

HP Inform/V User's Guide

 HEWLETT
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INFORM/V

User's Guide



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PREFACE

The INFORM/V User's Guide serves as primary documentation for the INFORM/V report writer software.

The first ten sections of this guide, like the software they describe, are designed to be used by people who have had limited exposure to databases and may have had some experience extracting data from databases or files. Users are not expected to be programmers or to have more than a rudimentary knowledge of data structures.

Section 11 is much more technical in nature. It documents the DICTONARY/V commands that are used to set up INFORM/V groups and security. This section is designed for use by database administrators, and assumes that the reader has prior experience using DICTONARY/V.

Those who are new to INFORM/V are encouraged to use the *INFORM/V Self-Paced Training Course (32246-90003)* when learning how to use the product.

If the capabilities of INFORM/V do not give you sufficient scope to serve more complex reporting requirements, Hewlett-Packard offers a utility program that will convert existing INFORM/V report definitions to REPORT/V programs. Once the definitions have been converted, they can then be expanded or tailored as necessary. See the *REPORT/V User's Guide (32245-90001)* for documentation of the conversion program.

CONVENTIONS USED IN THIS GUIDE

NOTATION

DESCRIPTION

CAPITALS

Examples of computer interaction are shown in capital letters. Words that are not underlined represent messages or prompts from the computer. For example:

TYPE A NUMBER>

UNDERLINING

Underlining is used to identify what the user enters. For example, in the line

NEW NAME? ALPHA

the computer prints NEW NAME? and the user types ALPHA.

italics

Words in examples that are in lower case italics are general terms which, in real interaction, would be replaced by a specific word or phrase. For example, in

CLOSE *filename*

the word CLOSE would appear exactly as shown, but *filename* would be replaced by the name of a file.

[]

An element inside brackets is optional.

...

A horizontal ellipsis in an example indicates that a previous element may be repeated. For example,

itemname[,*itemname*]...

means that you can enter several item names, separated by commas. In addition, vertical and horizontal ellipses may be used in examples to indicate that portions of the example have been omitted.

RETURN

This symbol represents the return key on the terminal keyboard.

CONTROLY

This symbol means that the user presses the control key and the character Y simultaneously.

CONTENTS

Section 1

INTRODUCTION TO INFORM/V

Five Easy Steps to Produce A Simple Report	1-1
Communicating with INFORM/V	1-3
Entering INFORM/V	1-3
INFORM/V Security Password	1-3
INFORM/V Menus	1-3
Prompts	1-4
Responses	1-5
Carriage Return	1-5
Errors	1-6
Characters & Keys that Control Execution	1-6
Exiting from INFORM/V	1-7

Section 2

DEFINING A REPORT

The Data Organization Menu	2-4
Selecting Data from an INFORM/V Group	2-5
Option 1: Display Group Names	2-5
Option 2: Select a Group	2-8
Selecting Data from a Database	2-10
Option 3: Display Database Names	2-10
Option 4: Select a Database	2-12
The Data Names Menu	2-14
Defining the Report	2-15
Specifying the Report Title	2-16
If You Want to Produce the Report	2-16
If You Do Not Want To Produce the Report	2-17

CONTENTS (continued)

Section 3

PRODUCING OR PREVIEWING THE REPORT

Producing a Report from the Data Names Menu	3-1
Producing the Report Interactively.	3-1
Batch Mode	3-5
Producing a Report from the Main Menu	3-8
Previewing the Report Layout	3-9

Section 4

USING THE REPORT CATALOG

The Current Report	4-1
Adding the Report Definition to the Catalog	4-2
Displaying the Report Catalog	4-4
Selecting a Report Definition	4-7
Deleting a Report Definition from the Catalog	4-9
Changes to Underlying Data Sets or Files	4-11
Missing Data Names	4-11
Renumbered Data Names.	4-11

Section 5

SORTING, SUBDIVIDING, SUMMARIZING

Sorting	5-2
Subdividing	5-5
Summarizing	5-7
Report Summary.	5-11
Summary-Only Reports.	5-14

CONTENTS (continued)

Section 6

SELECTION CRITERIA

The First Step	6-1
The Second Step	6-2
General Forms for Selection Criteria	6-4
Selection Using a Wild Card	6-4
Selection Using a Comparison Operator	6-5
Connectors in Selection Criteria	6-6
Data-Name to Data-Name Comparison	6-8

Section 7

CREATING YOUR OWN DATA NAMES

Defining a Data Name	7-1
Defining the Computational Expression.	7-2
Defining the Edit Mask.	7-3
Computational Expressions.	7-6
Edit Masks.	7-6

Section 8

REPORT FORMAT OPTIONS AND BATCH JOB OPTIONS

Formatting Prompts.	8-3
Batch Options.	8-5

Section 9

VARIABLES IN REPORT TITLES

Section 10

MODIFYING A REPORT DEFINITION

CONTENTS (continued)

Section 11 TECHNICAL ADMINISTRATION

Establishing INFORM/V Groups	11-1
Creating a Group from a File	11-4
Creating a Group from Two Files or Data Sets	11-8
Creating a Group from Three or More Files	11-13
Linking Files	11-15
Direct Links	11-15
Indirect Links	11-19
How INFORM/V Picks the Driving File	11-21
How INFORM/V Links Files	11-26
Default File Access	11-27
INFORM/V Security	11-27
Establishing Security for a Database (Without Groups)	11-29
Relationship of INFORM/V Security to Groups	11-41
Summary of Security Commands	11-48

Appendix A STACKING RESPONSES TO PROMPTS

Appendix B FILES USED BY INFORM/V

Names of Files	B-1
File Locations	B-2

CONTENTS (continued)

Appendix C
LIMITS

Appendix D
ERROR MESSAGES

Appendix E
GLOSSARY

Appendix F
INDEX TO PROMPTS

INTRODUCTION TO INFORM/V

SECTION

1

INFORM/V is an on-line report generator that makes information retrieval quick and easy for managers and other business people who need quick access to their data. The simple interactive menus allow people to get at their data, and to view that data in meaningful ways, without having to request costly and time-consuming programming.

INFORM/V has many key features that make management report-writing quick and simple:

- Report definitions are easy to create, by means of one-key responses to prompts, and can be easily modified.
- Reports can be produced immediately during a single terminal session.
- Report definitions can be saved for future use.
- Report formatting is automatic.
- You can get summary-only reports.
- On-line training makes it very easy to learn INFORM/V.

Five Easy Steps to Produce A Simple Report

INFORM/V is a **menu-driven** system. This means that you create reports by responding to a series of questions, or prompts, printed on the screen by INFORM/V. You do not even have to be a good typist, as most of your answers can be single letters or numbers.

The first menu you see when you run INFORM/V is the Main Menu. This menu contains ten options; among them are: define a report, produce a report, modify a report definition, and preview the report layout. In turn, each of these ten options calls up other menus and prompts.

Introduction to INFORM/V

It only takes five easy steps to produce a report with INFORM/V:

1. On the Main Menu, choose option 1, which stands for DEFINE A REPORT.
2. Tell INFORM/V what data structure -- database or INFORM/V Group -- you want to report from. Your database administrator will tell you whether you are reporting from Groups or databases.
3. Tell INFORM/V the name of the specific database or group from which you want data.
4. Tell INFORM/V what data you want by typing in a series of numbers. The menu lists the data names that are available, and you enter the numbers for the ones you want.
5. Tell INFORM/V whether you want the report displayed at the terminal or printed by the printer.

In addition to these basic reporting steps, INFORM/V also includes powerful optional features to enhance the reports and make them even more meaningful for you.

- You can sort the data in ascending or descending sequence, and can subdivide it for readability.
- You can get several kinds of summaries (totals, averages, counts, maximums, and minimums) on the subgroups of data within the reports.
- You can limit or restrict the data you retrieve: for example, you might get sales data for one district instead of the whole organization, or you might get a list of customers whose account balance is above a certain amount.
- If you choose, you can control certain format specifications, such as page size, printing of heading or title line, etc.

Communicating with INFORM/V

The following paragraphs tell you how to enter and leave INFORM/V, and also offer a few basic guidelines that will help you in responding to INFORM/V prompts.

Entering INFORM/V

After logging on, you gain access to the INFORM/V program by typing the following command in response to the MPE/V colon prompt:

```
:RUN INFORM.PUB.SYS
```

When this command is accepted, INFORM/V is in control.

INFORM/V Security Password

If a password is required, INFORM/V will prompt you for it as follows:

```
TYPE YOUR INFORM PASSWORD>
```

You must enter the password exactly as it was communicated to you: capitals for capitals, lower case for lower case.

INFORM/V Menus

After you have entered the correct password (if one is required), INFORM/V immediately displays the Main Menu (see Figure 1-1). This is the starting point for all INFORM/V activities.

The first line is the same on all INFORM/V menus, but it will differ slightly from that shown in Figure 1-1. The letters v.uu.ff will be replaced by the number of the INFORM/V version that you are using.


```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986
```

```
INFORM OPTIONS:
```

- 1: DEFINE A REPORT
- 2: DISPLAY REPORT CATALOG
- 3: SELECT A REPORT DEFINITION
- 4: PREVIEW REPORT LAYOUT
- 5: PRODUCE THE REPORT
- 6: ADD REPORT DEFINITION TO CATALOG
- 7: DELETE A REPORT DEFINITION FROM CATALOG
- 8: SET FORMAT OPTIONS
- 9: MODIFY THE REPORT
- 10: EXIT FROM INFORM/V

```
TYPE AN OPTION NUMBER>
```

Figure 1-1. Main Menu

Many INFORM/V menus are similar to the Main Menu in that they contain a numbered list from which you must make a selection.

Prompts

All INFORM/V menus contain prompts, or questions, to which you respond. The first prompt on the Main Menu is

```
TYPE AN OPTION NUMBER>
```

Prompts always end with a greater-than sign (>) and the cursor is always to the right of the prompt. Frequently, a single menu may include several prompts which are displayed one at a time.

Responses

Responses to prompts may be numbers, such as an option number you pick from the Main Menu, single letters, or words, as for a report title. A carriage return (**RETURN**) is also considered to be a response and is described below.

Although the examples throughout this guide are shown in upper case letters, you can use either upper or lower case in all the material you enter, with one exception. Passwords, whenever they are requested, must be typed exactly as they were communicated to you: upper case for upper case and lower case for lower case.

Carriage Return

After you select an option (from the Main Menu, for example), you press **RETURN**. Because the information you type in response to the prompts is not recognized by INFORM/V until you press **RETURN**, you can correct mistakes at any time up until that point by backspacing and retyping.

You can sometimes specify information by pressing **RETURN** only. This is true when INFORM/V supplies a **default value**--a preprogrammed response to the prompt. For example, in the prompt

```
RETURN TO CURRENT DATA NAMES MENU(Y/N)?>
```

the default answer is Y (yes). That is the answer INFORM/V assumes if you simply press **RETURN** in response to the question.

By the same token, in the prompt,

```
DISPLAY OR PRINT(D/P)?>
```

the default is D, and that is the response you specify by entering **RETURN** alone.

If there are two values in parentheses in the prompt, the first value is always the default. If one value is given in the prompt, that is the default. After you learn to use INFORM/V, you will find you can work much faster by using **RETURN** to enter default values.

Introduction to INFORM/V

Errors

INFORM/V checks each answer you enter to see if it is appropriate. If it is not, INFORM/V displays an error message. The error messages from INFORM/V are generally self-explanatory and are followed by a prompt telling you what to do next. For example, if you make a mistake entering a database name, INFORM/V will print the message

```
BASE DOES NOT EXIST IN DICTIONARY
```

```
TYPE 'RETURN' KEY TO CONTINUE
```

When you press **RETURN**, INFORM/V returns you to the Main Menu.

You may occasionally see error messages from the operating system or from other software used by INFORM/V. If you see an error message that you do not understand, refer to Appendix B, which contains an alphabetical list of error messages and a brief explanation of each. If Appendix B does not solve the problem, talk with your database administrator.

Characters & Keys that Control Execution

If INFORM/V prompts you for an entry and you respond with only a **RETURN**, one of two things will happen:

- If there is a default value for the prompt, INFORM/V assumes the default value and presents the next prompt.
- If there is no default value for the prompt, INFORM/V will redisplay the preceding prompt so that you can change the value you entered there.

Entering one right bracket (]) terminates the current operation and returns you to the previous prompt.

Entering two right brackets (]]) terminates the current operation and returns you to the menu that is in control of the current operation.

CONTROLY causes an operation break and returns you to the Main Menu. To generate **CONTROL**Y, press the CONTROL (CNTL or CTRL) key and hold it down while you press Y.

Exiting from INFORM/V

To exit from INFORM/V, return to the Main Menu. Type 10 and press **RETURN** to select the EXIT FROM INFORM/V option, as shown in Figure 1-2. MPE/V responds with the following message:

```
END OF PROGRAM
```

and you will see the system prompt.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

INFORM OPTIONS:

    1: DEFINE A REPORT
    2: DISPLAY REPORT CATALOG
    3: SELECT A REPORT DEFINITION
    4: PREVIEW REPORT LAYOUT
    5: PRODUCE THE REPORT
    6: ADD REPORT DEFINITION TO CATALOG
    7: DELETE A REPORT DEFINITION FROM CATALOG
    8: SET OPTIONS
    9: MODIFY THE REPORT
   10: EXIT FROM INFORM/V

TYPE AN OPTION NUMBER> 10

END OF PROGRAM

:
```

Figure 1-2. Exiting from INFORM/V

DEFINING A REPORT

SECTION

2

The steps required to define a simple report can be summarized as follows:

- Choose option 1, DEFINE A REPORT, on the Main Menu.
- Tell INFORM/V whether you will use data from a Group or a database, and supply the name of that Group or base.
- Choose the names of data items that you want to include in the report.
- Provide a title for the report.

Figure 2-1 represents the menus that are used in the process of defining a report. Beginning on the Main Menu, you call up the Data Organization Menu, then either the Group or Database Menu, depending on where your data is located, and finally the Data Names Menu, where you decide what data to include in the report.

These menus, and the details of moving through them, are the subject of the following paragraphs.

Defining a Report

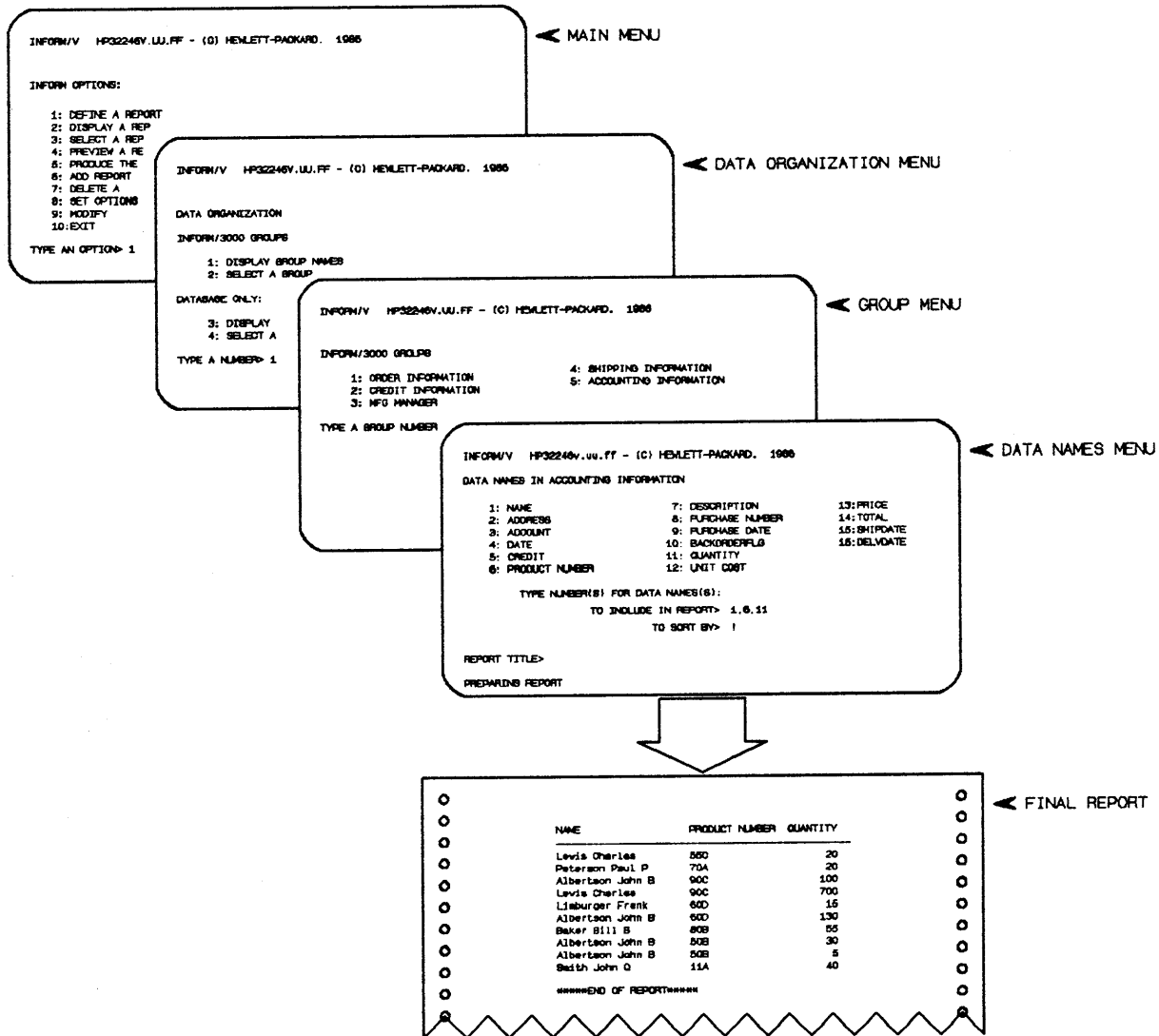


Figure 2-1. The Menus Used in Defining a Report

After you have gained access to the INFORM/V program (and entered the necessary passwords), INFORM/V displays the Main Menu, shown in Figure 2-2.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

INFORM OPTIONS:

    1: DEFINE A REPORT
    2: DISPLAY REPORT CATALOG
    3: SELECT A REPORT DEFINITION
    4: PREVIEW REPORT LAYOUT
    5: PRODUCE THE REPORT
    6: ADD REPORT DEFINITION TO CATALOG
    7: DELETE A REPORT DEFINITION FROM CATALOG
    8: SET OPTIONS
    9: MODIFY THE REPORT
   10: EXIT FROM INFORM/V

TYPE AN OPTION NUMBER>  1
```

Figure 2-2. The Main Menu -- Choosing to Define a Report

To define a report, type a 1 in response to the prompt

```
TYPE AN OPTION NUMBER>
```

INFORM/V will then display the Data Organization Menu, shown in Figure 2-3.

