

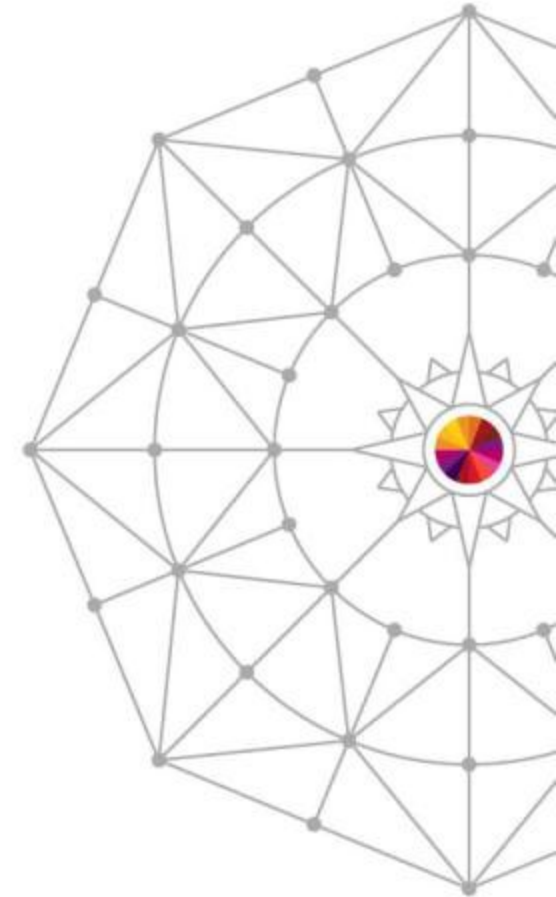
Session 14633

The Catalog Search Interface

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Session 14633



Obtaining Information from Catalogs

- ISPF 3.4
- ISMF
- IDCAMS LISTCAT

- LOCATE & CAMLST NAME
- TSO Service Routine IKJEHCIR
- SHOWCAT
- REXX TSO LISTDSI

- Catalog Search Interface

The Catalog Search Interface

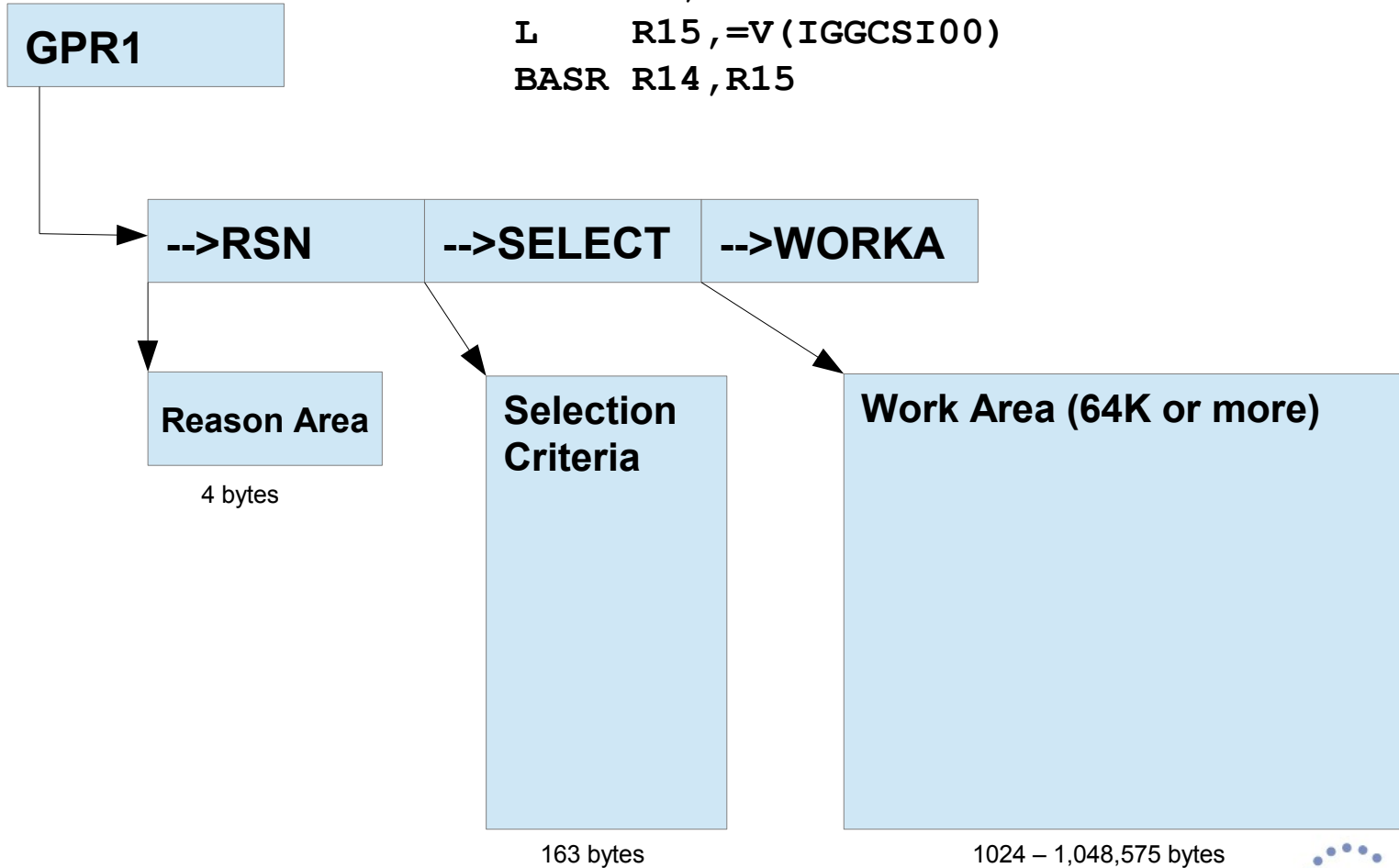
- Introduced 1994
- Simplified invocation of SVC 26 GFL
 - General Use Programming Interface
- Features
 - “Wild Card” Filter List
 - Return multiple entries on a single call
 - Return desired catalog field information
 - Select catalogs to search
 - “Resume” function

