMP.
10 Z-SYSIN-PTR POINTER.
10 Z-SYSPRT-PTR POINTER.
10 Z-D21ZTAB-PTR POINTER.
10 Z-SBCSTAB-PTR POINTER.
10 Z-STREAM PIC X(56) VALUE LOW-VALUES.
10 Z-SAVE-OUTPUT-PTR POINTER.
10 Z-SAVE-ARCHIVE-PTR POINTER.
10 Z-CRYPTO-BIT PIC 9(8) VALUE 0 COMP.
10 Z-CRYPTO-SIZE PIC 9(8) VALUE 0 COMP.
10 Z-CRYPTO-F-CTX PIC 9(8) VALUE 0 COMP.
10 Z-ZIP-STATUS PIC X(1) VALUE LOW-VALUES.
10 FILLER PIC X(1) VALUE LOW-VALUES.
10 Z-PASSWORD-LEN PIC S9(4) VALUE 0 COMP.
10 Z-CRYPTO-PSVER1 PIC X(16) VALUE LOW-VALUES.
10 Z-CRYPTO-PSVER2 PIC X(16) VALUE LOW-VALUES.
10 Z-CRYPTO-LAST-REM PIC 9(8) VALUE 0 COMP.
10 FILLER PIC X(24) VALUE LOW-VALUES.



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