The Data Organization Menu

As the Data Organization Menu shows, it is possible to report from two different kinds of structures: INFORM/V Groups and databases.

```
INFORM/V   HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

DATA ORGANIZATION

INFORM/V GROUPS:

    1: DISPLAY GROUP NAMES
    2: SELECT A GROUP

DATA BASE ONLY:

    3: DISPLAY DATA BASE NAMES
    4: SELECT A DATA BASE

TYPE A NUMBER> 1
```

Figure 2-3. The Data Organization Menu -- Reporting from Groups

The **INFORM/V Group** is a special collection of data item names that has been established expressly to meet the reporting needs of your department or organization. The database administrator defines a Group and stores the definition in the data dictionary, using the data management software called **DICTIONARY/V**. Data that makes up an **INFORM/V Group** may be stored in **KSAM** files, **MPE/V** files,

or TurboIMAGE databases. The actual storage structure is not important once the Group has been established. For information about how to set up INFORM/V Groups, see Section 11.

Your database administrator can tell you whether INFORM/V Groups have been established for your organization or whether you can report directly from the databases.

Notice that there are four options on the Data Organization Menu shown in Figure 2-3. All four lead to the same point: the Data Names Menu (Figure 2-12), where you choose the names of data items that are to be included in the report. The intermediate steps are simply ways of zeroing in on the particular collection of data names from which you want to report. The paragraphs below discuss each of these four options in turn. Figure 2-4 graphically represents the four options shown on the Data Organization Menu in Figure 2-3, and shows that all four paths lead to the same menu.

Selecting Data from an INFORM/V Group

To define a report from a Group, you may use either option 1 or 2 on the Data Organization menu. Option 1 is used if you need to see the names of the Groups available for reporting. Option 2 is used if you already know the name of the Group that you want to use.

Option 1: Display Group Names

If you select option 1 on the Data Organization Menu, INFORM/V displays the Group Menu, which lists all the INFORM/V Groups to which you have access. An example of a Group menu is shown in Figure 2-5.

INFORM/V then prompts you to select one of the Groups by printing

```
TYPE A GROUP NUMBER>
```

Enter the number of one of the Groups listed on the menu.

Defining a Report

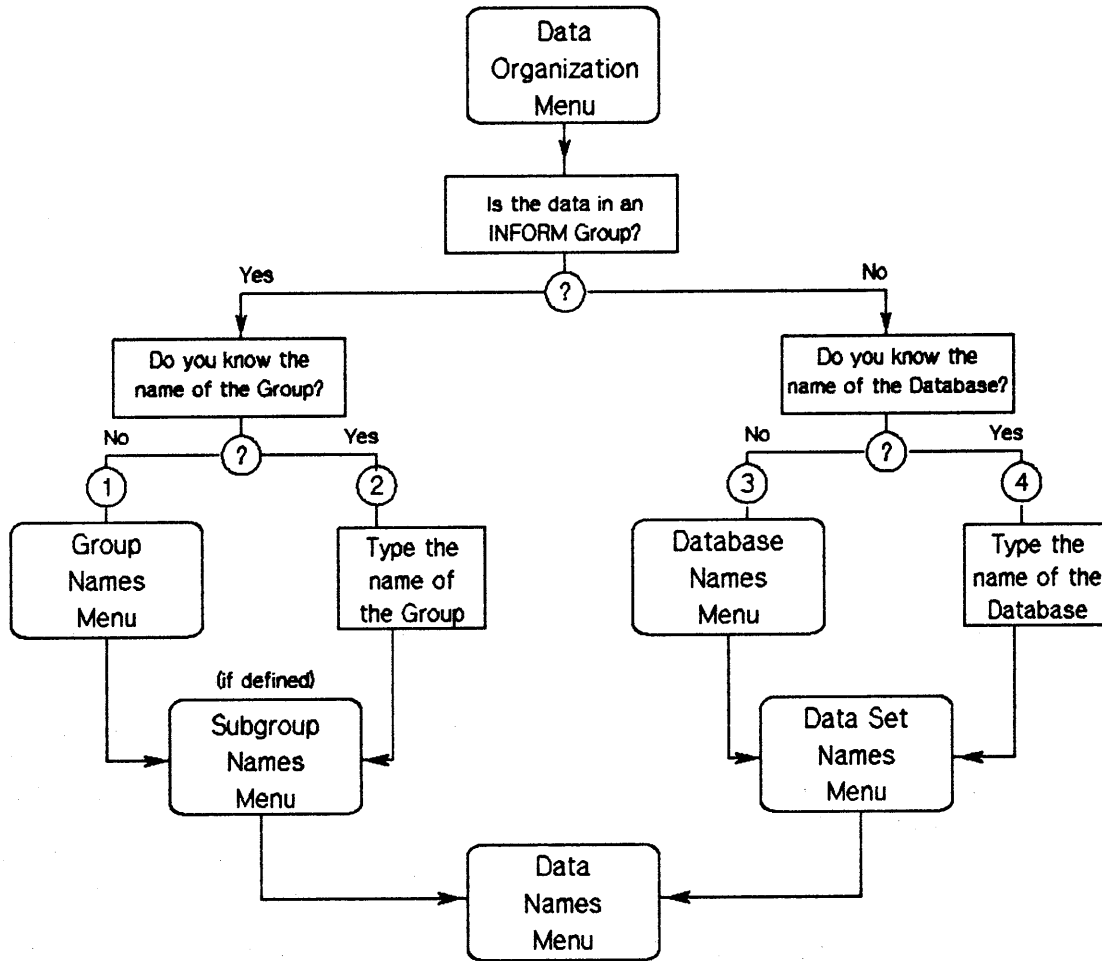


Figure 2-4. The Four Options on the Data Organization Menu

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

INFORM/V GROUPS

      1: ORDER INFORMATION          4: SHIPPING INFORMATION
      2: CREDIT INFORMATION        5: ACCOUNTING INFORMATION
      3: MFG MANAGER

TYPE A GROUP NUMBER> 3
```

Figure 2-5. Group Menu

In the example in Figure 2-5, the user chooses Group 3, MFG MANAGER.

After you select a Group number, the next display will be either a Subgroup Menu or the Data Names Menu. The database administrator has the option of creating subgroups within Groups, and may do so to simplify data presentation in complex Groups. If subgroups exist in your account, the next menu you see will be a Subgroup Menu. An example is shown in Figure 2-6.

If no subgroups have been defined for the chosen Group, INFORM/V goes directly to the Data Names Menu, shown in Figure 2-12.

Defining a Report

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986  
NAMES OF INFORM/V SUBGROUPS IN MFG MANAGER  
      1: INVENTORY          2: WAREHOUSES          3: LEAD TIME  
  
TYPE A SUBGROUP NUMBER> 1
```

Figure 2-6. Subgroup Menu

On the Subgroup Menu, you select the subgroup that contains the data names you want. In the example in Figure 2-6, the user chooses the INVENTORY subgroup. INFORM/V will next display the Data Names Menu for that Subgroup.

Option 2: Select a Group

When you know the name of the INFORM/V Group from which you want to create a report, you can bypass the Group Menu and go to the Subgroup Menu or go directly to the Data Names Menu. To do so, choose option 2 on the Data Organization Menu in response to the prompt

```
TYPE A NUMBER>
```

INFORM/V immediately displays the following prompt:

TYPE THE INFORM/V GROUP NAME>

Figure 2-7 shows an example of a Data Organization Menu with this interaction.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

DATA ORGANIZATION

INFORM/V GROUPS:

    1: DISPLAY GROUP NAMES
    2: SELECT A GROUP

DATA BASE ONLY:

    3: DISPLAY DATA BASE NAMES
    4: SELECT A DATA BASE

TYPE A NUMBER> 2

TYPE THE INFORM/V GROUP NAME> MFG MANAGER
```

Figure 2-7. Skipping the Group Menu by Selecting a Group Name

If the Group has Subgroups, the Subgroup Menu comes up next. If not, INFORM/V goes directly to the Data Names Menu for the Group specified.

Selecting Data from a Database

To define a report from a database, you may use either option 3 or 4 on the Data Organization Menu. Option 3 is used if you need to see the names of the databases available for reporting. Option 4 is used if you already know the name of the database that you want to use.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

DATA ORGANIZATION

INFORM/V GROUPS:

    1: DISPLAY GROUP NAMES
    2: SELECT A GROUP

DATA BASE ONLY:

    3: DISPLAY DATA BASE NAMES
    4: SELECT A DATA BASE

TYPE A NUMBER> 3
```

Figure 2-8. The Data Organization Menu -- Reporting from Databases

Option 3: Display Database Names

If you decide to look at the database names, choose option 3, as in the example in Figure 2-8. INFORM/V then displays the Database Menu; an example is shown in Figure 2-9.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986  
DATA BASE NAMES  
1: ORDMGT          2: FINANC          3: MANUFG  
TYPE A DATA BASE NUMBER> 1
```

Figure 2-9. The Database Menu

On the Database Menu, when the prompt

```
TYPE A DATA BASE NUMBER>
```

appears, type the number of the database from which you want to report. INFORM/V responds by displaying the Data Set Menu (Figure 2-10) for that database.

INFORM/V can display up to 199 data set names per database. If there are more data sets in the selected database than will fit on the screen, INFORM/V presents all data set names, one screen full at a time. At the end of each display, INFORM/V prompts with

```
TYPE 'RETURN' KEY TO CONTINUE
```


Defining a Report

When you press **RETURN**, INFORM/V presents the next screen full of data. After all the data set names have been displayed, INFORM/V prompts with

TYPE A DATA SET NUMBER>

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

DATA SET NAMES IN DATA BASE ORDMGT

  1: CUSTOMER          3: PRODUCT          5: INVENTORY
  2: DATE-MASTER      4: SALES

TYPE A DATA SET NUMBER> 5
```

Figure 2-10. The Data Set Menu

Type the number of the data set from which you want to report. INFORM/V responds by displaying the Data Names Menu, which is shown Figure 2-12.

Option 4: Select a Database

INFORM/V allows you to bypass the Database Menu and go directly to the Data Set Menu if you know the name of the database from which you want to report. To do so, type 4 in response to the prompt

TYPE A NUMBER>

on the Data Organization Menu. As is shown in the example in Figure 2-11, INFORM/V responds with the prompt

TYPE THE DATA BASE NAME>

When prompted, type the name of the database you want to report from.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

DATA ORGANIZATION

INFORM/V GROUPS:

    1: DISPLAY GROUP NAMES
    2: SELECT A GROUP

DATA BASE ONLY:

    3: DISPLAY DATA BASE NAMES
    4: SELECT A DATA BASE

TYPE A NUMBER> 4

TYPE THE DATA BASE NAME> ORDMGT
```

Figure 2-11. Skipping the Database Menu by Selecting a Database Name

INFORM/V responds by displaying the Data Set Menu for the database. After you select the data set name, INFORM/V presents the Data Names Menu (see Figure 2-12) for that data set. You may then define a report.

Defining a Report

The Data Names Menu

The Data Names Menu is the one on which you select the data to be included in the report, as well as specifying other properties of the report. This menu displays all the names of data items that are available in the selected data set, Group, or subgroup for reporting.

An example of the Data Names Menu is shown in Figure 2-12. The Data Names Menu, unlike the menus you have seen so far, includes a series of prompts. The prompts appear one at a time.

See Appendix C for information about the number of data names that can be included in a Data Names Menu.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

DATA NAMES IN ACCOUNTING INFORMATION

  1: NAME           7: DESCRIPTION           13: PRICE
  2: ADDRESS        8: PURCHASE NUMBER       14: TOTAL
  3: ACCOUNT        9: PURCHASE DATE         15: SHIPDATE
  4: DATE          10: BACKORDERFLG         16: DELVDATE
  5: CREDIT        11: QUANTITY
  6: PRODUCT NUMBER 12: UNIT COST

TYPE NUMBER(S) FOR DATA NAME(S):

      TO INCLUDE IN REPORT> 1,6,11
      TO SORT BY> !

REPORT TITLE>

PREPARING REPORT
```

Figure 2-12. Data Names Menu

Defining the Report

After all data names have been displayed, INFORM/V prompts with

```
TYPE NUMBER(S) FOR DATA NAME(S):  

      TO INCLUDE IN REPORT>
```

You respond to the prompt by typing the numbers corresponding to the data names you want to include in your report. Type the numbers in the order in which you want data items shown, from left to right, in the report. In the example shown in Figure 2-12, the user asks for NAME, PRODUCT NUMBER, and QUANTITY (data names 1, 6, and 11, respectively).

There are several different ways that you can enter the numbers. One way is as follows:

```
number[,number, ...]
```

This form means that you can enter data name numbers, separated by commas. For example, 2,11,3 would present data names represented by 2, 11, and 3 in order from left to right on the report.

The second possible form is

```
n/m
```

where *n* and *m* stand for the beginning and ending numbers in a range. All data names beginning with the first number and ending with the last number will be included in the report. For example, if you specify 5/9, data names 5, 6, 7, 8, and 9 will be included in the report.

You can mix these two forms: for example,

```
TO INCLUDE IN REPORT>1,3/5,10,15
```

The third way to enter numbers is to say

```
ALL
```

If you enter the word ALL, INFORM/V will include in the report all the data names that are shown on the menu. A maximum of 128 data names can be included in a report.

Defining a Report

The next prompt is TO SORT BY>. In Figure 2-12, the user responds by entering an exclamation point (!). This symbol tells INFORM/V to skip the next few prompts and to go directly to the prompt for the report title.

You can also skip through the prompts on this menu (except the first) by entering **(RETURN)**. On this menu, INFORM/V *does not* go back to the preceding prompt. Instead, it assumes that you do not want to enter any values for the prompt, and moves to the next one.

The prompts that are being skipped in this example provide several powerful reporting capabilities, including

- Sorting, subdividing, and summarizing
- Limiting the report to selected data (using selection criteria)
- Defining new data names for use in reports

Each of these options is so important that it is discussed in a separate section (see Section 5, 6, and 7).