Invoking CSI

- PGM=IGGCSI00
 - Resides in SYS1.LINKLIB, RENT, REUS
 - Asm LOAD and call/BALR
 - Asm LINK
 - REXX ADDRESS LINKPGM
 - HLL
 - 24 or 31-bit AMODE
 - Any key, supervisor or problem state
- *Cannot* be used
 - Dynaloc or O/C/E exits
 - Cross-memory, SRB, disabled

Invoking CSI

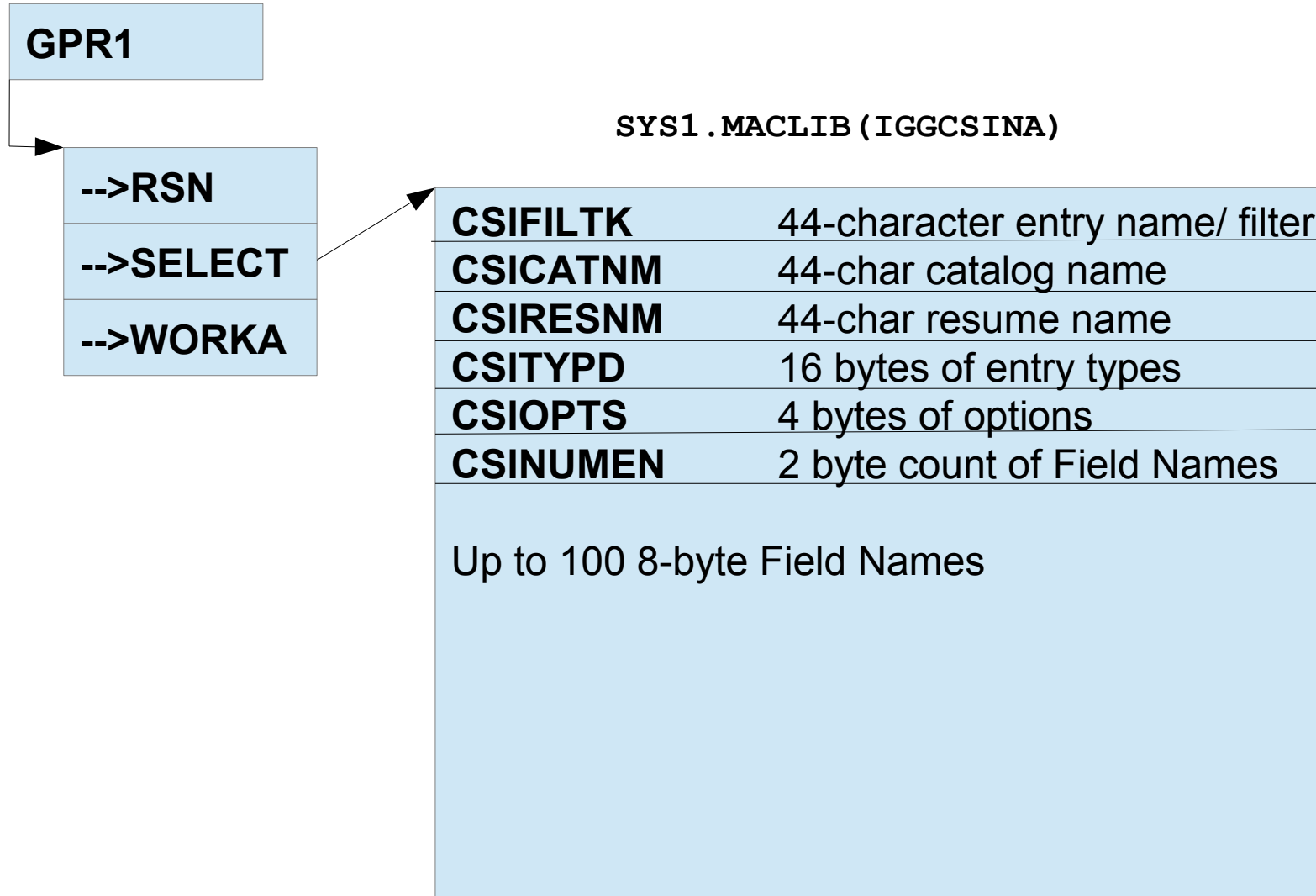
```
LA R1,PLIST  
L R15,=V(IGGCSI00)  
BASR R14,R15
```



Selection Criteria

- *Filter* to select catalog entries (i.e., DSN filter)
- *Types* of catalog entries to select
- Catalog *fields* of interest
- Optionally, *particular catalog* to search
- Option flags

Selection Criteria



Selection Criteria

- **CSIFILTK** – Generic Filter Key
 - Which *entry names* are of interest?
- * → single qualifier mask
- ** → zero or more qualifiers
- % → single character mask
- %%... → up to 8 single characters

Filter Examples

- **PROD . ****
 - All datasets with HLQ of PROD
- **PROD . ***
 - Two-level datasets with HLQ of PROD
- **PROD . * . LIST**
 - Three level with PROD hlq, any 2nd qualifier, and LIST llq
- **PROD . * . LIST***
 - As above, but last qualifier can be any beginning with LIST
- **PROD . * . LIST****
 - As above, but with any number of qualifiers
- **PROD . ABC%D**
 - Two level, any char in third position of 2nd qualifier

Selection Criteria

- **CSIDTYP** – Catalog Entry Type(s)
 - Which types of catalog entries are of interest?

blank	All except tape VOLCAT
A	Non-VSAM
B	GDG
C	VSAM Cluster
G	VSAM Alternate Index
H	Generation Data Set
L	Tape VOLCAT Library entry
R	VSAM Path Name
U	User Catalog connector
W	Tape VOLCAT Volume Entry
X	Alias

→ D and I automatically returned

→ must be explicitly specified

Selection Criteria

- **CSICATNM** – Catalog Name
 - Which catalogs are of interest?
 - Blank → search aliased catalog, then mastercat
- **CSIOPTNS/CSIS1CAT**
 - Search only the catalog specified in CSICATNM

CSIFILTK	44-character entry name/ filter
CSICATNM	44-char catalog name
CSIRESNM	44-char resume name
CSITYPD	16 bytes of entry types
CSIOPTS	4 bytes of options
CSINUMEN	2 byte count of Field Names
Up to 100 8-byte Field Names	

