

DUMP – was ist das?

- to dump:
abladen; schütten; auskippen; fallen lassen;
abziehen; lagern; stapeln; verklappen;
- the dump
Abzug; Dump; Auflistung; Depot; Kaff; Dreckloch;
Sauladen; Schutthaufen, Abfallhaufen;
- to dump s.b.
jdm. abschieben, jdm. loswerden
- to dump memory
Speicherinhalt anzeigen

Exkurs in die Theorie

DUMP – Haltung bei einem Dump



Beispiel



- Conditions werden abgefangen
 - handled – PL1 on units
 - unhandled – hardware abend / software abend
- Steuerung geht an condition handler (LE/USER)
- mögliche Aktionen
 - resume – Kontrolle geht an einen “resume cursor”
 - percolate – condition handling wird abgelehnt
 - promote – Bedeutung der condition verändern
 - fix-up and resume – Korrektur und weiter

- messages
- CEEDUMP
- system Dump
- Run-time Options Report
- Run-time Storage Report

- Möglichkeit für allgemeine Meldungen
- Meldungen werden an 1 Ort geschrieben
 - MSGFILE
- irgendwelche “komischen” Abbrüche können formatiert werden
- Unterdrückung von Dumps bei bestimmten Arten von Abbrüchen

- CEE CEL (aber könnte woanders hin zeigen)
 - IGZ COBOL
 - IBM PL1
 - AFH FORTRAN
 - EDC C/C++
-
- Details zu COBOL siehe zum Beispiel:
z/OS V1R9.0 Language Environment Run-Time Messages,
Kapitel 7.0 COBOL Run-Time Messages
– Liste von 173(?) Meldungsnummern

Meldungen – Aufbau und Typen von Meldungen (COBOL)

- IGZnnnnx mit x=
 - I Informational message
 - W Warning message
 - E Error message
 - S Severe error message
 - C Critical error message

Beispiel

Meldungen – Beispiel 1 (COBOL)

```
IGZ0006S The reference to table ??? by verb number ???  
         on line ??? addressed an area outside  
         the region of the table.
```

Explanation: When the SSRANGE option is in effect, this message is issued to indicate that a fixed-length table has been subscripted in a way that exceeds the defined size of the table, or, for variable-length tables, the maximum size of the table.

The range check was performed on the composite of the subscripts and resulted in an address outside the region of the table. For variable-length tables, the address is outside the region of the table defined when all OCCURS DEPENDING ON objects are at their maximum values; the ODO object's current value is not considered. The check was not performed on individual subscripts.

Programmer Response: Ensure that the value of literal subscripts and/or the value of variable subscripts as evaluated at run-time do not exceed the subscripted dimensions for subscripted data in the failing statement.

System Action: The application was terminated.

Symbolic Feedback Code: IGZ006

Meldungen – Beispiel 2 (COBOL)

IGZ0011C ??? was not a proper module for this system environment.

Explanation: A library subroutine that is system sensitive is inappropriate for the current system environment. For example, an OS environment specific module has been loaded under CICS. The likely causes are:

- Improper concatenation sequence of partitioned data sets that contain the subroutine library, either during run-time or during link-edit of the COBPAC.
- An attempt to use a function unsupported on the current system (for example, ACCEPT on CICS).

Programmer Response: Check for the conditions stated above, and modify the environment or the application as needed.

System Action: The application was terminated.

Symbolic Feedback Code: IGZ00B

Meldungen – Beispiel 3 (COBOL)

IGZ0100S Argument-1 for function ??? in program ??? at
displacement ??? was less than or equal to -1.

Explanation: An illegal value was used for Argument-1.

Programmer Response: Ensure that argument-1 is greater than -1.

System Action: The application was terminated.

Symbolic Feedback Code: IGZ034

Meldungen – Beispiel 4 (COBOL)

```
IGZ0017S The open of DISPLAY or ACCEPT file with  
environment name ??? was unsuccessful.
```

Explanation: An error occurred while opening the DISPLAY/ACCEPT file.

Programmer Response: Check to make sure a ddname has been defined for the file.

System Action: The application was terminated.