Specifying the Report Title

After you define the report you want, INFORM/V asks you to provide a title for the report with the prompt

REPORT TITLE>

You can enter a title of up to 79 characters, or, if you do not want to supply a title, just type a **(RETURN)**. (Section 9 describes several optional features that can be used in report titles.)

If You Want to Produce the Report

After you have responded to the prompt for a report title, INFORM/V tells you the report is being prepared, and begins to prompt for the information that it needs to produce the report:

PREPARING REPORT

PRODUCE THE REPORT(Y/N)?>

The prompts and responses used to produce the report are shown in the next section (Section 3).

If You Do Not Want To Produce the Report

If you choose not to produce the report, answer N to the prompt

PRODUCE THE REPORT(Y/N)?>

INFORM/V then asks

RETURN TO CURRENT DATA NAMES MENU(Y/N)?>

The reason for this prompt is to allow you to change the report that you have just defined. If you answer Y, INFORM/V goes back to the first prompt on the Data Names Menu and waits for you to enter new information. Section 10 describes how to modify a report.

If you do not want to change the report, answer N, and INFORM/V will redisplay the Main Menu. You can then choose any of the ten options there. The report that you have just defined is still available, and you could still produce it by choosing option 5 (PRODUCE THE REPORT) on the Main Menu.

PRODUCING OR PREVIEWING THE REPORT

SECTION

3

It is possible to produce a report from many points in INFORM/V. As a general rule, if there is a report currently available, either newly defined or called up from the catalog (the report catalog is described in Section 4), the assumption is that you want to produce the report.

The first subsection below describes how to produce a report from the Data Names Menu right after the report has been defined or modified. A later discussion in this section described the steps used to produce a report from the Main Menu.

A feature that is closely related to producing the report is previewing the report. This feature, option 4 on the Main Menu, allows you to see a "dummy" of the first few lines, so that you can be sure the report is in the format you want. The steps required to preview a report are described at the end of this section.

Producing a Report from the Data Names Menu

Section 2 described the steps used to define a simple report. When you have finished defining the report, INFORM/V prints the message

PREPARING REPORT

The next prompt on the Data Names Menu will ask if you want to produce the report.

You have the choice of producing the report interactively or in batch mode. The complete set of prompts and responses are described below, first, for interactive processing and, second, for batch processing.

Producing the Report Interactively

When INFORM/V prompts with

PRODUCE THE REPORT(Y/N)?>

Producing or Previewing the Report

answer Y no matter how you want to produce it. The next prompt will then be

```
PRODUCE REPORT IN BATCH MODE?(N/Y)>
```

At this point, answer N if you want to produce the report interactively. The interaction is shown in Figure 3-1.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

DATA NAMES IN ACCOUNTING INFORMATION

1: NAME           7: DESCRIPTION      13: PRICE
2: ADDRESS        8: PURCHASE NUMBER  14: TOTAL
3: ACCOUNT        9: PURCHASE DATE   15: SHIPDATE
4: DATE          10: BACKORDERFLG   16: DELVDATE
5: CREDIT        11: QUANTITY
6: PRODUCT NUMBER 12: UNIT COST

TYPE NUMBER(S) FOR DATA NAME(S):

      TO INCLUDE IN REPORT> 1,6,11
      TO SORT BY> !

REPORT TITLE>

PREPARING REPORT

PRODUCE THE REPORT(Y/N)?>Y

PRODUCE REPORT IN BATCH MODE?(N/Y)>N
```

Figure 3-1. The Data Names Menu - Preparing a Report

INFORM/V presents the Report Process Menu and prints the message

```
REPORT PROCESS STARTED
```

If the data you are accessing comes from a database, the next prompt may be:

```
PASSWORD FOR database>
```

This prompt may appear even if you are reporting from an INFORM/V Group, depending on how security is structured for your data. Because the information you want may be located in more than one database, INFORM/V may prompt for a password more than once.

The password does not appear on the screen when you type it, so that security will be maintained. The password that you enter must be identical to the password as it was assigned to you -- upper and lower case characters must match exactly. If you make a mistake, INFORM/V reprompts for the password.

MPE/V and KSAM files are often secured with lockwords. Like passwords, lockwords protect files that contain sensitive or privileged information. If a lockword exists for a file, you may be prompted for it.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986  
REPORT PROCESS STARTED  
PASSWORD FOR PURCHA>  
DISPLAY OR PRINT(D/P)?> D
```

Figure 3-2. Producing a Report Interactively

Finally, the following prompt appears:

```
DISPLAY OR PRINT(D/P)?>
```

Type D or **(RETURN)** to display the report on your terminal. Type P to have the report printed. Printing a report interactively ties up your terminal until the report is finished, so you cannot do any other work. If the report that you are going to print is long, it is therefore better to use the batch option. You can

Producing or Previewing the Report

change the destination of a printed file by issuing an MPE/V file equation before you enter INFORM/V. See Appendix B for the default output file name.

If you choose to display the report on your terminal, INFORM/V clears the screen and displays the first page of the report. The Report Process Menu in Figure 3-2 shows an example of the interaction to display a report at the terminal. The report produced is shown in Figure 3-3.

NAME	PRODUCT NUMBER	QUANTITY
Lewis Charles	55C	20
Peterson Paul P	70A	20
Albertson John B	90C	100
Lewis Charles	90C	700
Limburger Frank	60D	15
Albertson John B	60D	130
Baker Bill B	80B	55
Albertson John B	50B	30
Albertson John B	50B	5
Smith John Q	11A	40
Smith John Q	11B	400
Smith John Q	11C	400

*****END OF REPORT*****

RETURN TO DATA NAMES MENU(Y/N)?>

Figure 3-3. Simple Report Produced by INFORM/V

If the report is longer than one screen, INFORM/V fills the screen, then prints the prompt

CONTINUE(Y/N)>

If you answer Y, INFORM/V will display the next screen full of data, then prompt again.

If you answer N, INFORM/V displays

```
***** END OF REPORT *****
```

After the report is displayed, you have the option of changing the report and looking at it again or returning to the Main Menu. The prompt is

```
RETURN TO CURRENT DATA NAMES MENU(Y/N)?>
```

To return to the Main Menu, enter N. Once you return to the Main Menu, you can use any option displayed there.

CAUTION

If you want to save the report that you have just defined, that should be your next move. Invoking other options might destroy your report before you have a chance to save it. See Section 4 for a description of how to save the report by adding it to the catalog.

If you want to modify the report just defined, answer Y or **RETURN**. The Data Names Menu you used to select data names is redisplayed so that you can change the report if you want to. The process of modifying a report is described in Section 10.

Batch Mode

The batch mode option is a very easy way to have your report printed without tying up your terminal during the process. If you choose batch mode, INFORM/V prompts for all the information needed, creates the batch job, and streams it. Once the job is streamed, you can then use your terminal for other tasks.

Producing or Previewing the Report

The process of producing the report by batch begins just like the process for producing a report interactively. On the Data Names Menu, after you respond to the prompt for a report title, INFORM/V prompts with

```
PRODUCE THE REPORT(Y/N)?>
```

If you respond with Y, the next prompt is

```
PRODUCE REPORT IN BATCH MODE?(N/Y)>
```

If you also answer Y to this prompt, the Report Process Menu then appears, and you are prompted for user, group, and account passwords. INFORM/V then builds a jobfile called INFJOB*nn*, where *nn* can be any number between zero and 99. The number is assigned randomly, just to assure that the job file name is unique.

INFORM/V allows you to control many of the parameters that apply to the batch job, such as its priority and the naming or disposition of files created by the job. If you want to see what these parameters are, and the default values, refer to the discussion of format options in Section 8.

An example of the procedure for creating a batch job is shown in Figure 3-4. For this example, default values are used for all the batch parameters.

The prompt

```
PASSWORD FOR database>
```

will appear if the database administrator has not programmed a link between database security and INFORM/V security (details of setting up security are described in Section 11).

The next prompts are for logon passwords:

```
ENTER USER PASSWORD>
```

```
ENTER ACCOUNT PASSWORD>
```

```
ENTER GROUP PASSWORD>
```

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986  
REPORT PROCESS STARTED  
PASSWORD FOR PURCHA>  
  
PREPARE TO STREAM BATCH JOB  
ENTER USER PASSWORD>  
ENTER ACCOUNT PASSWORD>  
ENTER GROUP PASSWORD>  
  
#J93  
BATCH JOB SUCCESSFULLY STREAMED  
RETURN TO CURRENT DATA NAMES MENU(Y/N)?>
```

Figure 3-4. Creating a Report in Batch Mode

When the system sets up a batch job, that job in many respects looks like you are logged onto the system a second time. The system must have your logon passwords, just as you enter them when you log on, in order to set up that job. The passwords will not show when you enter them, so as to maintain security.

INFORM/V next tells you the job number and says that it has been successful in establishing the batch job. The messages are

```
#Jnn  
BATCH JOB SUCCESSFULLY STREAMED
```

It pays to make a note of the job number (#Jnn). If you need to query the system about the job, or if you ask your database administrator about the job, the job number is the quickest and most direct identifier of the job once it has been streamed.

Producing or Previewing the Report

After you have completed the batch job, INFORM/V asks whether you want to see the Data Names Menu again, so that you can change the report. The prompt is

RETURN TO CURRENT DATA NAMES MENU(Y/N)?

Interaction from this point is identical to that just described for interactive processing.

Producing a Report from the Main Menu

If you are at the Main Menu and want to produce the current report, choose option 5 (an example is shown in Figure 3-5). You will immediately be prompted with the question

PRODUCE REPORT IN BATCH MODE(N/Y)?>

If you respond N, INFORM/V assumes that you want to produce the report interactively. The interaction would then be as described earlier in this section for interactive reporting.

If you respond Y, INFORM/V will then begin prompting for the responses for batch production. The interaction would be as described earlier in this section for batch mode.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986
```

```
INFORM OPTIONS:
```

- 1: DEFINE A REPORT
- 2: DISPLAY REPORT CATALOG
- 3: SELECT A REPORT DEFINITION
- 4: PREVIEW REPORT LAYOUT
- 5: PRODUCE THE REPORT
- 6: ADD REPORT DEFINITION TO CATALOG
- 7: DELETE A REPORT DEFINITION FROM CATALOG
- 8: SET OPTIONS
- 9: MODIFY THE REPORT
- 10: EXIT FROM INFORM/V

```
TYPE AN OPTION NUMBER> 5
```

```
PRODUCE REPORT IN BATCH MODE?(N/Y)>
```

Figure 3-5. Choosing to Produce a Report on the Main Menu

Previewing the Report Layout

INFORM/V allows you to check the appearance of a report before you produce it. It displays the headings and a few simulated rows of data, and then allows you to change the report definition or to produce the report.

To preview the current report layout, type 4 in response to the following Main Menu prompt:

```
TYPE AN OPTION NUMBER> 4
```


Producing or Previewing the Report

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

INFORM OPTIONS:

    1: DEFINE A REPORT
    2: DISPLAY REPORT CATALOG
    3: SELECT A REPORT DEFINITION
    4: PREVIEW REPORT LAYOUT
    5: PRODUCE THE REPORT
    6: ADD REPORT DEFINITION TO CATALOG
    7: DELETE A REPORT DEFINITION FROM CATALOG
    8: SET OPTIONS
    9: MODIFY THE REPORT
   10: EXIT FROM INFORM/V

TYPE AN OPTION NUMBER> 4

DISPLAY OR PRINT(D/P)?>

NUMBER OF LINES TO PREVIEW>
```

Figure 3-6. Choosing to Preview a Report Layout

If there is no current report, INFORM/V displays the following message:

```
CURRENT REPORT HAS NOT BEEN SPECIFIED
```

```
TYPE A REPORT NAME(6)>
```

If a current report is present, the following prompt appears:

```
DISPLAY OR PRINT(D/P)?>
```

Press **RETURN** or D to preview the report layout on the terminal. Type a P to have the preview listed on the line printer. When the report layout is displayed, 9's are substituted in numeric fields, and X's are

substituted in character fields. The plus (+) preceding the 9's in a numeric field is called a sign field. If the actual data contains a negative number, for example, the sign field will contain a minus sign (-).

The next prompt to appear is:

NUMBER OF LINES TO PREVIEW>

You may not want to preview the entire report. You may simply want to look at a few lines. This prompt gives you that chance. Press **RETURN** to have five lines of the report displayed. Five lines is usually enough for you to get a good idea of the report's layout. Enter another number to have more or fewer lines printed.

A report preview is shown in Figure 3-7.

SALES		
NAME	PRODUCT NUMBER	QUANTITY
XX	XXXXXXXXXX	+9999999
XX	XXXXXXXXXX	+9999999
XX	XXXXXXXXXX	+9999999
XX	XXXXXXXXXX	+9999999
XX	XXXXXXXXXX	+9999999
*****END OF PREVIEW*****		
PRODUCE THE REPORT(Y/N)?>		

Figure 3-7. Preview of a Report

After the preview, INFORM/V asks you if you want to produce the report:

Producing or Previewing the Report

PRODUCE THE REPORT(Y/N)?>

Type Y or press RETURN if you want to produce the report, then follow the steps described earlier in this section.

If you type N, INFORM/V displays the following prompt:

TYPE 'RETURN' KEY TO CONTINUE

When you press RETURN, the Main Menu is displayed.

USING THE REPORT CATALOG

SECTION

4

Once a report has been defined and produced, you may want to save the report definition for later use. To provide a vehicle for storing reports, INFORM/V includes a report catalog. You can look at the names and descriptions of all reports that have been saved, save reports by adding them to the catalog, recall saved reports for later production, and delete report definitions when they are no longer of value.

Note that it is the report definition that is saved in the catalog, not the data in the report. Thus, when you produce the report again at a later date, if the data in the files or database has changed, your report will contain up-to-date data.

The Current Report

INFORM/V can store many reports in the catalog, and any one can be called up and made available for production or modification. The report that is available for use is called the **current report**.

If you have just defined a report, that one is current even after you return to the Main Menu. You can also make a report current by recalling it from the catalog. It is important to understand that you can only have one report current at a time. If you should call a report up from the catalog before you save a newly defined report, then the new report will be lost.

INFORM/V keeps a report current until you do one of the following:

- Define a new current report (Main Menu option 1).
- Select a saved report definition from the catalog (Main Menu option 2 or 3).
- Exit from INFORM/V (Main Menu option 10).

You can also modify the current report to have a different definition. If you have not saved the current report before doing the modifications, then you have in effect destroyed the current report. If you have saved the current report before modifying it, then you can recall the saved version at any time.

Adding the Report Definition to the Catalog

After you have defined a report and produced it, you may want to save the definition for later use. To perform this function, you must return to the Main Menu. To do so, type N in response to the prompt

RETURN TO CURRENT DATA NAMES MENU(Y/N)?>

on the bottom of the Data Names Menu. INFORM/V then displays the Main Menu and prompts with

TYPE AN OPTION NUMBER>

To add a report definition to the catalog, type 6 in response.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986
```

```
INFORM OPTIONS:
```

- 1: DEFINE A REPORT
- 2: DISPLAY REPORT CATALOG
- 3: SELECT A REPORT DEFINITION
- 4: PREVIEW REPORT LAYOUT
- 5: PRODUCE THE REPORT
- 6: ADD REPORT DEFINITION TO CATALOG
- 7: DELETE A REPORT DEFINITION FROM CATALOG
- 8: SET OPTIONS
- 9: MODIFY THE REPORT
- 10: EXIT FROM INFORM/V

```
TYPE AN OPTION NUMBER> 6
```

```
TYPE A REPORT NAME(6)> CREDIT
```

```
TYPE REPORT DESCRIPTION(50)> CREDIT INFORMATION
```

Figure 4-1. Choosing to Save a Report Definition

Figure 4-1 shows an example of the interaction to save a report in the INFORM/V catalog.

After you respond to the OPTION prompt by typing 6, INFORM/V then prompts with

```
TYPE A REPORT NAME(6)>
```

Type the name as you want it to appear in the catalog. The name may be up to six characters long, and it may be qualified by a group name and an account name. For example:

```
CREDIT
```

or

```
CREDIT.ACCTING.FINAN
```

If you do not specify a group and account name, INFORM/V uses your logon group and account.

If you type an existing report name, INFORM/V responds with:

```
REPORT FILE ALREADY EXISTS,
```

```
PURGE OLD FILE(N/Y)?>
```

Type Y to purge the saved report definition and replace it with the new. If you type N or **RETURN**, INFORM/V prompts you again for a report name.

The next prompt you see is:

```
TYPE REPORT DESCRIPTION(50)>
```

You may type up to 50 characters to describe the report. You do not have to type a description, but it is a good way to explain exactly what the report contains.

