

ICETOOL: A Quickview

06/03/2009

Life Sciences & Healthcare

TAMOJIT RAY

tamojit.ray@tcs.com

Overview

ICETOOL is a versatile data set processing and reporting utility that provides an easy-to-use batch front-end for DFSORT. ICETOOL combines new features with previously available DFSORT features to perform complex sorting, copying, reporting and analytical tasks using multiple data sets in a single job step. The twelve ICETOOL operators briefly described below provide new tools for programmers:

Detailed Analysis of Commonly Used Operators

1. **COPY** - copies a data set to one or more output data sets depending upon the criterion specified. Syntax is

```
COPY FROM(INPUTDD) TO(INTMDD) USING(CRIT)
COPY FROM(INPUTDD) TO(OUTDD) USING(CRI1)
```

Where INPUTDD is the name of the dataset from where copying is to be done, INTMDD is the dataset where results are to be placed. CRIT is the first 4 characters of the DD name, which contains the copy criterion. In the above example INTMDD will contain all the records which satisfy the criteria contained in the dataset CRITcntl. Similarly, OUTDD will contain all the records, which satisfy the criteria contained in CRI1cntl.

2. **COUNT** - prints a message containing the count of records in a data set. Syntax is

```
COUNT FROM(INPUTDD)
```

This statement will give the number of records contained in INPUTDD.

3. **DEFAULTS** - prints the DFSORT installation defaults in a separate list data set.

4. **DISPLAY** - prints simple, tailored or sectioned reports in a separate list data set. This statement is used to format input data in a variety of ways to produce required reports. Syntax is

```
COPY FROM(INPUTDD) TO(INTMDD) USING(CRIT)
DISPLAY FROM(INTMDD) LIST(OUTDD) -
TITLE('  ADHOC REPORT FOR KAMLESH  ') DATE(MD4/) TIME -
BTITLE('SECTION1:')          -
BREAK(41,5,CH)               -
HEADER('ACCT NUMBER')         -
HEADER('STATUS')              -
HEADER('REF NUMBER ')         -
HEADER('MENU ID')             -
HEADER('INDICATOR')           -
```

```

HEADER('PC CREDIT')          -
HEADER('CLIENT CHARGE')     -
ON(1,12,CH)                  -
ON(58,2,CH)                  -
ON(77,10,CH)                 -
ON(87,5,CH)                  -
ON(1216,1,CH)                -
ON(1343,4,PD)                -
ON(1817,7,FS) BLANK          -
BTOTAL('SECTION TOTAL')     -
BMINIMUM('SECTION MINIMUM') -
BMAXIMUM('SECTION MAXIMUM') -
TOTAL('TOTAL FOR THE REPORT') -
AVERAGE('AVG FOR THE REPORT') -
MAXIMUM('MAXIMUM FOR THE REPORT') -
MINIMUM('MINIMUM FOR THE REPORT')

```

Where

- 4.1. INTMDD is DD name of the input dataset for the report to be prepared.
 - 4.2. OUTDD is the DD name of the report dataset.
 - 4.3. TITLE is the title of the report, which will be displayed only once at the top of the report. DATE and TIME can be displayed if required in the desired format (Format MD4/ will display date in MM/DD/YYYY format).
 - 4.4. BTITLE will print the section name.
 - 4.5. BREAK(41,5,CH) instructs that report is to be divided into sections on the field starting from 41st position having length as 5 bytes.
 - 4.6. HEADER is the column header of the report. As many headers as required can be included.
 - 4.7. ON gives the description of field contained in the input dataset i.e. starting position, length and format. There should be one to one correspondence between no of HEADERS and no of ON fields.
 - 4.8. BLANK will pad the leading zeroes in numeric, PD or ZD fields.
 - 4.9. '-' denotes continuation character.
 - 4.10. BTOTAL, BMAXIMUM and BMINIMUM prints the sections total, maximum and minimum.
 - 4.11. TOTAL will print the total for all the numeric fields specified in the headers.
 - 4.12. AVERAGE will print the average for all the numeric fields specified in the headers.
 - 4.13. MAXIMUM will print the maximum for all the numeric fields specified in the headers.
 - 4.14. MINIMUM will print the minimum for all the numeric fields specified in the headers.
5. **MODE** - sets/resets scanning and error actions. It specifies what action to take if any error is encountered during the execution. Syntax is
MODE CONTINUE/STOP/SCAN

6. **OCCUR** - prints each unique value in character or numeric fields and the number of times it occurs in a separate list data set.

7. **RANGE** - prints a message containing the count of values in a range for a numeric field. Syntax is

```
RANGE FROM(INTMDD) ON(1871,7,FS) LOWER(20000) -  
RANGE FROM(INTMDD) ON(1871,7,FS) HIGHER(19999) LOWER(40000) -  
RANGE FROM(INTMDD) ON(1871,7,FS) HIGHER(40000)
```

The above statements will break the entire INTMDD file into 3 ranges based on the values contained in the field 1871 having a length of 7 bytes. The ranges will be 0-19999, 20000-40000 and > 40000.

8. **SELECT** - selects records for an output data set based on meeting criteria for the number of times numeric or character field values occur (for example, only duplicate values, only non-duplicate values, only the first or last value, and so on). Records that are not selected can be saved in a separate output data set. Syntax is

```
SELECT FROM(INPUTDD) TO(ONLYONE) ON(01,12,CH) HIGHER(2)
```

This will write only those records that occurs 2 or more times in INPUTDD at a position starting from 1st byte to 12th byte to the dataset ONLYONE.