Selection Criteria

- **CSIOPTS** – Option Flags

0	CSICLDI	blank Y	Return D and I info for non-matching Cluster name
1	CSIRESUM	blank Y	More data exists to be returned (set by CSI)
2	CSIS1CAT	blank Y	Search only 1 catalog
3	CSIOPTNS	any F	Returned data lengths will be halfwords / fullwords

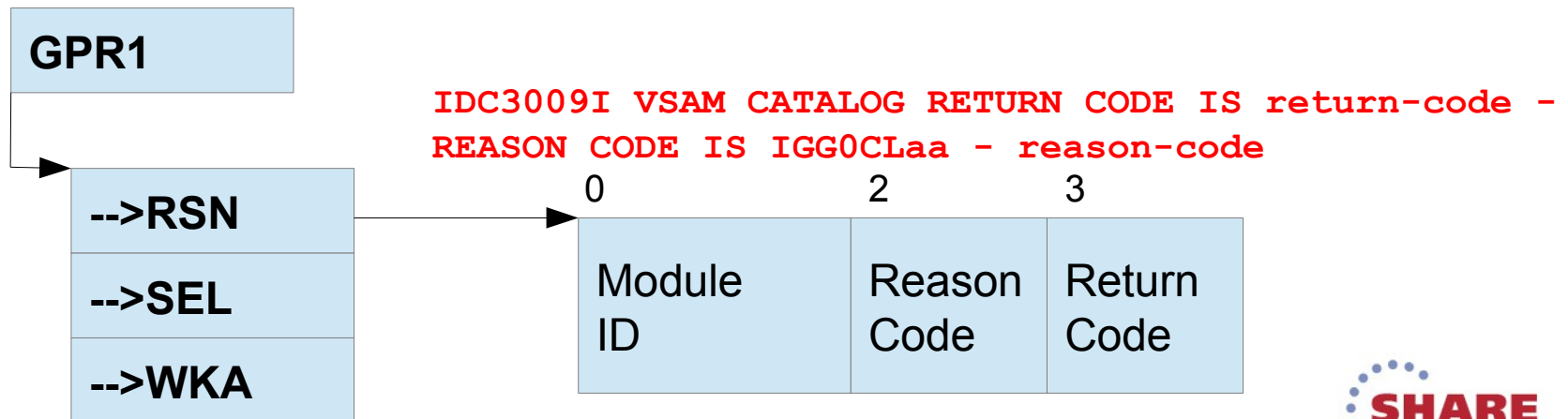
Resuming a Search

- Work Area
 - Catalog data is returned in the work area
 - If the work area is too small to hold all the data:
 - CSIOPTS / CSIRESUM is set to 'Y'
 - CSIRESNM is set to entry name to resume on
 - CSICATNM is set to catalog name to resume on
- Re-invoke CSI to resume at next entry

```
RESUME = 'Y'  
  
Do While RESUME = 'Y'  
  /* Call the Catalog Search Interface */  
  ADDRESS LINKPGM 'IGGCSI00  RETAREA  CSIFIELD  WORKAREA'  
  ...  
  RESUME = SUBSTR(CSIFIELD,150,1) /* GET RESUME FLAG FOR NEXT LOOP */  
  ...  
End /* UNTIL NO MORE DATA */
```

Return Codes and the Reason Area

- RC in R15
 - 0 = success
 - 4 = some catalog info returned
 - 8 = CSI failed
 - 12/16 = parmlist error
- Reason Area filled in if R15= 4 or 8



Return Codes and the Reason Area

- Return Codes in Reason Area

Return Code	Reason Code		Module ID
8	1 - 8	Error in CSI call	x'FFFF'
100	4	Data entries in error ≥ 1	
	8	Catalog entries in error ≥ 1	
122		Invalid filter	

Work Area

- Catalog Information is returned in the Work Area
- Prior to calling CSI:
 - First word of work area must contain work area length
- Upon return from CSI:
 - Second word contains minimum required length for 1 entry
 - More storage *required* if work area length < min
 - Third word contains length of returned data

Work Area

GPR1

SYS1.MACLIB (IGGCSINA)

