

VISION:Forms™

Tutorial

3.0.7



Computer Associates™

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How to Use VISION:Forms

Your data processing department has assigned a file name to each file that you might want to reference and has assigned a data name to each element of data in records of each file. These assignments have been built into the computer in the form of a VISION:Forms™ dictionary, and you have been provided with a listing of the dictionary.

You communicate your report needs to VISION:Forms by writing verbs that specify what you want done and data names to indicate to what data you want it done.

When your VISION:Forms program is read into the computer, the VISION:Forms program is executed, and your verbs and data names are analyzed to determine your requirements. Based on this analysis, a computer program is created and executed to produce your report.

The following hypothetical file layout helps to explain some of these concepts:

```

FILENAME:      PERSONNEL
DATANAME:      DIV    PLANT  DEPT  EMP-NR   NAME      PAY-GRADE
SAMPLE        02     01    10    1754    JONES, JOE    6
CONTENTS
              DT-EMPLYD      ED-LVL      NR-DEP      MO-DED
              880411        12          2           123.45
              (YYMMDD)

```

Dictionary Entries

Data Name	Record Location
DIV	0001-0002
PLANT	0003-0004
DEPT	0005-0006
EMP-NR	0007-0010
NAME	0011-0040

Data Name	Record Location
PAY-GRADE	0041-0041
DT-EMPLYD	0042-0047
ED-LVL	0048-0049
NR-DEP	0050-0050
MO-DED	0051-0057-P

Through examples of increasing complexity, we now briefly introduce you to some of the VISION:Forms verbs.

Example 1

If you wanted to print a list of everyone in the company, you need only identify the file and what you want to print from each record.

```
FILENAME PERSONEL  
PRINT NAME
```

This illustrates the FILENAME verb that you must code into every VISION:Forms program to identify the file you are using. The PRINT verb is used to specify what data you want to appear in the report.

Notice in the following report that the data name, NAME, is used as the report column heading at the top of each report page.

```

11/01/93                                PAGE 1
.....NAME.....
HERALD, JO ANNE
SORENSEN, ALAN MICHAEL
MCDANIEL, DOUGLAS ALLEN
GREENE, SAMUEL EDWARD
WEBB, CONSTANCE
SORENSEN, JOSEPH P.
LEHRNER, DAVID MICHAEL
MICHAELSON, JULIA MARIE
JONES, Lyla MARIE
SMITH, THOMAS ALAN
MOORE, ANDREA MICHELLE
ATWATER, SCOTT FRANCIS
WEBB, JAMES DAVID
WEBSTER, ANDREA KAY
MCDANIEL, LINDA
WINTERS, MICHELLE
DAVIDSON, JENNIFER LYNN
JACKSON, DAVID
JOHNSON, STEVEN
MILLER, SUSAN MICHELLE
MORREL, DOUGLAS DAVID
STEVENS, CHAD
SMITH, MARY JANE

```

Example 2

Should you want the same report as the previous one, but consisting only of employees in department 12, you would just add a `SELECT` statement to the code as noted below:

```

FILENAME PERSONEL
SELECT DEPT EQUAL-TO '12'
PRINT NAME

```

The `SELECT` verb examines each record on the file and ignores those records that do not satisfy your selection criteria. In this example, the `DEPT` field in each record would be examined to see if it contains the number 12. If a 12 is present, the record is selected for your `VISION:Forms` report. If it does not contain a 12, the computer skips to the next record.

```

11/01/93                                PAGE 1
.....NAME.....
GREENE, SAMUEL EDWARD
WEBB, CONSTANCE
SORENSEN, JOSEPH P.
LEHRNER, DAVID MICHAEL
HERALD, JO ANNE
MICHAELSON, JULIA MARIE

```

Example 3

There are occasions when you want to report data that is not available in the records but can be calculated. Let's say you want to print the annual salary deductions, but only monthly deductions (MO-DED) are available. By adding a CALC verb to the program, you can do the necessary arithmetic.

```
FILENAME PERSONEL
SELECT DEPT EQUAL-TO '12'
CALC AN-DED EQUALS MO-DED TIMES 12
PRINT NAME AN-DED MO-DED
```

In the program, we have also changed the PRINT statement so that both AN-DED and MO-DED are printed for each employee.

```
11/01/93 PAGE 1
```