The Report Catalog

As soon as you enter the description, INFORM/V saves the report definition in the catalog, then redisplay the Main Menu.

When you display the report catalog (see next discussion in this section), both the report name and the description are shown for all saved reports.

If you choose option 6 on the Main Menu, to save a report in the catalog, and no current report exists, INFORM/V responds with:

```
CURRENT REPORT HAS NOT BEEN SPECIFIED
```

```
TYPE 'RETURN' KEY TO CONTINUE>
```

When you press RETURN, INFORM/V redisplay the Main Menu so that you can choose another option.

Displaying the Report Catalog

To display the report catalog, which lists the report names and descriptions, choose option 2 on the Main Menu. Assuming no security restrictions, you have access to all the reports defined by all users in your logon group. There may be many users in a single account or logon group.

An example of the interaction used to display the INFORM/V catalog is shown in Figure 4-2.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986
```

```
INFORM OPTIONS:
```

- 1: DEFINE A REPORT
- 2: DISPLAY REPORT CATALOG
- 3: SELECT A REPORT DEFINITION
- 4: PREVIEW REPORT LAYOUT
- 5: PRODUCE THE REPORT
- 6: ADD REPORT DEFINITION TO CATALOG
- 7: DELETE A REPORT DEFINITION FROM CATALOG
- 8: SET OPTIONS
- 9: MODIFY THE REPORT
- 10: EXIT FROM INFORM/V

```
TYPE AN OPTION NUMBER> 2
```

```
TYPE COMPUTER GROUP NAME>
```

Figure 4-2. Choosing to Display the Report Catalog

After you type 2, the following prompt appears:

```
TYPE COMPUTER GROUP NAME>
```

Simply type RETURN if you want to see the catalog for your logon group and account. If you want to look at the catalog for another group, enter that group name. If the catalog that you want to view is for a group in an account other than your own, you must also enter the account name. You may be asked to supply a password if you try to access another group or account, depending on what security protection has been established. If you do not have access, you will receive an error message.

Next, you are asked to respond to the following prompt:

The Report Catalog

DISPLAY OR PRINT(D/P)?>

Press P to send the catalog to the printer.

Press **RETURN** or D to display the catalog on your terminal.

The catalog listing will look similar to the one shown in Figure 4-3. NAME is the report name that the user who created the report entered when adding the report to the catalog. The CREATOR is the user name of the person who saved the report. If the person requesting this listing is the same person who created the report definition, the creator is shown as USER. The DATE is given in the format year/month/day. The DESCRIPTION is that supplied by the creator when the report was cataloged.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

NAME:      CREATOR:      DATE:      DESCRIPTION:
CREDIT     MGR                850622     CREDIT INFORMATION
CUSTOM     USER              850701     CUSTOMERS AND PRODUCTS
PROFIT     USER              850706     PROFIT MARGIN BY CUSTOMER BY PRODUCT
SALES      HENRY              810622     TOTAL SALES

*****END OF LIST*****

TYPE A REPORT NAME(6)>
```

Figure 4-3. The INFORM/V Report Catalog

After displaying the catalog, INFORM/V prompts with:

TYPE A REPORT NAME(6)>

The report that you name becomes the current report. INFORM/V assumes that you want to produce the report, and prompts with

PRODUCE THE REPORT(Y/N)?>

If you try to produce a report that was defined by another user who has access to data elements to which you do not have access, you will be prevented from producing that report. INFORM/V will respond with the error message

YOUR PASSWORD DOES NOT ALLOW YOU TO RUN THIS REPORT

You will then be prompted to select another report name from the catalog.

Section 3 describes the steps to produce a report.

Selecting a Report Definition

If you know the name of the report that you want to produce, you can bypass the display of the report catalog and go right to the Report Process Menu by selecting option 3 on the Main Menu (see Figure 4-4).

The Report Catalog

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

INFORM OPTIONS:

    1: DEFINE A REPORT
    2: DISPLAY REPORT CATALOG
    3: SELECT A REPORT DEFINITION
    4: PREVIEW REPORT LAYOUT
    5: PRODUCE THE REPORT
    6: ADD REPORT DEFINITION TO CATALOG
    7: DELETE A REPORT DEFINITION FROM CATALOG
    8: SET OPTIONS
    9: MODIFY THE REPORT
   10: EXIT FROM INFORM/V

TYPE AN OPTION NUMBER> 3

TYPE A REPORT NAME(6)>

PRODUCE THE REPORT(Y/N)?>
```

Figure 4-4. Selecting a Report Definition from the Main Menu

When you type the option number 3, INFORM/V responds with the following prompt:

```
TYPE A REPORT NAME(6)>
```

Type the name of the report. If you are not sure of the exact name of the report, return to the Main Menu and select option 2 to display the report catalog.

When you type a valid name, the following prompt appears:

```
PRODUCE THE REPORT(Y/N)?>
```

If you want to produce the report, answer Y. The interaction then becomes identical to that described in Section 3.

If you do not want to produce the report, press N. The following prompt then appears:

```
TYPE 'RETURN' KEY TO CONTINUE>
```

When you press RETURN, the Main Menu is displayed.

Deleting a Report Definition from the Catalog

To delete a report definition from the catalog, choose option 7 on the Main Menu (see Figure 4-5). INFORM/V responds with the prompt

```
TYPE REPORT NAME TO BE DELETED>
```

Type the name under which you added the report definition to the catalog. If you type a name not listed in the catalog, INFORM/V responds with:

```
NO SUCH REPORT NAME
```

To check for the name, press RETURN to go back to the Main Menu, then type 2 to display the report catalog.

If you type a valid name, INFORM/V responds with the following prompt:

```
DELETE REPORT reportname(N/Y)?>
```

This prompt gives you a chance to change your mind if you like.

The Report Catalog

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

INFORM OPTIONS:

    1: DEFINE A REPORT
    2: DISPLAY REPORT CATALOG
    3: SELECT A REPORT DEFINITION
    4: PREVIEW REPORT LAYOUT
    5: PRODUCE THE REPORT
    6: ADD REPORT DEFINITION TO CATALOG
    7: DELETE A REPORT DEFINITION FROM CATALOG
    8: SET OPTIONS
    9: MODIFY THE REPORT
   10: EXIT FROM INFORM/V

TYPE AN OPTION NUMBER> 7

TYPE REPORT NAME TO BE DELETED>
```

Figure 4-5. Deleting a Report from the Catalog

If you confirm that you want the report deleted, INFORM/V deletes the report and prints

```
REPORT DELETED
```

then returns to the Main Menu.

If you do not confirm the deletion, that is, if you answer N to the DELETE prompt, INFORM/V displays the following message:

```
DELETE NOT CONFIRMED - REPORT UNCHANGED
```

The Main Menu is then redisplayed and you are prompted to enter an option number.

Changes to Underlying Data Sets or Files

The INFORM/V catalog interacts with the data dictionary only when a user activates the catalog to recall a saved report definition and produce the report. Therefore, if any modifications are made to the structure of underlying databases or files, INFORM/V is not aware of them until it attempts to create a report.

Missing Data Names

If you see any of the following messages when you try to call up a report from the catalog, it means that structural changes have been made to the databases or files so that data needed for the report no longer exists or cannot be identified under its previously specified name.

GROUP DOES NOT EXIST IN DICTIONARY

BASE DOES NOT EXIST IN DICTIONARY

DATA SET DOES NOT EXIST IN DICTIONARY

*ERROR *data-name* DOES NOT BELONG TO THIS GROUP OR DATA SET

INFORM/V follows any of these messages with

TYPE 'RETURN' KEY TO CONTINUE>

When you enter RETURN, INFORM/V returns you to the Main Menu.

Renumbered Data Names

If an element (data name) in a Group, data set, or file has been deleted from the data dictionary after the report definition was saved and if that element is not used in generating the report, INFORM/V will renumber the Data Names Menu and the items selected in the report to reflect the changes. The report itself will not be affected. For example, compare Figures 4-6 and 4-7. If LOCATION is deleted from the Group INVENTORY, the next time the Data Names Menu appears, LOCATION will not appear, and the data names following it will be renumbered.

The Report Catalog

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

DATA NAMES IN INVENTORY

    1: PART           3: COST           5: PRODUCT LINE
    2: LOCATION       4: PRICE           6: QTY ON HAND

TYPE NUMBER(S) FOR DATA NAME(S):

    TO INCLUDE IN REPORT> 1,4,3,6
      TO SORT BY> 1,4,3
      TO SUBDIVIDE BY> 1,3
      TO SUMMARIZE FOR: PART> !

REPORT TITLE> PARTS ON HAND REPORT
```

Figure 4-6. The Original Report Definition

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DATA NAMES IN INVENTORY

1: PART	3: PRICE	5: QTY ON HAND
2: COST	4: PRODUCT LINE	

TYPE NUMBER(S) FOR DATA NAME(S):

TO INCLUDE IN REPORT(OLD): 1,3,2,5
TO INCLUDE IN REPORT(NEW)>

Figure 4-7. After a Data Item Has Been Removed from the Dictionary

SORTING, SUBDIVIDING, SUMMARIZING

SECTION

5

The discussion in Section 2 described how to use the Data Names Menu to produce a simple report. That discussion skipped over several of the prompts on the Data Names Menu. Now that the basic tasks of defining a simple report, saving and producing it, and using the catalog have been presented, it is time to look at the prompts that were passed over in Section 2. Those prompts provide several powerful capabilities that allow you to tailor your reports to more clearly answer you needs. The three that are discussed in this section are sorting, subdividing, and summarizing. The other prompts are discussed in Sections 6 through 9.

After you have selected the data names to be included in a report, the next step is to decide whether you want data sorted, and, if so, what data name to sort them on. For example, if you sort a sales report on sales persons' names, then the data will appear in alphabetical order on names. If you sort on sales district, then all the data for each sales district will appear together, and the districts themselves will be in numerical or alphabetical order.

If data for a report is sorted, it can also be subdivided. The data names that are used for the sort are the only ones that can be used for subdividing. Subdividing is simply a way to clarify the structure or organization of the data in a report. For example, in a sales report that is sorted on district, and then sorted on name within district, you would probably want to subdivide on district, but not on name, because there will be many records for each district, but only one for each name. Subdividing causes INFORM/V to print only the first of a set of duplicate values for a given data name. This simple device makes it very easy to see when a new subdivision of data begins. For example, compare Figure 5-4 and Figure 5-6. Exactly the same data is presented in the two figures, sorted in the same way, but only Figure 5-6 is subdivided.

If data in a report is subdivided, it can also be summarized. You can get sub-summaries (subtotals, etc.) for subdivisions of data within the report, or get grand summaries for all data in the report. The kinds of summaries that are available are total, minimum, maximum, average, and count.

This section describes the steps used to sort, subdivide, and summarize data in reports.

Sorting

On the Data Names Menu, after you type the numbers for the data names you want to appear in your report, the following prompt appears:

TO SORT BY>

You may type more than one number in response to this prompt. When the report is produced, the first number listed is sorted first, the second number second, and so on. In the example in Figure 5-1, the user sorts on only one data name, SALES-PERSON. The resulting report is shown in Figure 5-2.

```
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DATA NAMES IN SALES

  1: AREA              3: SALES-PERSON          5: YTD-SALES
  2: DIST              4: QUOTA

TYPE NUMBER(S) FOR DATA NAME(S):

      TO INCLUDE IN REPORT> 1/5
            TO SORT BY> 3
            TO SUBDIVIDE BY> !

REPORT TITLE>

PREPARING REPORT

PRODUCE THE REPORT(Y/N)?>

PRODUCE REPORT IN BATCH MODE?(N/Y)>
```

Figure 5-1. Sorting On a Single Data Name

AREA	DIST	SALES-PERSON	QUOTA	YTD-SALES
MW	IOWA	ALVAREZ	80000.00	38000.00
NW	CAL	BONNANO	145000.00	152000.00
MW	IOWA	CHU	85000.00	56000.00
MW	MINN	DRAGER	90000.00	61000.00
SW	ARIZ	EPHRAM	150000.00	123000.00
SW	TEX	FITZPATRICK	120000.00	84000.00
SW	TEX	GRODIN	140000.00	97000.00
NW	WASH	HOUDINI	130000.00	85000.00
NW	CAL	JONES	130000.00	87000.00
NW	CAL	KROEGER	170000.00	103000.00
NW	OREG	LAROUS	90000.00	50000.00
MW	IOWA	MARTINEZ	105000.00	77000.00
NW	WASH	NORTH	70000.00	45000.00
NW	WASH	OP	105000.00	100000.00
NW	OREG	PASTERNAK	65000.00	30000.00
MW	MINN	RADOSLAVICH	125000.00	89000.00
***** END OF REPORT *****				

Figure 5-2. A Report Sorted on the Data Name SALES-PERSON

Data are sorted in ascending order by default. To specify descending order, type a D after the number of the data name. In Figure 5-1, for example, you would sort the values in SALES-PERSON in descending order by typing 3D.

In Figure 5-3, the user sorts on three data names, AREA, DISTRICT, and SALES-PERSON. The resulting report is shown in Figure 5-4.

Sorting, Subdividing, and Summarizing

```
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DATA NAMES IN SALES

    1: AREA                3: SALES-PERSON            5: YTD-SALES
    2: DIST                4: QUOTA

TYPE NUMBER(S) FOR DATA NAME(S):

    TO INCLUDE IN REPORT > 1/5
      TO SORT BY > 1,2,3
      TO SUBDIVIDE BY > !

REPORT TITLE >

PREPARING REPORT

PRODUCE THE REPORT(Y/N)? >

PRODUCE REPORT IN BATCH MODE?(N/Y) >
```

Figure 5-3. Sorting Data on Three Data Names

When you sort on more than one data name, the second is sorted within the scope of the first, the third within the second, etc. For example, in Figure 5-3, there are many sales people in each district, and there are many districts in each area. Therefore the user sorts area first, district second, and sales person third. If the user specified 3,2,1 instead of 1,2,3 for the sort, a simple alphabetical sort by sales person would be obtained, since there is only one district and one area for each sales person.

AREA	DIST	SALES-PERSON	QUOTA	YTD-SALES
MW	IOWA	ALVAREZ	80000.00	38000.00
MW	IOWA	CHU	85000.00	56000.00
MW	IOWA	MARTINEZ	105000.00	77000.00
MW	MINN	DRAGER	90000.00	61000.00
MW	MINN	RADOSLAVICH	125000.00	89000.00
NW	CAL	BONNANO	145000.00	152000.00
NW	CAL	JONES	130000.00	87000.00
NW	CAL	KROEGER	170000.00	103000.00
NW	OREG	LAROUS	90000.00	50000.00
NW	OREG	PASTERNAK	65000.00	30000.00
NW	WASH	HOUDINI	130000.00	85000.00
NW	WASH	NORTH	70000.00	45000.00
NW	WASH	OP	105000.00	100000.00
SW	ARIZ	EPHRAM	150000.00	123000.00
SW	TEX	FITZPATRICK	120000.00	84000.00
SW	TEX	GRODIN	140000.00	97000.00
***** END OF REPORT *****				

Figure 5-4. A Report Sorted On Three Data Names

If you do not need to sort the data, respond to the SORT prompt with a RETURN. The prompts for subdividing and summarizing will then not appear, since there is no data name on which to subdivide.

Subdividing

If you responded to the SORT prompt by entering one or more numbers, you then have the opportunity to subdivide the data. The prompt is:

TO SUBDIVIDE BY>

Sorting, Subdividing, and Summarizing

If you want to emphasize the organization of the sorted information, respond to this prompt by typing one (or more) of the numbers you specified for sorting. INFORM/V will then print the value for a subdivision data name only when it changes, that is, only when a new subdivision starts.

In Figure 5-5, the user wants to subdivide on AREA and DISTRICT.

```
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DATA NAMES IN SALES

    1: AREA                3: SALES-PERSON          5: YTD-SALES
    2: DIST                4: QUOTA

TYPE NUMBER(S) FOR DATA NAME(S):

    TO INCLUDE IN REPORT > 1/5
      TO SORT BY > 1,2,3
      TO SUBDIVIDE BY > 1,2
      TO SUMMARIZE FOR: AREA > !

