Overview of VSAM and Defining a Cluster

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Introduction to VSAM

- Virtual Storage Access Method
  - Three types of data set organizations
    - KSDS: key-sequenced data set
    - ESDS: entry-sequenced data set
    - RRDS: relative record data set

KSDS

- A record is identified for access by specifying its key value
- A key is an imbedded field that is used to uniquely identify a particular record
- A newer version of ISAM (from my generation!)

ESDS

- A record is identified for access by specifying the physical byte location of the record's first byte relative to the beginning of the data set

RRDS

- A record is identified for access by specifying its record number relative to the first record in the data set
- features in common with BDAM (basic direct access method) (another from my generation!)

VSAM Structure

- Cluster - a VSAM data set
- KSDS cluster
  - index component
  - data component
- ESDS and RRDS cluster
  - data component only

Creating a VSAM Data Set

- Use Access Method Services (AMS)
- IDCAMS
  - Requires JCL statements
    - SYSPRINT - to produce a listing
    - SYSIN - contains AMS commands

IDCAMS

```
//jobname JOB,REGION=256K
// EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//ddname DD parameters
//SYSIN DD *
```

IDCAMS

- On job card, IDCAMS requires a minimum of 256k
- ddname: other data set(s) that might be needed
- Control statements
  - must begin in cols 2-16
  - can use a hyphen(-) for a continuation char

IDCAMS

- Documentation can go anywhere except columns 1 or 2
- /* documentation is enclosed like C*/

IDCAMS: Defining a Cluster

- AMS DEFINE command is used to create VSAM objects
  - clusters
  - alternate indexes
  - user catalogs

IDCAMS: Defining a Cluster

```
DEFINE      CLUSTER (subparam [subparm] …. [subparm] )
            [ DATA (subparm [subparm] …. [subparm] ) ]
            [ INDEX (subparm [subparm] …. [subparm] ) ]
            [ CATALOG (subparm [subparm] …. [subparm] ) ]
```

IDCAMS: Defining a Cluster

- CLUSTER sub-parameters
  - assign attributes to the cluster as a whole
- DATA and INDEX sub-parameters
  - assign attributes to the data component of ONLY KSDS clusters
- CATALOG sub-parameters
  - specify the name and optional password of the catalog where the catalog entries of the cluster are placed

IDCAMS: Defining a Cluster

```
//SYSIN DD *
DEFINE CLUSTER ( -          /* DEFINE A CLUSTER */
    NAME(KSDSCLUS) -        /* CLUSTER NAME IS KSDSCLUS */
    INDEXED -               /* TYPE OF CLUSTER IS KSDS */
    VOLUMES(ACA301) -       /* VOLUME IDENTIFICATION */
    TRACKS(1 1) ) -         /* SPACE ALLOCATION */
    DATA ( -                /* DATA COMPONENT */
          NAME(KSDSDATA) -  /* NAME OF DATA COMP */
```

IDCAMS: Defining a Cluster

```
        KEYS(9 0) -                 /* KEY LEN = 9 OFFSET = 0 */
        RECORDSIZE(90 90) -  /* FIXED LEN RECORD = 90 */
        FREESPACE(10 5) ) -    /* 10% FREE IN CI, 5% IN CA */
INDEX ( -                           /* INDEX COMPONENT */
        NAME(KSDSNDX) )       /* NAME OF INDEX COMP */
/*
```

IDCAMS: Defining a Cluster

- Smaller version of DEFINE

```
//SYSIN DD *
DEFINE CLUSTER ( -          /* DEFINE A CLUSTER */
    NAME(KSDSCLUS) -        /* CLUSTER NAME IS KSDSCLUS */
    INDEXED -               /* TYPE OF CLUSTER IS KSDS */
    VOLUMES(ACA301) -       /* VOLUME IDENTIFICATION */
    TRACKS(1 1) ) -         /* SPACE ALLOCATION */
    KEYS(9 0) -             /* KEY LEN = 9 OFFSET = 0 */
    RECORDSIZE(90 90) )     /* FIXED LEN RECORD = 90 */
    /*
```

Defining a KSDS

- DEFINE CLUSTER subparmeters
  - NAME(cluster name)
    - used to assign a unique name to the cluster
    - standard 1 - 44 character
    - start with your znumber
  - INDEXED
    - specifies a KSDS

Defining a KSDS

- DEFINE CLUSTER subparmeters
  - VOLUMES (volser)
    - volume and serial number of the new cluster
    - use ACA301
  - TRACKS (primary secondary)
    - primary - primary allocation (use 1)
    - secondary - secondary allocation (use 1)
      - will be done up to 122 times

Defining a KSDS

- DEFINE CLUSTER subparmeters
  - RECORDSIZE (average maximum)
    - average - average number of bytes in the record
    - maximum - same as average for fixed length records otherwise the maximum number of bytes of the record

Defining a KSDS

- DEFINE CLUSTER subparmeters
  - KEYS (length position)
    - length - length of the key of the KSDA
    - position - beginning position of key (starting with 0)