.....NAME.....	ANDED	MONTHLY DEDUCTIONS
GREENE, SAMUEL EDWARD	1,881.00	156.75
WEBB, CONSTANCE	2,272.08	189.34
SORENSEN, JOSEPH P.	3,752.04	312.67
LEHRNER, DAVID MICHAEL	3,752.04	312.67
HERALD, JO ANNE	1,282.36	106.78
MICHAELSON, JULIA MARIE	3,103.68	258.64

Example 4

A file of this type would normally have the records grouped by department number and by employee number within department. The reports we have produced to this point print each record in this same sequence. Frequently, the required sequence for the report is not the standard sequence of the file. Suppose you need a report in pay grade sequence; just add the SORT verb.

```
FILENAME PERSONEL
SELECT DEPT EQUAL-TO '12'
CALC AN-DED EQUALS MO-DED TIMES 12
SORT PAY-GRADE
PRINT PAY-GRADE NAME AN-DED MO-DED
```

The SORT verb rearranges the selected records based on the contents of the field you specify. In this case, the sorted file would start with those records that contain PAY-GRADE 1. These would be followed by those with PAY-GRADE 2, and so forth. Descending sort sequence is also available.

11/01/93		PAGE 1
PAY	AN	MONTHLY
GRADE	NAME..... DED	DEDUCTIONS
6	GREENE, SAMUEL EDWARD	1,881.00 156.75
6	WEBB, CONSTANCE	2,272.08 189.34
6	SORENSEN, JOSEPH P.	3,752.04 312.67
6	LEHRNER, DAVID MICHAEL	3,752.04 312.67
7	HERALD, JO ANNE	1,281.36 106.78
7	MICHAELSON, JULIA MARIE	258.64 3,103.68

Example 5

You have seen, in the preceding examples, that the date and page number appear at the top of each page. However, you might want a title at the top of each page. The TITLE verb provides the information to be used. The title is centered between the date and page number.

It could also be necessary to tear the report apart between pay grades so that several clerks can each work on a separate pay grade grouping. Because your report is to be grouped by pay grade, you can cause each pay grade to start at the top of a new page by using the NEWPAGE verb.

```
FILENAME PERSONEL
SELECT DEPT EQUAL-TO '12'
CALC AN-DED EQUALS MO-DED TIMES 12
SORT PAY-GRADE
NEWPAGE PAY-GRADE
PRINT PAY-GRADE NAME AN-DED MO-DED
TITLE 'PAY GRADE DEDUCTION SUMMARY'
```

NEWPAGE examines the PAY-GRADE field in each record. When the value of PAY-GRADE changes, the report skips to the next page and continues the report with the new PAY-GRADE, complete with all the column headings.

11/01/93	PAY GRADE DEDUCTION SUMMARY	PAGE 1
PAY	AN	MONTHLY
GRADE	NAME..... DED	DEDUCTIONS
6	GREENE, SAMUEL EDWARD	1,881.00 156.75
6	WEBB, CONSTANCE	2,272.08 189.34
6	SORENSEN, JOSEPH P.	3,752.04 312.67
6	LEHRNER, DAVID MICHAEL	3,752.04 312.67

11/01/93	PAY GRADE DEDUCTION SUMMARY	PAGE 2
PAY	AN	MONTHLY
GRADE	NAME..... DED	DEDUCTIONS
7	HERALD, JO ANNE	1,281.36 106.78
7	MICHAELSON, JULIA MARIE	258.64 3,103.68

Example 6

Up to this point, we have been planning a straightforward listing of the contents of selected records. In many cases, however, you might want to total counts and/or amounts and print out those totals at the end of certain groups. Two verbs are available:

```
TOTAL dataname...dataname
```

When you code a TOTAL verb followed by data names, you advise VISION:Forms to keep a running total of the contents of the data name field(s) in each selected record.

```
BREAK dataname...dataname
```

A break occurs when VISION:Forms recognizes that the contents of a data name field have changed. This recognition happens after the last record of group 1 has been processed and before the first record of group 2 is processed.