Symbolic Feedback Code: IGZ00H

Linkage Convention – Hintergrund

- Innerhalb z/OS eindeutige Konventionen, wie Register benutzt werden.
 - ASM-HLL-Konvention
 - XPLINK-Konvention
- Grund: einheitliche Beschreibung für
 - Parameterübergabe
 - Sprung hin
 - Sprung zurück
 - Variablenadressierung

Linkage Convention – Inhalte

- R1 Parameterliste
 - R12 Adresse der CAA
 - R13 Adresse der save area
 - R14 Rücksprungadresse
 - R15 Adresse Entrypoint
 - Rn frei verfügbar
-
- Konsequenz: alle Inhalte aller Programme zu finden!

- BLW Working-Storage
- BLL Linkage Section
- BLF Files
- BLS Sort Items
- BLX external Data
- IDX Indizes
- und ... BLA, BLK, BLM, BLO, BLT, BLV
- siehe
Enterprise COBOL for z/OS V3.4 Programming Guide,
Kapitel 2.6.3.5: Symbols used in LIST and MAP output

COBOL – Systembereiche (1)

- Programmvorspann
 - reservierter Bereich für Standardinformationen
- Literal Pool für System und Programm
 - alle festen Daten
- TGT (task global table)
 - mit allen wichtigen Pointer Pgm-intern
- DSA (dynamic save area)
 - mit allen Basisregistern für Kommunikation

COBOL – Systembereiche (2)

- CGT (constant global table)
 - mit dem dynamischen Speicher für Daten
- CLLE (constant load list entry address)
 - für CALL 'literal'
- FCB (file control block)
 - für alle Files
- PCB (program control block)
 - für interne Programme

- CIB (condition information block)
 - Informationen rund um den Abbruch
 - Abbruchadresse
 - Art des Abbruchs
 - PSW
 - Registerinhalte
- CAA (common anchor area)
 - wichtige Adressen wie CIB, PCB, DSA
 - existiert pro Thread

Numerische Daten – External decimal

- PIC S9999 [DISPLAY]

+1234 F1 F2 F3 C4

-1234 F1 F2 F3 D4

1234 F1 F2 F3 C4

- PIC 9999 [DISPLAY]

1234 F1 F2 F3 F4

*

```
01  WERT-OHNE-VZ          PIC  9999 .
```

```
77  WERT-MIT-VZ          PIC  S9(4) .
```

```
01  WERT-MIT-VZ          PIC  S9(04) DISPLAY .
```

Numerische Daten – Internal decimal

- PIC S9(5) PACKED DECIMAL oder COMP-3

+1234 01 23 4C

-1234 01 23 4D

- PIC 9(5) PACKED DECIMAL oder COMP-3

+1234 01 23 4F

-1234 01 23 4F

*

```
01  WERT-MIT-VZ            PIC S99999 PACKED DECIMAL.
```

Numerische Daten – binär

- PIC S9(4) BINARY oder COMP oder COMP-4
+1234 04 D2
-1234 FB 2E
- PIC 9(4) BINARY oder COMP oder COMP-4
+1234 04 D2

*

```
01  WERT-MIT-VZ          PIC S9999 BINARY.
```

Numerische Daten – Internal Floating Point

- COMP-1

+1234 43 4D 20 00

- COMP-2

+1234 43 4D 20 00 00 00 00 00

-1234 C3 4D 20 00 00 00 00 00

*

```
01  WERT-MIT-FP          COMP-1 .
```

- Logik:

- The leftmost bit contains the sign and the next 7 bits contain the exponent; the remaining 3 or 7 bytes contain the mantissa.

Numerische Daten – External Floating Point

- PIC +9(2).9(2)E+99 [DISPLAY]

+1234 4E F1 F2 4B F3 F4 C5 4E F0 F2

-1234 60 F1 F2 4B F3 F4 C5 4E F0 F2

*

```
01  WERT-MIT-EXP              PIC  +99.99E+99.
```

Numerische Daten – Index – Beispiel

- Inhalt im Dump für IDX-1: B0
- Inhalt im Dump für IDX-2: 6C

*

```
01  TAB1      OCCURS 5 PIC X(088) INDEXED BY IDX-1 .  
01  TAB2      OCCURS 7 PIC X(027) INDEXED BY IDX-2 .
```

- Berechnung des Subscripts:
 - IDX-1 (x'B0' = 176): $(176/88) + 1 = 3$
 - IDX-2 (x'6C' = 108): $(108/27) + 1 = 5$

- SET data-name TO pointer
- RENAME
- REDEFINES
- Bedingungsnamen
- nicht benutzte Variablen + OPT(FULL)
- Indices
- SYNCHRONIZED
- JUSTIFIED