9. **SORT** - sorts a data set to one or more output data sets based on the criteria specified.

10. **STATS** - prints messages containing the minimum, maximum, average, and total of values in numeric fields. Syntax is

```
STATS FROM(INTMDD) ON(22,7,PD)
```

11. **UNIQUE** - prints a message containing the count of unique values in a numeric or character field. Syntax is

```
UNIQUE FROM(INPUTDD) ON(1,12,CH)
```

12. VERIFY - prints a message identifying each invalid value found in decimal fields.

Syntax is

VERIFY FROM(INTMDD) ON(1343,4,PD)

Here's an example of the JCL and control statements for an ICETOOL job.

```
//EXAMP JOB A492,PROGRAMMER
//TOOL EXEC PGM=ICETOOL,REGION=1024K
//STEPLIB DD DSN=A492.SM,DISP=SHR
//TOOLMSG DD SYSOUT=A
//DFSMSG DD SYSOUT=A
//TOOLIN DD *
```

* Statistics from all branches

STATS FROM(ALL) ON(18,4,ZD) ON(28,6,PD) ON(22,6,PD)

* Books from VALD and WETH

SORT FROM(BKS) TO(DAPUBS,PRPUBS) USING(SPUB)

* Separate output for California and Colorado branches

SORT FROM(ALL) USING(CACO)

* California branches profit analysis

RANGE FROM(CADASD) ON(28,6,PD) HIGHER(-1500) LOWER(+8000)

* Branches with less than 32 employees

RANGE FROM(ALL) ON(18,4,ZD) LOWER(32)

* Print profit, employees, and city for each Colorado branch

DISPLAY FROM(CODASD) LIST(OUT) -

ON(28,6,PD) ON(18,4,ZD) ON(1,15,CH)

* Print a report for the Colorado branches

DISPLAY FROM(CODASD) LIST(RPT) -

DATE TITLE('Colorado Branches Report') PAGE -

HEADER('City') HEADER('Profit') HEADER('Employees') -

ON(1,15,CH) ON(28,6,PD) ON(18,4,ZD) BLANK -

TOTAL('Total') AVERAGE('Average') MINIMUM('Lowest')

* Print a report of books for individual publishers

DISPLAY FROM(DAPUBS) LIST(SECTIONS) -

TITLE('BOOKS FOR INDIVIDUAL PUBLISHERS') PAGE -

HEADER('TITLE OF BOOK') ON(1,35,CH) -

HEADER('PRICE OF BOOK') ON(170,4,BI,C1,F'\$') -

BTITLE('PUBLISHER:') BREAK(106,4,CH) -

BAVERAGE('AVERAGE FOR THIS PUBLISHER') -

BTOTAL('TOTAL FOR THIS PUBLISHER') -

AVERAGE('AVERAGE FOR ALL PUBLISHERS') -

TOTAL('TOTAL FOR ALL PUBLISHERS')

* Print the count of books in use from each publisher

OCCUR FROM(BKIN) LIST(PUBCT) BLANK -

TITLE('Books from Publishers') DATE(DMY.) -

HEADER('Publisher') HEADER('Books in use') -

ON(106,4,CH) ON(VALCNT)

* Separate output containing records for publishers

* with more than 4 books in use

```
SELECT FROM(BKIN) TO(BKOUT) ON(106,4,CH) HIGHER(4)
/*
//ALL DD DSN=A123456.SORT.BRANCH,DISP=SHR
//BKS DD DSN=A123456.SORT.SAMPIN,DISP=SHR
// DD DSN=A123456.SORT.SAMPADD,DISP=SHR
//DAPUBS DD DSN=&&DSRT,DISP=(,PASS),SPACE=(CYL,(2,2)),
// UNIT=SYSDA
//PRPUBS DD SYSOUT=A
//SPUBCNTL DD *
  SORT FIELDS=(106,4,A,1,75,A),FORMAT=CH
  INCLUDE COND=(106,4,EQ,C'VALD',OR,106,4,EQ,C'WETH'),
    FORMAT=CH
/*
//CACOCNTL DD *
  SORT FIELDS=(1,15,CH,A)
  OUTFIL FNAMES=(CADASD,CATAPE),INCLUDE=(16,2,CH,EQ,C'CA')
  OUTFIL FNAMES=(CODASD,COTAPE),INCLUDE=(16,2,CH,EQ,C'CO')
/*
//CADASD DD DSN=&&CA,DISP=(,PASS),SPACE=(CYL,(2,2)),
// UNIT=3390
//CATAPE DD DSN=CA.BRANCH,UNIT=3480,VOL=SER=111111,
// DISP=(NEW,KEEP),LABEL=(,SL)
//CODASD DD DSN=&&CO,DISP=(,PASS),SPACE=(CYL,(2,2)),
// UNIT=3390
//COTAPE DD DSN=CO.BRANCH,UNIT=3480,VOL=SER=222222,
// DISP=(NEW,KEEP),LABEL=(,SL)
//OUT DD SYSOUT=A
//RPT DD SYSOUT=A
//SECTIONS DD SYSOUT=A
//BKIN DD DSN=A123456.SORT.SAMPIN,DISP=SHR
//PUBCT DD SYSOUT=A
//BKOUT DD DSN=A123456.BOOKS1,DISP=(NEW,CATLG,DELETE),
// SPACE=(CYL,(3,3)),UNIT=3390
```