VISION:Forms uses these two verbs together to achieve reporting with totals. This is illustrated in the following example:

```
FILENAME PERSONEL
SELECT DEPT EQUAL-TO '12'
CALC AN-DED EQUALS MO-DED TIMES 12
SORT PAY-GRADE
NEWPAGE PAY-GRADE
PRINT DIV DEPT PAY-GRADE NAME AN-DED MO-DED
TITLE 'PAY GRADE DEDUCTION SUMMARY'
TOTAL AN-DED MO-DED
BREAK PAY-GRADE
```

Remembering that the selected records have now been sorted by PAY-GRADE, this program keeps running totals on AN-DED and MO-DED. When the contents of PAY-GRADE change, VISION:Forms pauses and prints the totals for the finishing PAY-GRADE group and starts running totals for the next PAY-GRADE group.

```

11/01/93                PAY GRADE DEDUCTION SUMMARY                PAGE 1
      DEPARTMENT PAY
DIVISION NUMBER GRADE .....NAME.....      AN MONTHLY
      DED DEDUCTIONS
      07      12      6 GREENE, SAMUEL EDWARD 1,881.00 156.75
      09      12      6 WEBB, CONSTANCE 2,272.08 189.34
      09      12      6 SORENSON, JOSEPH P. 3,752.04 312.67
      17      12      6 LEHRNER, DAVID MICHAEL 3,752.04 312.67
GROUPCOUNT IS 4 FOLLOWING TOTALS ARE FOR PAY-GRADE 6
                                     11,657.16 971.43
    
```

```

-----
11/01/93                PAY GRADE DEDUCTION SUMMARY                PAGE 2
      DEPARTMENT PAY
DIVISION NUMBER GRADE .....NAME.....      AN MONTHLY
      DED DEDUCTIONS
      16      12      7 HERALD, JO ANNE 1,281.36 106.78
      17      12      7 MICHAELSON, JULIA MARIE 3,103.68 258.64
GROUPCOUNT IS 2 FOLLOWING TOTALS ARE FOR PAY-GRADE 7
                                     4,385.04 365.42
    
```

```

-----
11/01/93                PAY GRADE DEDUCTION SUMMARY                PAGE 3
      DEPARTMENT PAY
DIVISION NUMBER GRADE .....NAME.....      AN MONTHLY
      DED DEDUCTIONS
GROUPCOUNT IS 6 FOLLOWING TOTALS ARE FINAL TOTALS
                                     16,042.20 1,336.85
    
```

Example 7

There are cases where your selection criteria values change from one execution of a VISION:Forms program to the next. In the PERSONEL file, you might have 60 departments in your company and want the same report but on a different group of departments every time you run the job.

To achieve this, you would include table data, one statement per department to report on, and would change the VISION:Forms code to include this table.

```

FILENAME PERSONEL
SELECT DEPT ON-TABLE
CALC AN-DED EQUALS MO-DED TIMES 12
SORT PAY-GRADE
NEWPAGE PAY-GRADE
PRINT DIV DEPT PAY-GRADE NAME AN-DED MO-DED
TITLE 'PAY GRADE DEDUCTION SUMMARY'
TOTAL AN-DED MO-DED
BREAK PAY-GRADE
QWTABLE 0010 01 02
TABLE DATA
07
12
15
36
47
    
```

Example 8

11/01/93		PAY GRADE DEDUCTION SUMMARY			PAGE 1
DIVISION	DEPARTMENT NUMBER	PAY GRADE	NAME	AN DED	MONTHLY DEDUCTIONS
07	15	6	JONES, LYLA MARIE	1,267.68	105.64
07	12	6	GREENE, SAMUEL EDWARD	1,881.00	156.75
07	15	6	MOORE, ANDREA MICHELLE	1,081.56	90.13
07	15	6	ATWATER, SCOTT FRANCIS	1,350.00	112.50
09	12	6	WEBB, CONSTANCE	2,272.08	189.34
09	12	6	SORENSEN, JOSEPH P	3,752.04	312.67
17	15	6	WEBSTER, ANDREA KAY	2,272.08	189.34
17	12	6	LEHRNER, DAVID MICHAEL	3,752.04	312.67
14	15	6	MCDANIEL, LINDA	2,227.32	185.61
12	15	6	WINTERS, MICHELLE	2,467.56	205.63
GROUPCOUNT IS	10	FOLLOWING TOTALS ARE FOR PAY-GRADE			6
				22,323.35	1,860.28