REPORT TITLE >

PREPARING REPORT

PRODUCE THE REPORT(Y/N)? >

PRODUCE REPORT IN BATCH MODE?(N/Y) >
```

Figure 5-5. Subdividing on Two Data Names

The resulting report is shown in Figure 5-6. If you compare Figure 5-6 with 5-4, you can quickly see how much subdividing improves the readability of the report.

AREA	DIST	SALES-PERSON	QUOTA	YTD-SALES
MW	IOWA	ALVAREZ	80000.00	38000.00
		CHU	85000.00	56000.00
		MARTINEZ	105000.00	77000.00
	MINN	DRAGER	90000.00	61000.00
		RADOSLAVICH	125000.00	89000.00
NW	CAL	BONNANO	145000.00	152000.00
		JONES	130000.00	87000.00
		KROEGER	170000.00	103000.00
	OREG	LAROUS	90000.00	50000.00
		PASTERNAK	65000.00	30000.00
	WASH	HOUDINI	130000.00	85000.00
		NORTH	70000.00	45000.00
		OP	105000.00	100000.00
SW	ARIZ	EPHRAM	150000.00	123000.00
	TEX	FITZPATRICK	120000.00	84000.00
		GRODIN	140000.00	97000.00
***** END OF REPORT *****				

Figure 5-6. A Report Subdivided on Two Data Names

Summarizing

The next step in creating a report is to decide whether you want to summarize any data at the subdivision level. INFORM/V offers five arithmetic functions, shown in Table 5-1, that allow you to get summary information without having to do any programming. You simply enter the number of the data item that you want summarized, along with the name or abbreviation of one of the five functions. For example, 6AVG means that you want to see the average of values for data name 6 for each subdivision of the data.

It is also possible to summarize data for the whole report. The "Report Summary" capability is discussed later in this section.

Sorting, Subdividing, and Summarizing

The prompt for summarizing data at the subdivision level is

TO SUMMARIZE FOR: *dataname*>

INFORM/V repeats the SUMMARIZE prompt for each data name on which you asked for subdividing. For each subdivision for which you want summary data, type the number corresponding to the data name, followed immediately by the function. If you want a summary on more than one data name at a given subdivision, separate the number-function pairs by commas. For example,

1COUNT,2AVERAGE,5TOTAL

Table 5-1. Arithmetic Functions

Function	Purpose	Specification	Example of Output
AVERAGE	Averages values for the data name	6AVERAGE 6avg 6A	264A
COUNT	Tallies the number of entries of a particular data name	7COUNT 7c	43C
MAXIMUM	Finds the highest value of a data name	8MAXIMUM 8max 8MA	1120>
MINIMUM	Finds the lowest value of a data name	4minimum 4MIN 4MI	13<
TOTAL	Adds all values of a data name; when used with sorted data, the value is a subtotal; when used with report summary, the value is a grand total	9total 9T 9	9961*

You may use only one arithmetic function per data name. For example, if you typed the following:

11AVERAGE, 11MINIMUM

INFORM/V would reject this entry and prompt for the summary information again.

In the example in Figure 5-7, the user is requesting totals on data name 5, YTD-SALES, for each area and for each district; that is, for each subdivision of the report.

```

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DATA NAMES IN SALES

    1: AREA                3: SALES-PERSON          5: YTD-SALES
    2: DIST                4: QUOTA

TYPE NUMBER(S) FOR DATA NAME(S):

    TO INCLUDE IN REPORT > 1/5
      TO SORT BY > 1,2,3
    TO SUBDIVIDE BY > 1,2
    TO SUMMARIZE FOR: AREA > STOTAL
    TO SUMMARIZE FOR: DIST > STOTAL
    FOR REPORT SUMMARY > !

REPORT TITLE >

PREPARING REPORT

PRODUCE THE REPORT(Y/N)? >

PRODUCE REPORT IN BATCH MODE?(N/Y) >
    
```

Figure 5-7. Requesting a Report with Sorts, Subdivisions, and Summaries

Sorting, Subdividing, and Summarizing

The specifications given in Figure 5-7 produce the report shown in Figure 5-8. Summary data--in this case subtotals--are computed each time AREA and DISTRICT change. The totals are marked with an arrow (=>) and an asterisk (*) to the right of the value.

AREA	DIST	SALES-PERSON	QUOTA	YTD-SALES
MW	IOWA	ALVAREZ	80000.00	38000.00
		CHU	85000.00	56000.00
		MARTINEZ	105000.00	77000.00
=>				171000.00*
	MINN	DRAGER	90000.00	61000.00
		RADOSLAVICH	125000.00	89000.00
=>				150000.00*
				321000.00*
NW	CAL	BONNANO	145000.00	152000.00
		JONES	130000.00	87000.00
		KROEGER	170000.00	103000.00
=>				342000.00*
	OREG	LAROUS	90000.00	50000.00
		PASTERNAK	65000.00	30000.00
=>				80000.00*
	WASH	HOUDINI	130000.00	85000.00
CONTINUE(Y/N)>				

Figure 5-8. A Report with Summaries for Two Subdivisions

AREA	DIST	SALES-PERSON	QUOTA	YTD-SALES
NW	WASH	NORTH	70000.00	45000.00
		OP	105000.00	100000.00
=>				230000.00*
				652000.00*
SW	ARIZ	EPHRAM	150000.00	123000.00
=>				123000.00*
	TEX	FITZPATRICK	120000.00	84000.00
		GRODIN	140000.00	97000.00
=>				181000.00*
				304000.00*
***** END OF REPORT *****				

Figure 5-8. A Report with Summaries for Two Subdivisions (continued)

Report Summary

In addition to summarizing data for each subdivision, you can summarize data for the entire report by responding to the prompt:

FOR REPORT SUMMARY>

The procedure used to summarize report data is identical to that used to summarize subdivided data. For example, if you want a grand total of all year-to-date sales and a count of all sales people, respond as shown in Figure 5-9. You would type the following:

FOR REPORT SUMMARY> STOTAL,3COUNT

(The prompt

Sorting, Subdividing, and Summarizing

FOR SELECTION CRITERIA>

is described in Section 6.)

```
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DATA NAMES IN SALES

1: AREA          3: SALES-PERSON      5: YTD-SALES
2: DIST          4: QUOTA

TYPE NUMBER(S) FOR DATA NAME(S):

    TO INCLUDE IN REPORT> 1/5
      TO SORT BY> 1,2,3
        TO SUBDIVIDE BY> 1,2
          TO SUMMARIZE FOR: AREA> 5TOTAL
            TO SUMMARIZE FOR: DIST> 5TOTAL
              FOR REPORT SUMMARY> 5TOTAL,3COUNT
                FOR SELECTION CRITERIA>

REPORT TITLE>

PREPARING REPORT

PRODUCE THE REPORT(Y/N)?>

PRODUCE REPORT IN BATCH MODE?(N/Y)>
```

Figure 5-9. Specifying a Report Summary on the Data Names Menu

When you summarize data for the whole report, the process is independent of any sorting or subdividing done for the report. You can apply any of the five arithmetic functions to any data name that makes sense. For example, the COUNT function can be applied to any data name, and the other four functions can be applied to any data name on which arithmetic is appropriate.

Sorting, Subdividing, and Summarizing

Figure 5-10 shows the report produced by the interaction in Figure 5-9. The total number of values for the data name SALES-PERSON in this report (3COUNT) is shown at the end of the report below the last entry for SALES-PERSON. The designation 16C means that for this report, the total count of names is 16. The grand total of year-to-date sales for the whole report is shown on the same line. The designation * tells you that the value is a total.

AREA	DIST	SALES-PERSON	QUOTA	YTD-SALES
MW	IOWA	ALVAREZ	80000.00	38000.00
		CHU	85000.00	56000.00
		MARTINEZ	105000.00	77000.00
=>				171000.00*
	MINN	DRAGER	90000.00	61000.00
		RADOSLAVICH	125000.00	89000.00
=>				150000.00*
				321000.00*
NW	CAL	BONNANO	145000.00	152000.00
		JONES	130000.00	87000.00
		KROEGER	170000.00	103000.00
=>				342000.00*
	OREG	LAROUS	90000.00	50000.00
		PASTERNAK	65000.00	30000.00
=>				80000.00*
	WASH	HOUDINI	130000.00	85000.00
CONTINUE(Y/N)>				

Figure 5-10. Data Summarized for Whole Report

Sorting, Subdividing, and Summarizing

AREA	DIST	SALES-PERSON	QUOTA	YTD-SALES
NW	WASH	NORTH	70000.00	45000.00
		OP	105000.00	100000.00
=>				230000.00*
				652000.00*
SW	ARIZ	EPHRAM	150000.00	123000.00
=>				123000.00*
	TEX	FITZPATRICK	120000.00	84000.00
		GRODIN	140000.00	97000.00
=>				181000.00*
				304000.00*
		16C		1277000.00*
***** END OF REPORT *****				

Figure 5-10. Data Summarized for Whole Report (continued)

Summary-Only Reports

The first prompt on the Data Names Menu is

TO INCLUDE IN REPORT>

Up to this point, all examples of how to define reports have shown the user responding by entering one or more numbers, representing the data names to be included in the report.

It is also possible to get just summary information in a report, without listing the individual data items. If you do not list any numbers in response to this prompt, then INFORM/V produces a summary-only report. The way in which you sort and subdivide determines the points at which you will get summary data, as the following example shows.

Suppose a user has a personnel information database and wants to know how many employees are in each division. If each employee in each division is listed in the report, it will be very long and the summary information (which is all the user wants) will be hard to find (see Figure 5-11).

EMPLOYEE COUNT AT EACH DIVISION	
DIVISION	EMPLOYEE
ABC	ACTON, JOE
	ANDERSON, BARBARA
	.
	.
	ZINK, STEVEN 235C
RST	ARRON, JUDY
	ARRON, LEWIS
	.
	ZORN, JACK 127C

Figure 5-11. Employee Report with Summary Counts

Sorting, Subdividing, and Summarizing

For a large database, this would be a very long report with extraneous information that is of no particular interest. It would be preferable to define the report as shown in Figure 5-12.

```
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DATA NAMES IN PERSONNEL INFORMATION

1: DIVISION           4: EMPLOYEE NUMBER     7: PHONE EXT
2: DIVISION NUMBER    5: MANAGER              8: MAIL STOP #
3: EMPLOYEE           6: DATE HIRED

TYPE NUMBER(S) FOR DATA NAME(S):
  TO INCLUDE IN REPORT>
    TO SORT BY> 1
    TO SUBDIVIDE BY> 1
    TO SUMMARIZE FOR: DIVISION> 3COUNT
```

Figure 5-12. Defining a Summary-Only Report

The report produced by the example in Figure 5-12 is shown in Figure 5-13.

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EMPLOYEE COUNT AT EACH DIVISION	
DIVISION	EMPLOYEE

ABC	235C
RST	127C
.	.
.	.
XYZ	303C

Figure 5-13. A Summary-Only Report

SELECTION CRITERIA

SECTION

6

INFORM/V allows you to produce a report that includes only a particular part of the available data by specifying **selection criteria** -- values that the data must match in order to be included in the report. For example, you can specify that the report contain information only for the first six months of the year, or you can request a report for only certain values of **NAME**. Any data name shown on the Data Names Menu can be selected for use in selection criteria.

Specifying selection criteria is generally a two-step process (the exception is data-name to data-name comparison, which is discussed at the end of this section). For most selection criteria, the first step occurs on the Data Names Menu, where you specify the data names that will be used in specifying criteria. The second step occurs on the Report Process Menu, when you are producing the report. INFORM/V will ask you to give the selection criteria for each data name that you specified in the first step. The process is shown in Figure 6-1 and Figure 6-2.

The First Step

On the Data Names Menu, the user responds to the prompt

```
FOR SELECTION CRITERIA>
```

by entering the number of the data name that will later be used to specify selection criteria.

An example of the interaction is shown in Figure 6-1. Here the user enters 1 to tell INFORM/V that later selection criteria will apply to the data name **NAME**.

Selection Criteria

```
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DATA NAMES IN ACCOUNTING INFORMATION

1: NAME           7: DESCRIPTION       13: PRICE
2: ADDRESS        8: PURCHASE NUMBER   14: TOTAL
3: ACCOUNT        9: PURCHASE DATE     15: SHIPDATE
4: DATE          10: BACKORDERFLG     16: DELVDATE
5: CREDIT        11: QUANTITY
6: PRODUCT NUMBER 12: UNIT COST

TYPE NUMBER(S) FOR DATA NAME(S):

    TO INCLUDE IN REPORT> 1,6,11
        TO SORT BY> 1
            TO SUBDIVIDE BY> 1
                TO SUMMARIZE FOR: NAME> 11
                    FOR REPORT SUMMARY> 1COUNT,11AVERAGE
                        FOR SELECTION CRITERIA> 1
```

Figure 6-1. Specifying Data Names for Selection Criteria

The Second Step

After the user tells INFORM/V to produce the report, the Report Process Menu (Figure 6-2) appears, and the user is prompted for passwords. INFORM/V then displays the prompt for selection criteria:

SELECTION CRITERIA FOR

data name>

```

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REPORT PROCESS STARTED

PASSWORD FOR ACTG>

SELECTION CRITERIA FOR

      NAME> ALBERTSON JOHN B

```

Figure 6-2. Specifying Selection Criteria

The user enters ALBERTSON JOHN B in response to this prompt, thereby requesting information for only one value of NAME. The report produced in this case is shown in Figure 6-3.

```

PROFIT REPORT

NAME                PRODUCT NUMBER  QUANTITY  PROFIT MARGIN
-----
Albertson John B   90C                100      $200.00
                  60D                130      $19.50
                  50B                30       $37.50
                  50B                 5        $6.25
=>                265*             $263.25*

