

IMS DB ONLINE TRAINING – DAY 8

SSAs using COMMAND CODES

Command codes make the call more efficient and save time to retrieve the required segment occurrence.

A single call with fully qualified SSA and with a command code makes the program more efficient and can potentially replace a series of call.

Command codes are specified in the SSA. An Asterisk '*' in the 9th position of the SSA denotes that one or more command codes are about to follow.

Each command code is represented by a single character followed by an asterisk after the segment name.

SSAs using COMMAND CODES

1) UNQUALIFIED SSA

1	2	3	4	5	6	7	8	9	10	11
R	E	N	T	E	R			*	D	

2) QUALIFIED SSA

Position	Description
1-8	Segment Name
9-10	*D
11	Open Parenthesis - (
12-19	Primary key of Search key field from DBD
20-21	Relational Operator (EQ,NE,LE,GE,LT,GT)
22-XX	Data Value
XX+1	Close Parenthesis -)

COMMAND CODES WITH THEIR USAGE

F - Locate First Occurrence

L - Locate Last Occurrence

D - Retrieve all Segment occurrences in the hierarchical path defined by SSAs into I-O Area (Path Call)

N - Do not Replace this Segment

(Used in REPL call, when its preceding Get Hold call is a path call)

C - Concatenated key in the SSA

Q - Enqueue this Segment

U - Maintain current position at this level

V - Maintain current position at this and higher level

P - Establish parentage at this level

- - Null command code

COMMAND CODES – F/L

Command Code - F

Tells DLI to begin the search with the first segment occurrence of a twin for a GET call.

In an ISRT call, this command code inserts the occurrence as the first occurrence of the segment type that has non-unique or no key field.

Command Code - L

Tells DLI to begin the search with the last segment occurrence of a twin for a GET call.

In an ISRT call, this command code inserts the occurrence as the last occurrence of the segment type that has non-unique or no key field.

COMMAND CODES - D

Command Code – D (PATH CALL)

In a GET call, retrieve all segment occurrences in the hierarchical path defined by SSAs into I-O Area. Thus I-O area is defined as large enough to store all the retrieved segment occurrences. If D command code is not coded, only the segment occurrence of the last SSA mentioned in the call is retrieved and moved to I-O area.

A PROCOPT of P should be coded in the PCB of the PSB in case if we need to issue the Path calls.

COMMAND CODES - N

Command Code - N

N command code is used in the SSAs of the REPL call to indicate that you don't want to replace them.

This happens when you issue a GET HOLD path calls and replace more than one occurrence in a single call. Using Null command code, we can partially update the path.

Ex:- We retrieve and hold a hierarchical path with Root and segments in level 2 and 3. We can get hold of the entire path using GET HOLD path calls. Suppose, we intend to update only the root and the segment in level 3, we can use N command code for segment in level 2.

COMMAND CODES - C

Command Code - C

C command code is used in situations where we use fully qualified calls. It allows us to use a concatenated key in a single SSA rather than using a series of fully qualified SSAs.

When using concatenated key, no key in the path can be ignored.

Command Code - Q

Q command code is used where multiple tasks are using the same DB at the same time for updating. For data integrity to be maintained, we can use this command code to have exclusive control over the segment occurrence while updating. This prevents other transactions to update simultaneously.

COMMAND CODES – U/V/P/-

Command Code – U and V

These command codes are used to prevent a GN or a GNP call from leaving the current position.

Command Code - P

P command code is usually used to set parentage to a segment at any level in the database during a call other than the segment specified in the last SSA at the lowest level. This is given in a GN or a GU call with more than one SSA.

Parentage will be destroyed when another call GU or GN call is issued.

Command Code – ‘-’

Null ‘-’ command code is used when no command code is written. It reserves the positions in a SSA in which we can move any command code during the execution of the program.

Exercise 8.1

- In an Unqualified SSA, if 9th position is a '*', then we can assume a command code may be following - (True/False)
- An Unqualified SSA can be either 9 bytes or 11 bytes in length - (True/False)
- A command code of 'F' tells IMS to fetch the first Segment occurrence in a segment type - (True/False)
- Using Path call, we can't retrieve more than one segment occurrence in I/O Area - (True/False)
- For a Path call to be used, there is no special procopt is required in PSB - (True/False)
- We can parentage using command code 'P' - (True/False)

End of Day 8