11/01/93		PAY GRADE DEDUCTION SUMMARY			PAGE 2
DIVISION	DEPARTMENT NUMBER	PAY GRADE	NAME	AN DED	MONTHLY DEDUCTIONS
12	36	7	JOHNSON, STEVEN	1,544.88	128.74
14	47	7	STEVENSON, CHAD	3,081.36	256.78
15	12	7	HERALD, JO ANNE	1,281.36	106.78
15	36	7	DAVIDSON, JENNIFER LYNN	1,250.16	104.18
16	36	7	MORREL, DOUGLAS DAVID	1,760.64	146.72
16	07	7	SORENSEN, ALAN MICHAEL	2,556.96	213.08
17	12	7	MICHAELSON, JULIA MARIE	3,103.68	258.64
09	07	7	WEBB, JAMES DAVID	3,103.68	258.64
12	36	7	JACKSON, DAVID	1,254.60	104.55
08	47	7	SMITH, MARY JANE	1,281.36	106.78
08	36	7	MILLER, SUSAN MICHELLE	1,251.16	104.18
08	36	7	MCDANIEL, DOUGLAS ALLEN	1,760.64	146.72
08	07	7	SMITH, THOMAS ALAN	2,556.96	213.08
GROUPCOUNT IS	13	FOLLOWING TOTALS ARE FOR PAY-GRADE			7
				25,787.44	2,148.87

11/01/93		PAY GRADE DEDUCTION SUMMARY			PAGE 3
DIVISION	DEPARTMENT NUMBER	PAY GRADE	NAME	AN DED	MONTHLY DEDUCTIONS
GROUPCOUNT IS	23	FOLLOWING ARE FINAL TOTALS			
				48,110.79	4,009.15

Example 8

Up to this point, we have written various VISION:Forms examples, but each one has created a report based on only a single file. Frequently, one file simply does not contain all the necessary information to produce the report wanted.

Suppose our example report is to include the employee's telephone number. A quick glance at the PERSONEL file layout shows that the telephone number is not included in this file. However, after checking with the data processing department, we learn that the information is included in another file, EMPLADDR.

The EMPLADDR file contains the telephone number and address information for each employee, along with his/her employee number. Data processing has defined this file as a KSDS VSAM file with EMPLOYEE-NR assigned as its key.

```

FILENAME:  EMPLADDR      MEDIA: KSDS
DATANAME:  EMPLOYEE-NR  TELEPHONE      ADDRESS      ZIP-CODE
SAMPLE
CONTENTS   1754          212-555-5512  100 E. MAIN  34589

```

Dictionary Entries

Data Name	Record Location
EMPLOYEE-NR	0001-0004
TELEPHONE	0005-0014 T
ADDRESS	0015-0034
ZIP-CODE	0035-0039

VISION:Forms has a FIND verb that can be used in these instances. FIND allows you to use the contents of a field in the primary file, PERSONEL, to find a matching record on the secondary file, EMPLADDR. FIND functions on any KSDS file as long as the data name being used was set up as the file's key.

After VISION:Forms finds the matching record, the fields in both files are available for your report. We can now alter our last VISION:Forms example so that it can find and print each employee's telephone number.

```

FILENAME PERSONEL EMPLADDR
SELECT DEPT ON-TABLE
FIND EMP-NR IN EMPLADDR
CALC AN-DED EQUALS MO-DED TIMES 12
SORT PAY-GRADE
NEWPAGE PAY-GRADE
PRINT DIV DEPT PAY-GRADE NAME TELEPHONE AN-DED MO-DED
TOTAL AN-DED MO-DED
BREAK PAY-GRADE
TITLE 'PAY GRADE DEDUCTION SUMMARY'
QTABLE 0010 01 02
TABLE DATA
07
12
15
36
47
    
```

Example 9

Although the FIND verb provides some multiple file capabilities, it does not answer every need. FIND can be used only on a one-to-one matching basis. Sometimes your secondary files can have more than one matching record. Let's continue with our VISION:Forms example and make a few more changes.

Suppose your report needs to show the total salary paid in 1992. Salary, being classified information, is contained in yet a third file called PAYHIST. PAYHIST contains one record for each year that an employee has been with the company. For example, an employee on the payroll for five years has five records, one for each year.

```

FILENAME:      PAYHIST          MEDIA: KSDS
DATANAME:      PAY-EMPL-NR     DATE-HIRED   YEAR-ENDING   SALARY
SAMPLE
CONTENTS          1754         02/12/83    12/31/92    18,500.00
    
```

Dictionary Entries

Data Name	Record Location
PAY-EMPL-NR	0001-0004
DATE-HIRED	0005-0010 D
YEAR-ENDING	0011-0016 D
ENDING-MO	0011-0012
ENDING-DAY	0013-0014

Data Name	Record Location
ENDING-YEAR	0015-0016
SALARY	0017-0020-P2C2

Notice that the files have one field in common. Both the PERSONEL and PAYHIST files contain a field containing employee number. These fields can be used to match the files.