*****END OF REPORT*****

```

Figure 6-3. Report for a Specified Name

Selection Criteria

The data names that are specified for use in selection criteria are saved as part of the report, but the values supplied on the Report Process Menu are not. It is therefore easy to get the same kind of report for many different subsets of data. For example, if the user saves the report definition shown in Figure 6-1, INFORM/V will prompt for selection criteria for NAME every time the report is produced in the future. The user could therefore get the same kind of report for different individuals, or for different groups of individuals.

General Forms for Selection Criteria

The example shown above uses a very simple response to the prompt for selection values. More complex selection criteria are possible. There are two different general forms that can be used in specifying selection criteria, one of which is to use a wild card and the other of which uses an operator. You can also connect different criteria for even more restrictive or complex specifications.

Selection Using a Wild Card

The first general form for selecting values is generally used with character data, but can also be used with numeric data.

This form uses the **wild-card** character ^ within a string of literal characters. When INFORM/V searches the data, it selects values in which the literal characters match, and the wild cards can be anything. The wild card character can be used before, after, or within the literal string, and is interpreted as follows:

xyz^ A single wild-card character after a string of literal characters tells INFORM/V to report data for all values that begin with the characters specified. For example, the selection criterion CHAMB^ would select CHAMBERLAIN, CHAMBERLIN, CHAMBERS, and any other name that begins with CHAMB.

xyz^^ Two wild-card characters appearing after a string of literal characters tells INFORM/V to report data for all values that have the specified characters in any position. For example, the selection criterion BERT^^ would select BERTHOLD, ALBERTSON, HERBERT, and any other name that contains the characters BERT.

^*xyz* A single wild-card character preceding a string of literal characters tells INFORM/V to report data for all values that end with the specified characters. For example, the selection

criterion ^SON would select JOHNSON, ALBERTSON, HANSON, and any other name, of any length, that ends in SON.

w^x^yz When wild-card characters are within the string of literal characters, the exact position of each character becomes important. The values that are found must be the same length as the value given, and the characters must match on a one-for-one basis. This form tells INFORM/V to find all values in which the literal characters appear exactly as specified, in the specified positions, and the characters in the positions of the wild-card characters can be anything. For example, the selection criterion HANS^N would find both HANSEN and HANSON, but would not find HANSAAN.

Selection Using a Comparison Operator

The second general form is generally most appropriate to numeric data, but can be used with data of any type.

It can be represented simply as follows:

[operator] value

where *operator* may be any of the following:

<	or LT	less than
<=	or LE	less than or equal to
>	or GT	greater than
>=	or GE	greater than or equal to
<>	or NE	not equal to
=	or EQ	equal to (this is the default when no operator is given)

and *value* can be any string or number (so long as it is appropriate to the data name).

For example,

> 1 is equal to GT 1

and both selection criteria would select all records for which the data name value is greater than one.

Selection Criteria

Connectors in Selection Criteria

It is possible to use two or more general forms together in one selection criterion. Connectors that can be used within or between general forms to specify more than one search value are:

TO Specifies that the record reported must contain one of a range of values bounded by the value before and the value after this connector. For example,

7000 TO 10000

finds all values of the data name that are between 7000 and 10000 inclusive.

AND Specifies that the record must satisfy the expression before and after this operator. For example,

>7000 AND <10000

specifies that the value must be greater than 7000 and less than 10000.

OR Specifies that the record reported must satisfy the expression either before this operator or after it. For example,

94306 OR 94304

would retrieve only those records for which the data value is 94306 or 94304.

If both AND and OR are included in the same specification, the AND takes precedence over the OR. For example, in the following expression:

>1 AND <3 OR GT 10

the value must be either between 1 and 3 OR greater than 10.

If you enter one of the connectors as the last item before RETURN on a line, INFORM/V responds with the following prompt:

(CONTINUATION LINE)>

This prompt gives you the opportunity to add to your selection criteria.

Examples of both general forms and connectors are shown in Table 6-1.

Table 6-1. Examples of Selection Criteria

Selection Criteria	Interpretation
20 TO 30	From all the values of this data name select those between and including 20 and 30.
50 OR 99	From all the values of this data name, select only 50 and 99.
>50 AND <100	Picks all values between 50 and 100.
JOE AND MARY	Results in NO RECORD FOUND, since no value can be both JOE and MARY.
^SON AND IL^^	<p>From all the values of this data name, select those that end with the letters SON and those that contain the letters IL in any position; for example,</p> <p>Bill Johnson William Peterson</p>
"Baker Bill B"	<p>From all the values of this data name, select only "Baker Bill B".</p> <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 10px auto; width: fit-content;">NOTE</div> <p>If there are blanks in the value you want to select, you must put the value in quotation marks.</p>
20	From all the values of this data name, select only those represented by the number 20; an equal sign is understood.

Selection Criteria

Table 6-1. Examples of Selection Criteria (continued)

Selection Criteria	Interpretation
LAX OR SFO	From all the values of this data name, select LAX or SFO only.
JONES TO SMITH	From all the values of this data name, select only the names between and including JONES and SMITH.
NE 99	From all the values of this data name, select only those that are not equal to 99.
JONES TO SMITH OR BLACK	From all the values of this data name, select JONES TO SMITH, or select any value equal to BLACK.
^BOB AND BR^ OR JOE	From all the values of this data name, first select those ending with BOB and beginning with BR, then select all values equal to JOE; for example, BROWN BOB JOE

Data-Name to Data-Name Comparison

INFORM/V also allows you to select data by comparing the value in one data name with the value in another data name. This specialized kind of selection criterion is different from that just described in that the whole specification is done on the Data Names Menu, at the FOR SELECTION CRITERIA prompt. The values that are used must be numbers representing the data names available on the Data Names Menu.

Any of the comparison operators listed above for normal selection criteria can be used in data-name to data-name comparisons, with the following restrictions:

- For data names that contain character data (type X, U, or 9), the only operators allowed are =, EQ, <>, and NE. Item lengths do not have to be the same for the data names being compared.
- For all numeric data types, the types and lengths must be identical. All operators are valid.

It is not necessarily possible to tell from the data what type has been specified for the data name. For technical reasons, data names that only contain numerical data are sometimes identified as one of the character types. If you have any problems specifying data-name to data-name comparisons, see your database administrator.

Figure 6-4 shows an example of a typical data-name to data-name comparison.

```

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DATA NAMES IN SALES

    1: AREA                3: SALES-PERSON            5: YTD-SALES
    2: DIST                4: QUOTA

TYPE NUMBER(S) FOR DATA NAME(S):

    TO INCLUDE IN REPORT> 1/5
        TO SORT BY> 1,2,3
            TO SUBDIVIDE BY> 1
                TO SUMMARIZE FOR: AREA> 5
                    FOR REPORT SUMMARY>
                        FOR SELECTION CRITERIA> 5 > 4

REPORT TITLE> SALES WINNERS

PREPARING REPORT

```

Figure 6-4. Menu Responses for a Data-Name to Data-Name Comparison

Selection Criteria

In this case, the user wants to see if any of the sales force have yet gone over their sales quota. On the Data Names Menu, the user responds to the prompt

```
FOR SELECTION CRITERIA>
```

by answering 5 > 4. This response tells INFORM/V to report data only when YTD-SALES is greater than QUOTA.

Figure 6-5 shows the resulting report. Only one person has so far exceeded his personal sales quota.

Note that this selection criterion is saved if the report is saved. Therefore, whenever this report is produced in the future, it will always report only those sales people who are over quota.

SALES WINNERS				
AREA	DIST	SALES-PERSON	QUOTA	YTD-SALES
NW	CAL	BONNANO	145000.00	152000.00
				152000.00*
***** END OF REPORT *****				
RETURN TO CURRENT DATA NAMES MENU(Y/N)?>				

Figure 6-5. The Report Produced by a Data-Name to Data-Name Comparison

CREATING YOUR OWN DATA NAMES

SECTION

7

INFORM/V allows you to create your own **user-defined** data names. A user-defined data name is one that you create when you want to include in the report a column of data that is derived from one of the data names in the Group or data set.

The total number of user-defined data names you can add depends on the present number of data names in the Group or data set. The limits on the number of data names allowed are shown in Appendix C. You can add data names up to those limits.

For each user-defined data name, you must specify an existing data name and a computational expression. You may also specify an **edit mask** --a format that tells INFORM/V how to display the resulting values. The steps to accomplish both tasks are described below.

User-defined data names cannot be used when specifying selection criteria.

Defining a Data Name

An example of how a user-defined data name is created is shown in Figure 7-1. To create one, respond to the prompt:

TO INCLUDE IN REPORT>

with a plus sign (+). INFORM/V next prompts with

NEW DATA NAME>

to which you respond with the user-defined data name. The name may be up to 20 characters long (upper and lower case), including spaces. The data type for a user-defined data name is always P (11,0,6).

In the example shown in Figure 7-1, the user-defined data name is PROFIT MARGIN.

Creating Your Own Data Names

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

DATA NAMES IN ACCOUNTING INFORMATION

1: NAME           7: DESCRIPTION      13: PRICE
2: ADDRESS        8: PURCHASE NUMBER  14: TOTAL
3: ACCOUNT        9: PURCHASE DATE   15: SHIPDATE
4: DATE          10: BACKORDERFLG   16: DELVDATE
5: CREDIT        11: QUANTITY
6: PRODUCT NUMBER 12: UNIT COST

TYPE NUMBER(S) FOR DATA NAME(S):

    TO INCLUDE IN REPORT> +

        NEW DATA NAME> PROFIT MARGIN
    COMPUTATIONAL EXPRESSION> N14 * .50
        EDIT MASK> $$,$$$.^
```

Figure 7-1. Creating a User-Defined Data Name

Defining the Computational Expression

Next, INFORM/V prompts you with:

```
COMPUTATIONAL EXPRESSION>
```

to which you respond with an expression that will produce values for the user-defined data name. You can specify a simple expression, such as the addition of two data names, or a more complex expression. (The operators that may be used in computational expressions are shown later in this section.) You can use numbers for data names (N1 for data name 1, N2 for data name 2, and so on) and digits for values

(digits may include decimal points). It is also possible to define data names in terms of other user-defined data names.

In the example in Figure 7-1, the user-defined data name PROFIT MARGIN is determined by multiplying data name 14 (TOTAL) by .50. This computational expression looks like this:

N14 * .50

The N identifies the first number in the expression as a data name number.

Defining the Edit Mask

Next, INFORM/V allows you to specify an **edit mask** -- a format used to display values -- for each user-defined data name. The prompt is

EDIT MASK>

In Figure 7-1 the edit mask **\$\$,\$\$\$.^** specifies that the value, when shown in the report, should be preceded by a dollar sign (\$) and that a decimal point should appear two positions from the right.

If you wish to show digits to the right of the decimal point for a user-defined data name, you must specify an edit mask. For example, if the computed value of a data name is .6 and no edit mask is specified, the value will be rounded to the nearest integer, in this case, 1. However, if you specify the following edit mask, **^.^**, the value .6 will appear as 0.6. (The edit mask characters and examples of their use are shown later in this section.) If you do not want to supply an edit mask, respond to the prompt by entering **RETURN**.

After you provide an edit mask (if you want to), INFORM/V redisplay the prompt:

NEW DATA NAME>

If you do not want to add another user-defined data name, press **RETURN**. INFORM/V redisplay the Data Names Menu, adding any user-defined data names to the menu. Then it prompts you as usual. Figure 7-2 shows the Data Names Menu after a user-defined data name has been added to it. The user-defined data name PROFIT MARGIN appears as the last data name.

Creating Your Own Data Names

If you save the report definition in the catalog (option 6 on the Main Menu), the user-defined data names are retained as part of that report definition. However, they do not become a part of the underlying data sets or files. Values for the user-defined data names are calculated anew each time the report is produced.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

DATA NAMES IN ACCOUNTING INFORMATION

1: NAME           7: DESCRIPTION    13: PRICE
2: ADDRESS        8: PURCHASE NUMBER 14: TOTAL
3: ACCOUNT        9: PURCHASE DATE  15: SHIPDATE
4: DATE          10: BACKORDERFLG  16: DELVDATE
5: CREDIT        11: QUANTITY      17: PROFIT MARGIN
6: PRODUCT NUMBER 12: UNIT COST

TYPE NUMBER(S) FOR DATA NAME(S):

    TO INCLUDE IN REPORT > 1,6,11,17
        TO SORT BY > 1
            TO SUBDIVIDE BY > 1
                TO SUMMARIZE FOR: NAME > 11,17
                    FOR REPORT SUMMARY >
                        FOR SELECTION CRITERIA >

REPORT TITLE > PROFIT REPORT
```

Figure 7-2. A Data Names Menu that Includes a User-Defined Data Name

After you respond to the reporting prompts shown in Figure 7-2, INFORM/V produces the report shown in Figure 7-3.

PROFIT REPORT			
NAME	PRODUCT NUMBER	QUANTITY	PROFIT MARGIN
Albertson John B	90C	100	\$200.00
	60D	130	\$19.50
	50B	30	\$37.50
	50B	5	\$6.25
=>		265*	\$263.25
Baker Bill B	80B	55	\$27.50
		55*	\$27.50
Lewis Charles	55C	20	\$.75
	90C	700	\$1400.00
		720*	\$1400.75
Limburger Frank	60D	15	\$22.50
		15*	\$22.50
Peterson Paul	70A	20	\$15.00
		20*	\$15.00
Smith John Q	11A	40	\$2.00
	11B	400	\$20.00
	11C	400	\$20.00
	=>	840*	\$42.00
*****END OF REPORT*****			

Figure 7-3. A User-Defined Data Name Included in a Report

Computational Expressions

A computational expression may be used to calculate the value of a user-defined data name. All values for the user-defined data name are automatically initialized to 0, and computations are carried out before the data is sorted or displayed in the report. The arithmetic operators available and their meanings are:

+	add
-	subtract
*	multiply
/	divide; give the quotient
//	divide; give the remainder

All arithmetic operations are performed in the following order:

1. Division giving the remainder
2. Division giving the quotient
3. Multiplication
4. Subtraction
5. Addition

You can vary the order of operations by using parentheses to group expressions.

Edit Masks

An edit mask is a tool used to modify the way data is presented without changing the data itself. Edit masks can be defined for any user-defined data name.

An edit mask used to express data in dollars and cents is:

```
EDIT MASK> $$$,$$$!^^
```

This edit mask specifies that for every value to which this mask applies, a decimal point should be inserted two positions from the right, a comma should be placed at the third position to the left of the decimal

point, and the entire value should be preceded by a dollar sign. This edit mask works for all values up to \$99,999.99.

Edit masks cannot be greater than 30 characters. The INFORM/V edit mask characters are shown in Table 7-1. Examples are shown in Table 7-2.

Table 7-1. Edit Masks

Edit Mask Character	Meaning
^	Insert the actual data in this position.
Z	Suppress leading zeros.
\$	Leading zeros are suppressed; the right-most leading zero is replaced with a "\$".
*	Asterisks are displayed in place of leading zeros.
.	Add a decimal point in the position specified in the source data.
!	Add a decimal point at the position indicated regardless of where a decimal point is in the source data.
-	When used at the end on an edit mask, this character denotes a negative value.
DR or CR	When used as the last characters of the edit mask, values are displayed with a trailing DR (DEBIT) or CR (CREDIT).

Creating Your Own Data Names

Table 7-2. Examples of Edit Masks

Value	Edit Mask	Value Display
000123.4	\$\$, \$\$\$! ^^	\$12.34
0001234	\$\$, \$\$\$! ^^	\$12.34
000123.4	\$\$, \$\$\$. ^^	\$123.40
0001234	\$\$, \$\$\$. ^^	\$1,234.00
0001234	***, **\$. ^^	*\$1,234.00
0001234	zzzzzzz. ^^	1234.00
0001234	zzzzzzz! ^^	12.34
0001234	^^/^^/^^	00/12/34
0001234	^^^^. ^^	1234.00
0001234	^^^^! ^^	0012.34
-0001234	\$\$, \$\$\$. ^^CR	\$1,234.00CR
0001234	\$\$, \$\$\$. ^^CR	\$1,234.00
-0001234	\$\$, \$\$\$. ^^DR	\$1,234.00DR
0001234	\$\$, \$\$\$. ^^DR	\$1,234.00

REPORT FORMAT OPTIONS AND BATCH JOB OPTIONS

SECTION

8

This section contains the information you need to alter the appearance of a report on the terminal or on printer paper, or to control the default parameters for creating reports in batch mode. Normally, without any instructions from you, INFORM/V formats reports or creates batch jobs according to preset values called **defaults**. If you want to override these default values, choose option 8 on the Main Menu, as is shown in Figure 8-1. You can also use this option to see what options are available, and what the default values are, without changing them.

```
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```

```
INFORM OPTIONS:
```

- 1: DEFINE A REPORT
- 2: DISPLAY REPORT CATALOG
- 3: SELECT A REPORT DEFINITION
- 4: PREVIEW REPORT LAYOUT
- 5: PRODUCE THE REPORT
- 6: ADD REPORT DEFINITION TO CATALOG
- 7: DELETE A REPORT DEFINITION FROM CATALOG
- 8: SET OPTIONS
- 9: MODIFY THE REPORT
- 10: EXIT FROM INFORM/V

```
TYPE AN OPTION NUMBER > 8
```

Figure 8-1. Choosing to Change Format or Batch Options

Report Format Options and Batch Job Options

When you select option 8, the Format Options Menu is displayed, and the prompts shown in Figure 8-2 appear one at a time. Each prompt shows you what the current value of the option is. If you have changed any option during the current INFORM/V session, then the value you have set appears here. If not, this menu will show all default values.

```
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FORMAT OPTIONS:

CURRENT VALUES IN PARENTHESES

    TERMINAL PAGE WIDTH ( 79)>
    TERMINAL PAGE LENGTH ( 22)>
    PRINTER PAGE WIDTH (132)>
    PRINTER PAGE LENGTH ( 58)>
    SHOW TITLE LINE (YES)>
    SHOW HEADING (YES)>
    ELIMINATE BLANK LINES ( NO)>
    ELIMINATE DUPLICATE LINES ( NO)>
    USE DEFAULT BATCH RESPONSES(YES)>
    NATIVE LANGUAGE(NATIVE-3000  )>

TYPE 'RETURN' KEY TO CONTINUE
```

Figure 8-2. Format Options Menu

When you leave INFORM/V, all options are automatically reset to their default values.

Any report definition that you add to the INFORM/V catalog (option 6 on the Main Menu) includes the format options that were in effect when the report was created. When you activate a saved report, not only is it produced with the format options with which it was saved; it also changes the default environment so that any new reports created during the session have the same options. You can reset the options to default values by leaving INFORM/V and reentering it, or by calling up the Format Options Menu and resetting the options to their default value.

To change format options on a saved report, first call up the report from the catalog, then call up the Format Options Menu and make the changes you want, then use option 6 to save the report again. Note that any changes in format will not become part of the report unless it is resaved.

Formatting Prompts

There are eight ways to change the format of a report, each corresponding to the prompts shown on the Format Option Menu. The numbers in parentheses are the preset (or current) values. These values may be changed by typing a different value next to the prompt.

The final two prompts on the Format Option Menu control two related parameters: the next to last controls use of batch options, and the last controls the language that INFORM/V uses.

All the prompts are described in order below.

