

Abstract

Do you create reports via mainframe? Use SAS® as the one stop shop for all your data manipulations. SAS® can efficiently read in data, create datasets without the need for multiple data steps and produce Excel reports without the need for edits. This poster is intended to help provide novice mainframe programmers with helpful tips to efficiently create reports using SAS® in the mainframe environment. Topics covered will be Replacing JCL with SAS® for Reading in Data, Efficient Merging for Efficient Programming, using PROC FREQ for Data Quality and PROC TABULATE for Superior Reporting.

Replacing JCL with SAS®

```
Syntax:
// EXEC SAS
//FILE1 DD DISP,SHR DSN=...
//FILE2 DD DISP,SHR DSN=...
//FILE3 DD DISP,SHR DSN= ...
..
..
//SYSIN DD *
OPTIONS MISSING=0 ERROR=1;
```

- **Read in multiple files at once**
- No need to specify file sizes
- No need for multiple naming conventions
- Manipulate data as needed in multiple data steps



Merging with Efficiency

```
Syntax:
DATA TEST1;
INFILE OLDFILE;
INPUT
  @001  ID      $CHAR9.
  @010  COMPONENT $CHAR2.
  @012  GROSS_ALL1    9.2
  @021  GROSS_BASIC1  9.2;

START=ID;
FMTNAME='FID';
LABEL='Y';
TYPE='C';

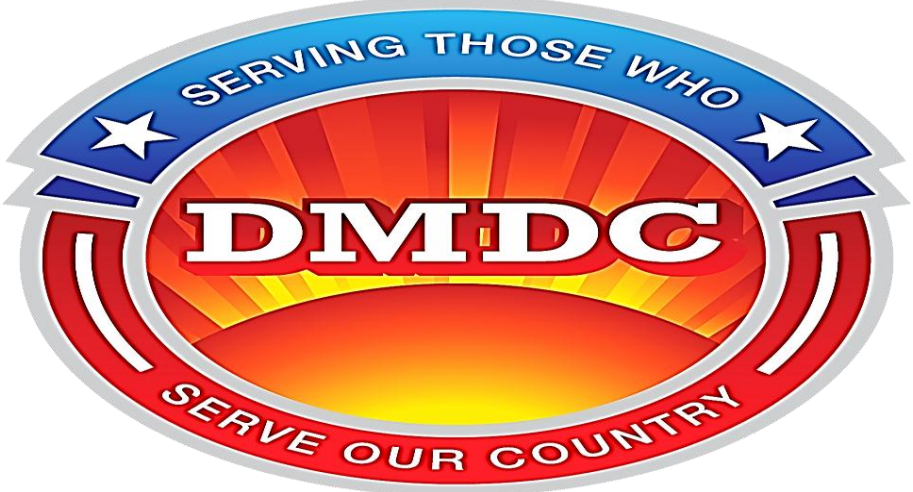
PROC SORT DATA=TEST1 NODUPKEY;
BY ID;

PROC FORMAT CNTLIN=TEST1;

DATA TEST2;
INFILE NEWFILE;
INPUT
  @001  ID      $CHAR9.@;
IF PUT(ID,$FID.)='Y';
```

- Using Format Libraries to create datasets vs. traditional Merging
- No need to create multiple datasets
- Dataset includes records that only match the KEY variable
- **Save CPU processing time**
- Best for small to large file merges

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Maintaining Data Quality

Use PROC FREQ to know:

- **How well are fields populated or unpopulated**
- Missing Data values
- Stratified Analysis on observations
- Distribution of categorical data values
- Statistical Tests or Measures

```
General syntax:
PROC FREQ options;
BY variable-list;
TABLES requests / options;
WEIGHT variable;
OUTPUT <OUT= SAS-data-set><output-statistic-list>;
FORMAT;
EXACT statistic-keywords < / computation-option >;
Example Output:
```

COMPONENT	FLAG1	Frequency
AG	EQUAL	270472
AV	EQUAL	141880
FG	EQUAL	78824
FV	EQUAL	58659
FV	NOT EQUAL	1
MV	NOT EQUAL	26630
NV	EQUAL	42561
NV	NOT EQUAL	1

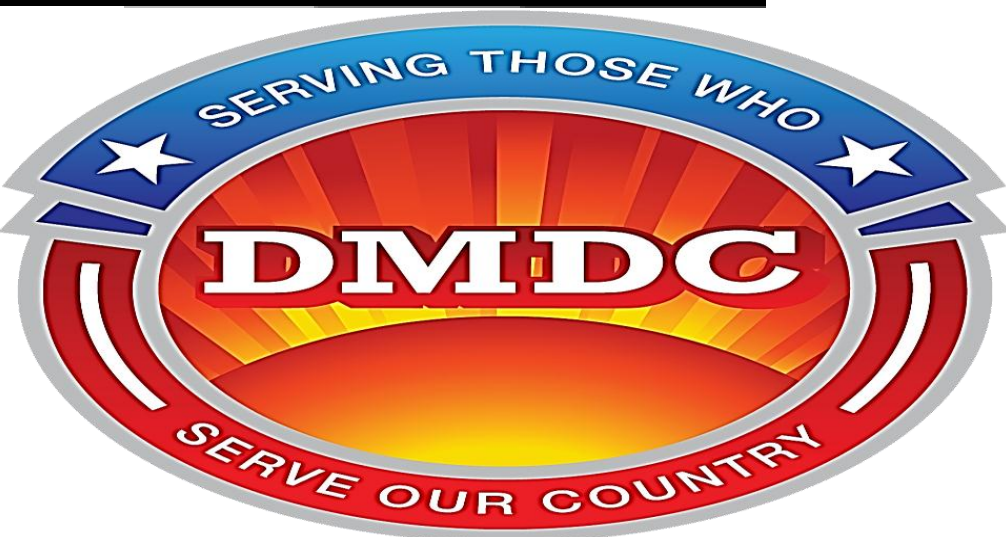
Superior Reporting

Use PROC TABULATE to:

- Tabulate your data with simplicity
- Compute a variety of statistics while neatly packaging the results
- Nest multiple variables in 1 table
- **Produce exact reports without the need for edits**
- Apply/Create standardized templates to any report

```
General Syntax:
PROC TABULATE <option-list>;
CLASS class-variable-list;
VAR analysis-variable-list;
TABLE <<page-expression,> row-expression,>
column-expression </ table-option-list>;
BY <NOTSORTED> <DESCENDING> variable-1
< ... <DESCENDING> variable-n>;
FORMAT variable-list-1 format-1
< ... variable-list-n format-n>;
FREQ variable;
KEYLABEL keyword-1='description-1'
< ... keyword-n='description-n'>;
LABEL variable-1='label-1' <...variable-n='label-n'>;
WEIGHT variable;
TITLE 'text';
```





## Results and Conclusion

Mainframe SAS® users are able to:

- Read in multiple datasets at once with ease
- Efficiently Merge while saving CPU processing time when going from small to large files:

One to One Merge	Format Library
4.94 CPU seconds	2.20 CPU seconds

- Understand the quality of their data by simply including PROC FREQ statements
- Create simple and complex tables for data visibility via PROC TABULATE

COMPONENT BY TOTAL GROSS OF INDIVIDUAL PAY ELEMENTS

SOURCE: RESERVE PAY FILES

SERVICE	TOTAL MEMBERS	TOTAL GROSS
ARNG	270,472	\$368,456,471
USAR	141,880	\$221,943,777
ANG	78,824	\$113,313,183
USAFR	58,660	\$90,600,144
USMCR	26,630	\$16,901,311
USNR	42,562	\$41,378,871

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