- >RSN
- >SELECT
- >WORKA

CSIUSRLN	4-byte len of work area
CSIREQLN	4-byte min required work area
CSIUSDLN	4-byte used work area
CSINUMFD	2-byte no. of field names, +1
Catalog Name Info	
Entry Name Info	
Field Info	
Field Info	
Field Info	
Catalog Name Info	
Entry Name Info	
Field Info	
Field Info	
Field Info	

Work Area

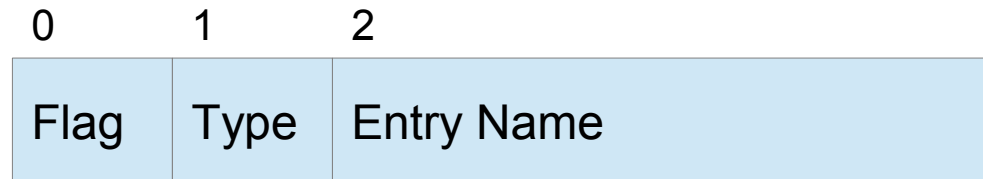
- **Returned Catalog Name Info**
 - Precedes entry name and field info, for each catalog

0	1	2	46	48	49
Flag	X'F0'	Catalog Name	Module ID	Reason Code	Return Code

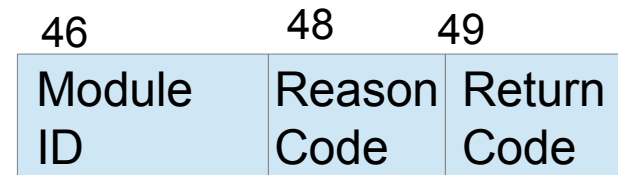
Not supported
 No entry found
 Incomplete data
 Catalog error – not processed
 Catalog error – partly processed

Work Area

- **Returned Entry Name Info**
 - One for each entry matching search criteria (CSIFILTK)
 - Follows Catalog Name entry for each catalog
 - Followed by Field info for each Field Name



A,B,C,D,E,H,I,L,R,U,W, or X

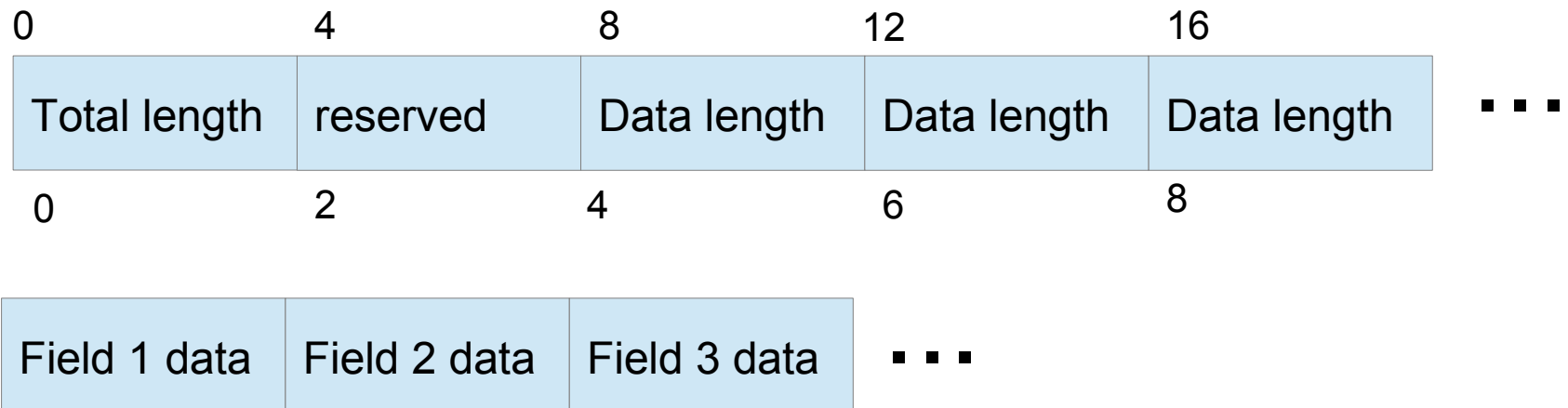


Only present if error entry

Entry is a Primary entry (e.g., Cluster entry)
 Entry associated with previous entry (e.g., Data comp)
 Error in this entry
 Data returned for this entry