TERMINAL PAGE WIDTH (79)> -- This prompt may be used to change the number of characters per line you want to display on a terminal. If your terminal can display more than 79 characters per line, then you can change the terminal page width to take advantage of the terminal's capacity. You may set terminal page width to any value between 1 and 300.

TERMINAL PAGE LENGTH (22)> -- The number of lines displayed on the terminal can be changed using this prompt. The range of values you can give in response to this prompt is 1 to 500 lines. When the report is displayed, the message:

CONTINUE (Y/N)>

appears following the specified number of lines. If you type Y or RETURN, the next 22 lines (or whatever number you specify) are displayed, and you are reprompted with:

CONTINUE (Y/N)>

You may want to display the report continuously from beginning to end. To do so, type C (for "continuous") in response to the PAGE LENGTH prompt.

PRINTER PAGE WIDTH (132)> -- This prompt may be used to change the number of characters displayed on each printed line. This number may range from 1 to 300. A line length greater than 132 should only be used if you are printing in compressed mode or using a laser printer.

Report Format Options and Batch Job Options

PRINTER PAGE LENGTH (58)> -- The number of lines printed per page. After the specified number of lines are printed, the printer goes to the top of the next page, prints the header, report title, and column headings, then continues with the report. The range of acceptable values is 1 to 500 lines. If you type C, INFORM/V prints the report continuously from beginning to end.

SHOW TITLE LINE (YES)> -- If you change the preset value from YES to NO, the header (which consists of the date, time, and page number) will not be printed at the top of each printed page. Note that this option does not apply to the title that you specify when you define a report. It applies to the header line normally printed by the printer on the top of each page, above the report title.

SHOW HEADINGS (YES)> -- Normally, each time a new screenful of information is displayed or a new page of the report is printed, column headings (data names) are shown. By typing NO to this prompt, you will suppress the column headings.

ELIMINATE BLANK LINES (NO)> -- This prompt gives you the option of keeping or deleting all blank lines that might result when no data is available for some lines of the report.

ELIMINATE DUPLICATE LINES (NO)> -- This prompt specifies that only the first of a series of duplicate lines is to be displayed on the terminal or printed on the printer.

USE DEFAULT BATCH RESPONSES (YES)> -- This prompt allows you to override the default parameters that are normally used when producing reports in batch mode. If you answer N to this prompt, then when you produce a report in batch, you will be prompted for several options on the Report Process Menu after you have supplied the required passwords. The prompts are shown and explained at the end of this section.

NATIVE LANGUAGE (*default language*) -- This prompt allows you to choose the language to be used. INFORM/V looks for a specified user language and if it finds one, it puts that language in as the default: for example,

NATIVE LANGUAGE (FINNISH)>

The response to the LANGUAGE prompt must be a one- or two-digit code that signifies the language. See the *Native Language Support Reference Manual (32414-90001)* for a table of the allowed codes.

Batch Options

By default, when a batch job is set up, the system supplies a job name, prints out information about the job in a job listing, and cleans up the files created during the batch operation. INFORM/V allows you to override the normal processing features. If you want to do so, you need to call up the Format Options Menu by choosing option 8 on the Main Menu, then answering N to the following prompt on the Format Options Menu:

USE DEFAULT BATCH RESPONSES (YES) >

Then, when you produce a report in batch mode, you will be prompted to supply values for the following options:

SAVE REPORT IN CATALOG?(N/Y) > -- If you are sure at this point that the report is the way you want it, you can save it right away by answering Y to this prompt. INFORM/V will then prompt for the report name and the description to store in the catalog.

TYPE REPORT NAME(6) > -- This prompt occurs only if you have decided to save the report. Enter the name under which you want to save the report in the catalog, up to six characters.

TYPE REPORT DESCRIPTION(50) > -- You may enter a description, up to fifty characters, that will be saved in the report catalog. This description is shown whenever the catalog is displayed or printed.

ENTER JOB NAME (INFJOB) > -- If you respond by typing RETURN, the default job name INFJOB nn will be used; the nn will be replaced by a two-digit number to make the job name unique. Alternatively, you can enter a name of your choice. It can be up to eight characters, and the first character must be alphabetic.

PURGE \$STDLIST UPON COMPLETION OF JOB?(N/Y) > -- If you respond by typing RETURN or N, the file \$STDLIST will be retained after the job is done. If you respond with Y, \$STDLIST will be purged.

PURGE JOB FILE UPON COMPLETION OF JOB?(Y/N) > -- If you respond with RETURN or Y, the job file will be purged after the job is done. If you answer N, the job file will be retained.

Figure 8-3 shows the Data Names Menu as it appears when batch options are under manual control.

Report Format Options and Batch Job Options

```
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DATA NAMES IN CUSTG

    1: CUSTOMER ACCOUNT      3: CUSTOMER ADDRESS      5: CUSTOMER STATE
    2: CUSTOMER NAME        4: CUSTOMER CITY        6: CUSTOMER COUNTRY

TYPE NUMBER(S) FOR DATA NAME(S):

    TO INCLUDE IN REPORT > 1
    TO SORT BY > !

REPORT TITLE > CUSTOMER LIST

PREPARING REPORT

PRODUCE THE REPORT(Y/N)?>

PRODUCE REPORT IN BATCH MODE?(N/Y) > Y

SAVE REPORT IN CATALOG?(N/Y) > Y

TYPE A REPORT NAME(6) > CUSTLI

TYPE REPORT DESCRIPTION(50) > COMPLETE CUSTOMER LIST

ENTER JOB NAME(INFJOB) > XJOB10

PURGE $STDLIST UPON COMPLETION OF JOB?(N/Y) >

PURGE JOB FILE UPON COMPLETION OF JOB?(Y/N) >
```

Figure 8-3. Prompts for Batch Options

One additional batch prompt occurs on the Report Process Menu when batch options are under manual control.

Report Format Options and Batch Job Options

ENTER JOB PRIORITY> -- This option should be used if you want to defer the job for processing overnight. Job priority levels differ from installation to installation, and are determined by the system operator. If you want to defer processing, your database administrator can tell you what information to enter in response to this prompt.

Figure 8-4 shows the Report Process Menu as it appears when batch options are under manual control. All prompts are the same as for normal processing except the PRIORITY prompt.

```
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REPORT PROCESS STARTED

PASSWORD FOR PURCHA>

PREPARE TO STREAM BATCH JOB

ENTER USER PASSWORD>

ENTER ACCOUNT PASSWORD>

ENTER GROUP PASSWORD>

ENTER JOB PRIORITY> 2

#J93
BATCH JOB SUCCESSFULLY STREAMED

RETURN TO CURRENT DATA NAMES MENU(Y/N)?>
```

Figure 8-4. The Report Process Menu when Batch Options Are Under Manual Control

VARIABLES IN REPORT TITLES

SECTION

9

When you are defining a report on the Data Names Menu, the final part of the definition process is to supply a report title. The title you specify may be up to 79 characters long (including spaces) and starts at the left margin. You may also want to include information in the title that changes, such as the current date, the time, the page number, and the selection criteria. To allow you to do so without having to modify the title each time you produce the report, you can use one or more of the INFORM/V variables shown in Table 9-1. Each time INFORM/V encounters one of these variables while it is producing the report, it substitutes the current value for that variable.

For example, if you specify \$TODAY in the title line, and if the report is produced on July 16, 1986, the title will include 7/16/86. If you specify \$TIME in the title, then the current time will be displayed each time the report is produced. Use of \$TODAY and \$TIME will help you track different versions of a report that is run repeatedly with constantly changing data.

You can combine two or more variables in one title. For example, Figure 9-1 shows the use of several variables in a title line.

Table 9-1. Variables That Can be Used in Report Titles

Variable*	Values Used in Title	Example
\$TODAY	today's date (MM/DD/YY)	11/24/86
\$MONTH	month (characters)	AUGUST
\$M	month (number)	8
\$YEAR	year (four numbers)	1986
\$Y	year (two numbers)	86
\$DAY	day of the month	17
\$TIME	present time (HH:MM AM/PM)	10:45 AM
\$DATELINE	today's date (MPE/V format)	Fri. May 23, 1986, 12:06 PM
\$PAGE	report page number	53
\$SELECT	all selection criteria	PROD-NO > 1600

*Variable names need not be capitalized.

Variables in Report Titles

If the report is displayed on the terminal, the title appears at the top of the screen each time a new page is displayed. If the report is sent to the line printer, the title appears on each new page of the report.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

DATA NAMES IN ACCOUNTING INFORMATION

  1: NAME           7: DESCRIPTION       13: PRICE
  2: ADDRESS        8: PURCHASE NUMBER  14: TOTAL
  3: ACCOUNT        9: PURCHASE DATE    15: SHIPDATE
  4: DATE          10: BACKORDERFLG   16: DELVDATE
  5: CREDIT        11: QUANTITY
  6: PRODUCT NUMBER 12: UNIT COST

TYPE NUMBER(S) FOR DATA NAME(S):

      TO INCLUDE IN REPORT> 1,6,11
          TO SORT BY>
      FOR REPORT SUMMARY> 11TOTAL
      FOR SELECTION CRITERIA>

REPORT TITLE> SALES REPORT ON $TODAY AT $TIME, PAGE: $PAGE
```

Figure 9-1. Specifying Variables in a Report Title

The report produced by the specifications in Figure 9-1 is shown in Figure 9-2.

SALES REPORT ON 12/20/85 AT 10:25:33 PM, PAGE:1

NAME	PRODUCT NUMBER	QUANTITY
Lewis Charles	55C	20
Peterson Paul P	70A	20
Albertson John B	90C	100
Lewis Charles	90C	700
Limburger Frank	60D	15
Albertson John B	60D	130
Baker Bill B	80B	55
Albertson John B	50B	30
Albertson John B	50B	5
Smith John Q	11A	40
Smith John Q	11B	400
Smith John Q	11C	400
		1915*

*****END OF REPORT*****

Figure 9-2. Report Titles with Values Replacing Variables

MODIFYING A REPORT DEFINITION

SECTION

10

One of the most important features of any report writer is the capability to change reports once they have been defined. INFORM/V provides a framework for modifying reports that is particularly helpful and easy to use. It presents each prompt, with the current responses, then prompts you for changes. You are quickly reminded of the exact existing specification, then can compare your new entry with the old one.

You can modify a report from three points in INFORM/V: from the Main Menu, from the bottom of the last page of a displayed report, or from the bottom of the Data Names Menu if you choose not to produce a report that has just been defined. If you have just defined or produced a report, INFORM/V prompts with

```
RETURN TO CURRENT DATA NAMES MENU(Y/N)>?
```

When you respond with Y, INFORM/V displays the modify version of the Data Names Menu for the current report, and you can begin making changes.

If you are beginning on the Main Menu, you can modify the current report by selecting option 9. An example is shown in Figure 10-1.

If there is no current report, INFORM/V prompts you as follows for the report definition name:

```
CURRENT REPORT HAS NOT BEEN SPECIFIED
```

```
TYPE A REPORT NAME(6)>
```

When you supply a report definition name, INFORM/V reads it in as the current report and prints the Data Names Menu corresponding to that report.

Modifying a Report Definition

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

INFORM OPTIONS:

    1: DEFINE A REPORT
    2: DISPLAY REPORT CATALOG
    3: SELECT A REPORT DEFINITION
    4: PREVIEW REPORT LAYOUT
    5: PRODUCE THE REPORT
    6: ADD REPORT DEFINITION TO CATALOG
    7: DELETE A REPORT DEFINITION FROM CATALOG
    8: SET OPTION
    9: MODIFY THE REPORT
   10: EXIT FROM INFORM/V

TYPE AN OPTION>9
```

Figure 10-1. Choosing to Modify a Report

Every prompt acts the same when you are modifying a report as when you are defining one except that the prompt is displayed first with (OLD) appended, followed by the existing responses. Then the prompt will be repeated with (NEW) tagged to it. An example is shown in Figure 10-2.

At this point, you can respond in one of the following ways:

- Type in new value(s).
- Press **RETURN** to keep the old values.
- Type a space and press **RETURN** to remove all the old value(s).

Modifying a Report Definition

- Type] to return to the previous prompt (or if used with the first prompt, return to the Main Menu).
- Type]] to redisplay the Data Names Menu and start over from the INCLUDE prompt. Any modifications done up to that point will be saved in the current report.
- Press **CONTROL** Y to return to the Main Menu.

```
INFORM/V  HP32246v.uu.ff - (C) Hewlett-Packard Co. 1986

DATA NAMES IN INVENTORY

1: PART          3: COST          5: PRODUCT LINE
2: LOCATION     4: PRICE          6: QTY ON HAND

TYPE NUMBER(S) FOR DATA NAME(S):

    TO INCLUDE IN REPORT(OLD): 1,4,3,6
    TO INCLUDE IN REPORT(NEW)>
        TO SORT BY(OLD): 1,4,3
        TO SORT BY(NEW)> 1,4
        TO SUBDIVIDE BY(OLD): 1,3
        TO SUBDIVIDE BY(NEW)>

INVALID ENTRY IGNORED(DATA NAMES SELECTED MUST BE IN SORTED LIST):3
    TO SUBDIVIDE BY(OLD): 1,3
    TO SUBDIVIDE BY(NEW)>
    FOR REPORT SUMMARY(OLD): -
    FOR REPORT SUMMARY(NEW)> ]
    TO SUBDIVIDE BY(OLD):
    TO SUBDIVIDE BY(NEW)> ]]
```

Figure 10-2. Modifying a Report

In the example in Figure 10-2, the user's responses are interpreted as follows:

The user responds to the first prompt,

Modifying a Report Definition

TO INCLUDE IN REPORT(NEW) >

by entering a RETURN, signaling that the same four data items should be included in the modified report.

Next, in response to

TO SORT BY(NEW) >

the user enters 1, 4, and thereby changes the sort specification.

Next, the prompt

TO SUBDIVIDE BY(NEW) >

is answered by RETURN, meaning that the old values should be retained here. However, INFORM/V requires that the user change the old response, since the sort data names have been changed and the old SUBDIVIDE response is no longer valid. When reprompted, the user enters a space, followed by RETURN, thereby erasing the old response without entering a new response.

When prompted with

FOR REPORT SUMMARY(NEW) >

the user decides that he wants to subdivide after all, and so enters], to recall the preceding prompt. When the SUBDIVIDE prompt appears again, the user decides that he should start again at the beginning. Entering]] will cause INFORM/V to clear the screen, then redisplay the Data Names Menu down through the first (NEW) prompt, thereby allowing the user to start the modification over again.

This section presents the technical aspects of preparing data for access by users of INFORM/V. It describes, first, the procedures for establishing INFORM Groups, then the mechanics of file linkage when the elements for a report are drawn from more than one file, and, finally, the procedures for defining INFORM/V security.

Unlike Sections 1 through 10 of this Guide, this section is written for database administrators. It is assumed that the reader has a thorough knowledge of DICTIONARY/V, IMAGE/V or TurboIMAGE/V databases, and MPE/V.

DICTIONARY/V is used to establish INFORM Groups and to define the security for INFORM/V users. It is the job of the database administrator to define the data elements in the dictionary and to organize the data appropriately for the reporting needs of the INFORM/V users.

The first step in preparing the data dictionary for INFORM/V users is to be sure that all elements the user needs are defined in the data dictionary. In addition, each of these elements must be associated with its file (MPE, KSAM, or data set file), and each data set must also be associated with its database file.

Once the data elements are defined in the data dictionary and are associated with a file, you can begin organizing the data for use with INFORM/V. You use the dictionary maintenance program DICTDBM to establish INFORM/V Groups and to associate elements and files with them. You also use DICTDBM to establish INFORM/V security.

Establishing INFORM/V Groups

It is possible, of course, to access databases directly through INFORM/V without creating Groups. The user can be given access to any data set that is defined in the data dictionary. Then why bother to establish INFORM Groups? Because they provide a logical view of data as defined by business needs. More specifically, there are three reasons for setting up Groups:

Technical Administration

1. To conceal the details of a data set or database structure from the user.
2. To make data from an MPE or KSAM file available to INFORM/V users. Data in MPE or KSAM files can only be accessed if it is related to an INFORM Group.
3. To combine data elements from different files and data sets into one reporting Group.

The real power of INFORM/V lies in the ability to pull together data from various sources to create one reporting environment.

INFORM Groups follow the same hierarchical plan as other data dictionary structures. At the top of the hierarchy is \$MENU, which is the INFORM/V parent Group. \$MENU is automatically created for you when you initialize your data dictionary. Other Groups are related to \$MENU as child Groups. Child Groups can in turn be parent Groups to other Groups. As many as sixteen levels of nesting are allowed for subgroups under one Group. Elements can be associated only with the lowest level child Groups. When an INFORM/V user makes the Group and subgroup selections on the INFORM/V menus, the user will be following the hierarchy of menus that you have created in the data dictionary.

