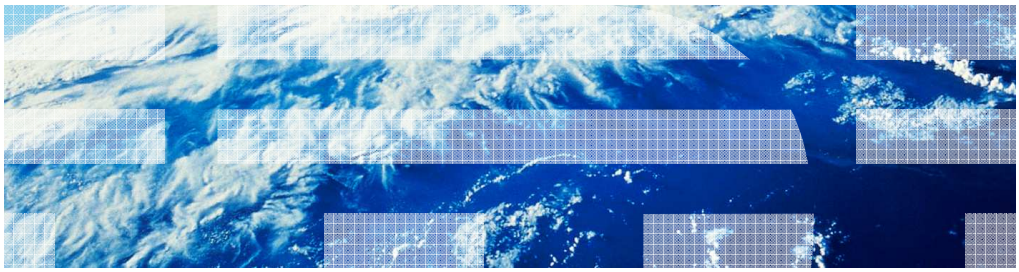
z/OS V1R13

BCP program binder: Conditional sequential RLD resolution



Session objectives

- What are conditional sequential RLDs?
- How did we implement it?
- What new messages are there?

Overview (1 of 7)

- Problem statement / need addressed
  - With new conditional RLD support, your application can follow a scenario such as:
    - W calls (x or y or z)
      - If x is resolved? then call x
      - else if y is resolved? then call y
      - else if z is resolved? then call z

Overview (2 of 7)

- Solution
  - GOFF only!

Relocation directory data element flags:

Field	*Offset*	*Type*	*Description*
Bit Length, Bit Offset, Conditional Sequential	5	Byte(1)	If the target field is not an integral set of aligned bytes, these fields indicate the remaining length of the field in bits
Bit Length	5.0-2	Bit(3)	If the target field is not an integral set of aligned bytes, this field and the Byte Length field provide the true length (in bits)
Conditional Sequential Resolution Flag	**5.3**	**Bit(1)**	**If 1, this bit means that the RLD item is part of a group of conditional sequential resolution adcons.**
** reserved **	5.4	Bit(1)	** reserved **
Bit Offset	5.5-7	Bit(3)	If the target field is not an integral set of aligned bytes, this field indicates the position of the first bit in the byte addressed by the Pointer and Offset that is a part of the field.

Overview (3 of 7)

- IEWBUFF RLD mapping
  - New bit definition only, so still VERSION=3 mapping

Field name/ value mapping	Field type	Offset	Length	description
RLD_BIND_ATTR	***Bit***	***25***	***1***	***Bind Attributes***
`1xxx xxxx`	***bit***	***25.0***	***.1***	Relocation sign (direction) '0'=positive, '1'=negative
`x1xx xxxx`	***bit***	***25.1***	***.1***	Set high order bit from AMODE of target
`xx1x xxxx`	***bit***	***25.2***	***.1***	Scope of reference '0'=internal, '1'=external
`xxx1 xxxx`	***bit***	***25.3***	***.1***	High order bit of adcon reset by binder
`xxxx 1xxx`	***bit***	***25.4***	***.1***	*Adcon is resident in a part (PD)*
`xxxx x1xx`	***bit***	***25.5***	***.1***	*** reserved **
`xxxx xx1x`	***bit***	***25.6***	***.1***	*Target of adcon marked XPLINK*
`xxxx xxx1`	***bit***	***25.7***	***.1***	***Adcon is part of a group of conditional sequential adcons***

Overview (4 of 7)

– AMBLIST will identify this new attribute
  - LISTOBJ output example:

```
RECORD TYPE: RLD      SEQUENCE:       13
R-PTR   P-PTR  OFFSET TYPE LEN ATTRIB  R-PTR  P-PTR  OFFSET TYPE LEN ATTRIB  R-PTR  P-PTR  OFFSET TYPE LEN ATTRIB
>000006 000004 000010 0001 004   S     000007 000004 000010 0001 004   S     000008 000004 000010 0001 004   _
```

- RLDs 1 to (n-1) in the group have the "s" attribute
- RLD n in the group will not have the "s" attribute
- All RLDs in the group will have the exact same P-PTR, offset, length and type
  - but a different R-PTR

Overview (5 of 7)

– New / changed messages:

- IEW2445I 9232 SYMBOL symbol IS AN UNRESOLVED MEMBER OF a CONDITIONAL ADCON CHAIN.

  - INFORMATIONAL – Severity 0

  - the designated symbol is unresolved. It is part of a chain of conditional sequential resolution adcons and at least one member of the chain was resolved.

  - the first resolved symbol in the adcon chain will be used. Processing continues.

- If none of the symbols are resolved the normal message is issued for each symbol:

  IEW2456E 9207 SYMBOL symbol UNRESOLVED. MEMBER COULD NOT BE INCLUDED FROM THE DESIGNATED CALL LIBRARY.

- If any of the symbols are also in adcon which is NOT part of conditional sequential group then it still must be resolved

  In accordance with its binding strength (OK to not be resolved if “weak” reference)

Overview (6 of 7)

- New / changed messages …
  - IEW2690E ONE OR MORE FIELD DESCRIPTORS IN GOFF RECORD record_number WITHIN MEMBER member_name IDENTIFIED BY DDNAME ddname ARE NOT VALID. ERROR ID = error-id.
  - New ERROR-IDs:
    - 45 - The RLD has the conditional sequential bit set but is not a v-con.
    - 46 - The previous RLD has the conditional sequential bit set but this RLD has a p pointer, offset, or length which are not the same as the previous RLD.
    - 47 - The RLD has the conditional sequential bit set, but there are no more RLDs in the GOFF record.

Overview (7 of 7)

- Benefit / value
  - Ability to call different programs or entry points depending on which is resolved.

Usage and invocation

- High level assembler syntax:
  - V(symbol[:symbol]…[,symbol[:symbol]…]…)
  - V-con address constant type only
    - No arithmetic or fix-up against text content!
- DC V(A:B:C)
  - The request is to resolve a; if not, then b, and if not, then c and if not, unresolved.
- DC V(A:B:C, X:Y)
  - The comma starts a new group, the request for the first group of a, b, and c is same as above, the request for the second group is to resolve x, if not, then y, and if not, unresolved.

Usage and invocation...

- Ordering is important!
  - Group begins with first RLD that has bit set
  - Group ends with first RLD that has bit unset
  - All RLDs in group must have the same P-ID, offset, and length, only the R-ID differs
  - Binder attempts resolution in the given order
    - Continues in order until resolved or group exhausted
    - Does not drive symbol resolution, which is already done for ERs

Interactions and dependencies

- This is only supported by GOFF objects, not traditional OBJs.

Migration and coexistence considerations

- None

Installation

- None

Appendix - References

- Publications:
  - SA22-7643-11 z/OS V1R13.0 MVS program management: User's guide and reference
  - SA22-7644-13 z/OS V1R13.0 MVS program management: Advanced facilities

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