Work Area

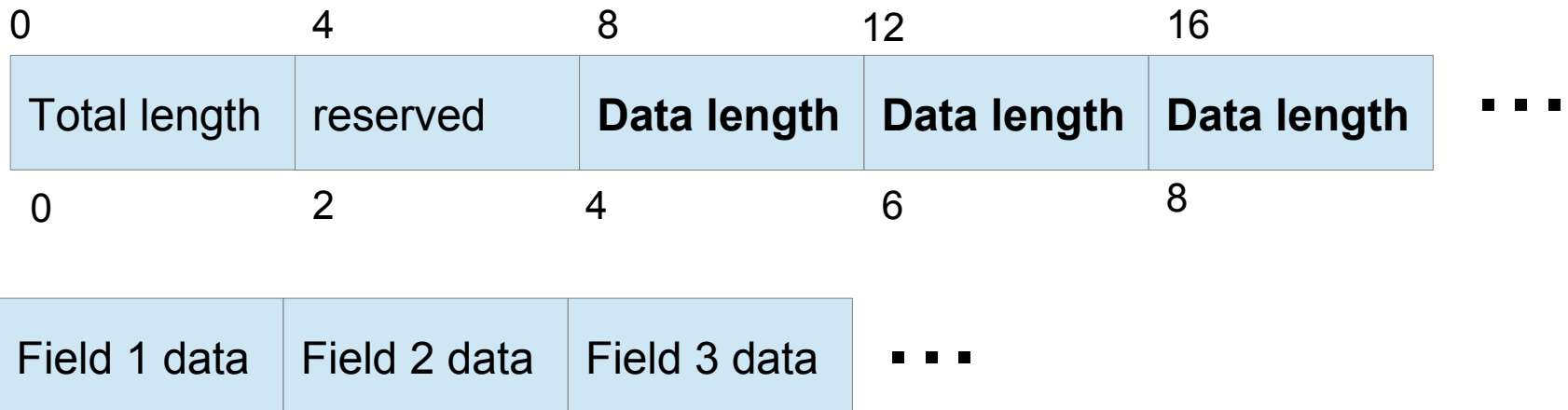
- **Returned Field Data Info**
 - One for each Field Name specified in CSIFLDNM
 - Follows Entry Name info for each entry name
 - Followed by Field info for each Field Name



Work Area

- **Returned Field Data Lengths**

- -1 → RACF suppressed
- 0 → no data for this entry
- 2 / 4 → field doesn't exist (variable length field)
- Other → data length



Data is x'FF' for nonexistent fixed length field

Catalog Field Names

- 8-byte Field Names specified in CSIFLDNM
 - Up to 100 per CSI call
 - E.g.: DEVTYP, STORCLAS, DSCRDT2
- Format and length of returned data varies by Field Name
 - HARBA (4 bytes), XHARBA (8 bytes)
 - Repeating fields
 - VOLSER, DEVTYP, FILESEQ
- Use IDCAMS LISTCAT to determine which type of entry (cluster, data, index) is needed

Cautions

- Duplicate entries can be returned
 - If filter selects multiple catalogs
 - if $MLA > 1$
-
- Performance Considerations
 - $DSN = **$ is still a lot of data to search
 - SYSIGGV2 may be held for catalog

Sample Programs

- In SYS1.SAMPLIB
 - **IGGCSIILC** – list entry types in specified catalog(s)
 - **IGGCSIVG** – show VSAM stats for a catalog
 - Count of clusters, used space, free space, min, max, totals
 - **IGGCSIVS** – find all DSNs for a catalog on specified volser
 - **IGGCSIRX** – REXX EXEC
 - return entry name, type, volser for specified filter
- On IBM FTP site
(<ftp://ftp.software.ibm.com/servers/storage/support/software/dfsms>)
 - **CATSRCHI** – REXX EXEC
 - Return specified fields for each entry for given filter key

Documentation

- DFSMS Managing Catalogs
 - Chapter 11 – Catalog Search Interface User's Guide
 - SC26-6853-00 (z/OS V2R1)
 - SC26-7409-11 (z/OS V1R13)

Questions??



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