The MATCH verb functions by locating the first matching record on the secondary file. You have access to fields from both matched records.

After processing a set of records, MATCH gets the next matching record on the secondary file. Again, you will have access to fields from both files. This process gives you the most flexibility, but be careful if you are totaling a field in your primary file. That record is processed once for each matching record on the secondary file.

Once your files are matched, you have the capability to MSELECT (MATCH SELECT) either the matched records or the unmatched records. In the following example, we want only matched records. If an employee has no records on the PAYHIST file, that person must be a new employee and, thus, should not be selected for this report.

```

FILENAME PERSONEL EMPLADDR PAYHIST
MATCH ON EMP-NR TO PAYHIST USING PAY-EMPL-NR
MSELECT MATCHED
SELECT ENDING-DATE = '92'
SELECT DEPT ON-TABLE
FIND EMP-NR IN EMPLADDR
SORT PAY-GRADE
NEWPAGE PAY-GRADE
PRINT DIV DEPT PAY-GRADE NAME TELEPHONE SALARY
TOTAL SALARY
BREAK PAY-GRADE
TITLE 'PAY GRADE DEDUCTION SUMMARY'
QTABLE 0010 01 02
TABLE DATA
07
12
15
36
47

```

11/01/93 PAY GRADE DEDUCTION SUMMARY PAGE 1

DEPARTMENT PAY				
DIVISION NUMBER	GRADE	NAME	TELEPHONE	SALARY
07	15	6 JONES, LYLA MARIE	333-555-1918	13,825.00
07	12	6 GREENE, SAMUEL EDWARD	513-555-9843	12,025.00
07	15	6 MOORE, ANDREA MICHELLE	312-555-5568	10,698.00
07	15	6 ATWATER, SCOTT FRANCIS	222-555-4520	9,903.00
09	12	6 WEBB, CONSTANCE	223-555-7767	11,650.00
09	12	6 SORENSON, JOSEPH P	224-555-7520	9,525.85
17	15	6 WEBSTER, ANDREA KAY	225-555-9514	10,422.00
17	12	6 LEHRNER, DAVID MICHAEL	513-555-1696	11,938.00
14	15	6 MCDANIEL, LINDA	614-555-1784	12,125.00
12	15	6 WINTERS, MICHELLE	919-555-2239	12,375.00
GROUPCOUNT IS	10	FOLLOWING TOTALS ARE FOR PAY-GRADE 6		114,486.85

11/01/93 PAY GRADE DEDUCTION SUMMARY PAGE 2

DEPARTMENT PAY				
DIVISION NUMBER	GRADE	NAME	TELEPHONE	SALARY
12	36	7 JOHNSON, STEVEN	213-555-2239	18,455.00
14	47	7 STEVENSON, CHAD	919-555-2239	19,500.00
16	12	7 HERALD, JO ANNE	513-555-2239	15,753.00
16	36	7 DAVIDSON, JENNIFER LYNN	419-555-2239	14,980.00
16	36	7 MORREL, DOUGLAS DAVID	416-555-2239	22,375.00
16	07	7 SORENSON, ALAN MICHAEL	614-555-2239	17,699.00
17	12	7 MICHAELSON, JULIA MARIE	713-555-2239	15,344.00
09	07	7 WEBB, JAMES DAVID	970-555-2239	20,335.00
12	36	7 JACKSON, DAVID	503-555-2239	15,108.00
08	47	7 SMITH, MARY JANE	302-555-2239	18,475.00
08	36	7 MILLER, SUSAN MICHELLE	212-555-2239	20,333.00
08	36	7 MCDANIEL, DOUGLAS ALLEN	513-555-2239	21,347.00
08	07	7 SMITH, THOMAS ALAN	212-555-2239	19,845.00
GROUPCOUNT IS	13	FOLLOWING TOTALS ARE FOR PAY-GRADE 7		239,549.00

11/01/93 PAY GRADE DEDUCTION SUMMARY PAGE 3

DEPARTMENT PAY				
DIVISION NUMBER	GRADE	NAME	TELEPHONE	SALARY
GROUPCOUNT IS	23	FOLLOWING ARE FINAL TOTALS		354,035.85

Contacting Computer Associates

For further technical assistance with this product, contact Computer Associates Technical Support on the Internet at esupport.ca.com. Technical support is available 24 hours a day, 7 days a week.



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