INFORM/V security allows you to specify which Groups and subgroups will appear on which user's menus. If INFORM/V security is not established, all Groups related to \$MENU will appear on the INFORM/V Group Menu for all users of the data dictionary; the next and all subsequent levels of Groups will appear on INFORM/V Subgroup Menus for all users. (The effect of INFORM/V security on the hierarchy of Groups is described at the end of this section.)

The hierarchy of \$MENU, Groups, subgroups, and elements is represented in Figure 11-1.

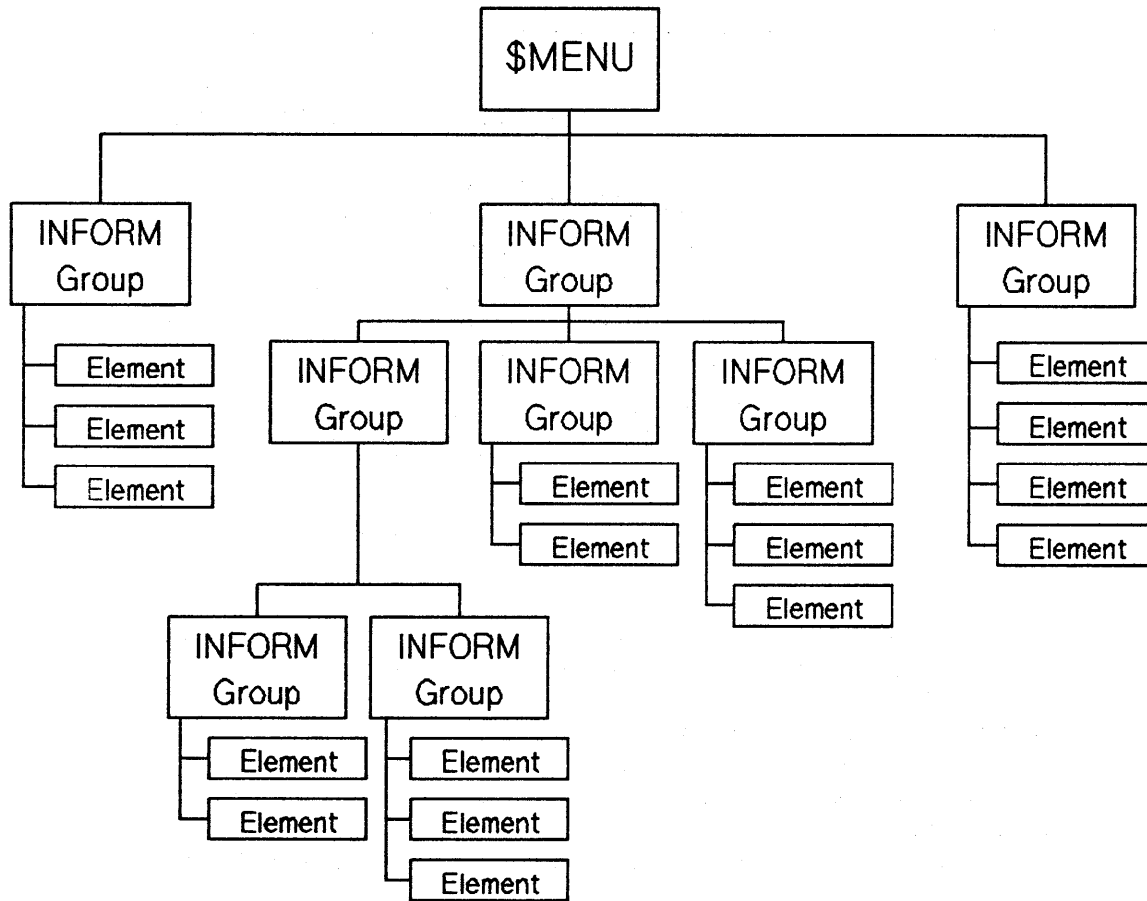


Figure 11-1. The INFORM/V Hierarchy

The following paragraphs describe the way to set up a Group, first, for the simplest case of a single file, then for two data sets, then three data sets. These simple cases provide a vehicle for explaining the DICTONARY/V commands used and the mechanics of setting up INFORM/V for users.

Technical Administration

The discussion "Linking Files" then examines in detail the principles of linking data sets and files -- both the default rules that INFORM/V uses and the way in which you can control the linking process. These principles become quite important when you are designing complex INFORM/V Groups that combine many files with data sets, combine data sets from different databases, or use intermediate data sets to serve as indirect links between data sets.

Creating a Group from a File

To use data from an MPE or KSAM file in INFORM/V, you must create an INFORM/V Group from the file. Though the data in databases can be accessed directly, the data in MPE and KSAM files cannot.

You use the DICTDBM utility to establish an INFORM/V Group from a file. The process requires three steps:

1. Use the CREATE command to create the Group.
2. Associate the appropriate elements with the Group via the ADD command.
3. Use the RELATE command to establish the place of this Group within the INFORM/V hierarchy.

For complete documentation of these commands, see the *DICTIONARY/V Reference Manual (32244-90001)*. The discussion here assumes that you are familiar with the commands and their options.

For example, assume that you want to create a Group from a KSAM file called CREDIT that contains the following data elements:

```
ACCOUNT-NUMBER  
CREDIT-CODE  
MAX-CREDIT
```

After verifying that the data elements already exist in the data dictionary and that all are associated with a file, invoke the dictionary maintenance utility and issue the command

```
CREATE GROUP
```

The name that you supply for GROUP is the one that will be displayed on the Group Menu. All the other prompts are optional in this situation.

Figure 11-2 shows an example of the prompts that will be displayed and the user's responses. The user establishes the Group called CREDIT and chooses to give it a DESCRIPTION.

```
> CREATE GROUP
      GROUP CREDIT
      LONG NAME
      TYPE
      RESPONSIBILITY
      DESCRIPTION CREDIT STATUS BY ACCOUNT NUMB
>
```

Figure 11-2. Prompts to Create a Group

The next step is to associate the elements that you want to appear as data names on the Data Names Menu with the Group. The ADD command is used for this purpose. An example of the command and the prompts is shown in Figure 11-3. In this case, the user wants the Group to contain only two of the three data elements that are in the file.

```
> ADD GROUP
      GROUP CREDIT
      ELEMENT ACCOUNT-NUMBER
      ELEMENT ALIAS
      FILE
      VALUE AS A LINK
      DISPLAY ELEMENT ON MENU (Y/N)?
      DESCRIPTION
      ELEMENT CREDIT-CODE
      ELEMENT ALIAS
      ELEMENT
```

Figure 11-3. Associating Elements with the Group

The only prompts to which you must respond when making up a Group from a single file are

```
GROUP
ELEMENT
```

The other prompts become important when data for a Group is taken from more than one file, and they will be discussed later in that context.

The final step is to use the RELATE command to define the place of the Group within the hierarchy. In the example in Figure 11-4, the Group just created is related to \$MENU as the parent. The Group CREDIT will therefore be displayed on the Group Menu when the user invokes INFORM/V.

```

> RELATE GROUP
    PARENT GROUP $MENU
    CHILD GROUP CREDIT
    DESCRIPTION
    CHILD GROUP
>

```

Figure 11-4. Relating the New Group to the Hierarchy

After the three steps are completed, it is advisable to check the work just done. The example in Figure 11-5 uses the SHOW command to do this.

```

> SHOW GROUP
    GROUP CREDIT
GROUP                                     TYPE: RESPONSIBILITY:
CREDIT
ELEMENT(ALIAS):                          PROPERTIES:                          ELEMENT(PRIMARY):
ACCOUNT-NUMBER                            X (10,0,10)                          ACCOUNT-NUMBER
CREDIT-CODE                               X (10,0,10)                          CREDIT-CODE
>

```

Figure 11-5. Displaying the New Group

Technical Administration

If you need to change a Group after it has been established, use the **MODIFY**, **CHANGE**, or **UPDATE** command. These commands are all fully documented in the *DICTIONARY/V Reference Manual*.

Creating a Group from Two Files or Data Sets

You may find that users frequently need to generate reports from information contained in more than one file or data set. The most important thing to remember in defining INFORM Groups across files is that files are linked through common elements and that, for data sets and KSAM files, the common element must be a search item or key item in the file being linked to. In other words, in order to take data from file A and file B, the two files must have a data element in common.

For example, consider the two data sets shown in Figure 11-6.

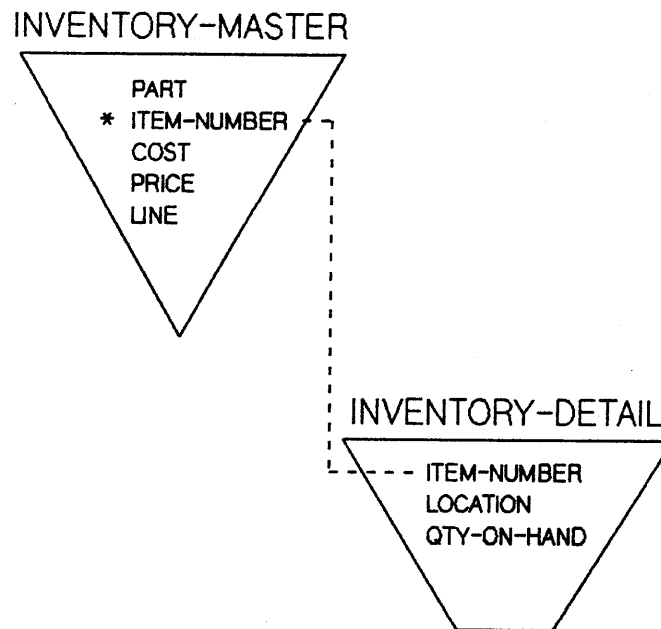


Figure 11-6. Two Data Sets Used to Create a Group

Assume that from these two data sets the user wants to create one Group called INVENTORY. For simplicity, assume that all elements are to be used from both data sets. The two sets have in common the element called ITEM-NUMBER, and that element is a search item in the data set INVENTORY-MASTER. (Search items are marked by an asterisk in all figures.)

The process of creating the Group involves the same three steps described earlier for creating a Group from a file: (1) create the Group, (2) associate the elements with it, and (3) establish its place in the hierarchy. However, the responses to the prompts are slightly different. An example of the first step in the process is shown in Figure 11-7. Here the user names the Group being created INVENTORY. The response to all other prompts is optional.

```

> CREATE GROUP
      GROUP INVENTORY
      LONG NAME
      TYPE
      RESPONSIBILITY
      DESCRIPTION
>
  
```

Figure 11-7. Creating Another Group

The association of elements with the Group is shown in Figure 11-8. This step is very similar to that shown in Figure 11-3, when a Group was being established from a single file.

```
> ADD GROUP
      GROUP INVENTORY
      ELEMENT PART
      ELEMENT ALIAS
      FILE
      VALUE AS A LINK
      DISPLAY ELEMENT ON MENU (Y/N)?
      DESCRIPTION
      ELEMENT ITEM-NUMBER
      ELEMENT ALIAS
      ELEMENT COST
      ELEMENT ALIAS
```

Figure 11-8. Associating Elements from Two Data Sets with a Group

One of the elements in this Group, ITEM-NUMBER, is located in both files. By default, INFORM/V will take the data for this element from the detail set. If you want to force INFORM/V to take the values from the master set, you can do so by supplying the master set file name in response to the FILE prompt. Which file is used may affect what data is included in the report. The discussion "Linking Files" later in this section describes in detail the factors involved in specifying the file for any element.

```

ELEMENT PRICE
ELEMENT ALIAS !

```

```

ELEMENT LINE
ELEMENT ALIAS PRODUCT LINE
FILE !

```

```

ELEMENT LOCATION
ELEMENT ALIAS !

```

```

ELEMENT QTY-ON-HAND
ELEMENT ALIAS QTY ON HAND
FILE !

```

```

ELEMENT

```

>

Figure 11-8. Associating Elements from Two Data Sets with a Group (continued)

When adding the element LINE, the user specifies the alias PRODUCT LINE. This more meaningful name for the element will appear on the Data Names Menu. An alias is also specified for the element QTY-ON-HAND. Note that an alias specified when adding elements to a Group applies only to the INFORM/V Data Names Menu. It should not be confused with aliases used in other contexts by DICTIONARY/V.

The next step is to establish the place of this Group in the hierarchy. An example of the interaction is shown in Figure 11-9. Since the Group INVENTORY is to be a subgroup, it is first identified as a child of the parent Group MFG MANAGER, then the Group MFG MANAGER is identified as a child of the parent Group \$MENU.


```
> REPEAT RELATE GROUP
  PARENT GROUP MFG MANAGER
    CHILD GROUP INVENTORY
    DESCRIPTION
  CHILD GROUP
  PARENT GROUP $MENU
    CHILD GROUP MFG MANAGER
    DESCRIPTION
  CHILD GROUP
  PARENT GROUP
>
```

Figure 11-9. Establishing the Hierarchy for a Subgroup

The Data Names Menu for the INFORM Group established by Figures 11-7 through 11-9 is shown in Section 10 (Figure 10-2).

The final step is to check the new Group with the SHOW command. Figure 11-10 shows the Group INVENTORY.

```

> SHOW GROUP
      GROUP INVENTORY
GROUP      TYPE: RESPONSIBILITY:
INVENTORY

ELEMENT(ALIAS):      PROPERTIES:      ELEMENT(PRIMARY):
PART                 X (6,0,6)      PART
ITEM-NUMBER          U (4,0,4)      ITEM-NUMBER
COST                  9 (6,2,6)      COST
PRICE                 9 (6,2,6)      PRICE
PRODUCT LINE         X (10,0,10)     LINE
LOCATION                X (4,0,4)      LOCATION
QTY ON HAND           9 (10,3,10)    QTY-ON-HAND
>

```

Figure 11-10. Checking the Subgroup Inventory

Creating a Group from Three or More Files

It is possible to link three, four, or even more files to produce one INFORM Group. It is also possible to link through files from which you show no elements on the Data Names Menu. Both possibilities are simple extensions of the techniques already described.

For example, consider the three files (data sets) shown in Figure 11-11. These data sets are similar to the ones shown in Figure 11-6, but in this case one of the elements that is to be included, LOCATION, is not in the detail set, but is instead in a third set called LOCATION-MASTER. It is linked to the detail set through the common element called LOCATION-CODE.

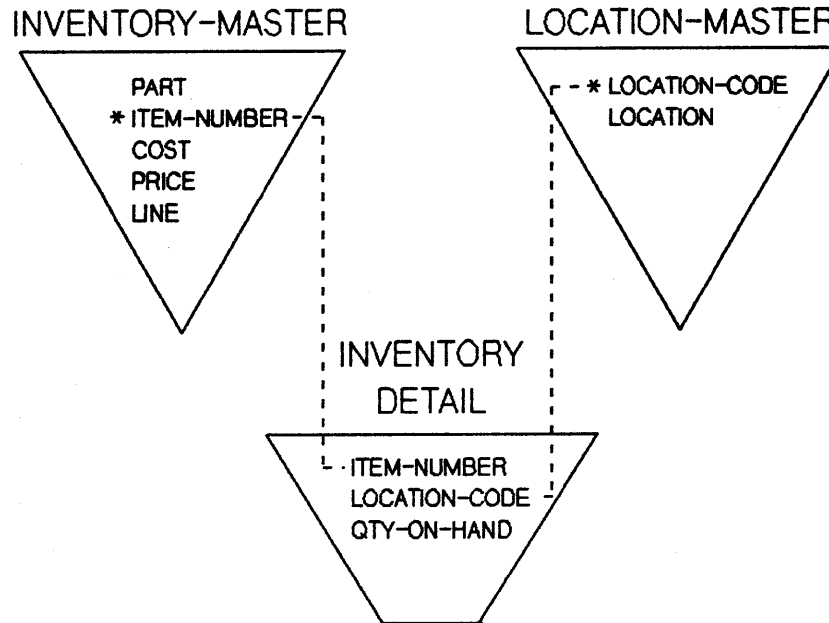


Figure 11-11. Three Data Sets Used to Create a Group

If the user wants to create the same Group that was established in Figures 11-7 through 11-9, the procedure would be almost the same as in those figures. The CREATE step (Figure 11-7) and the RELATE step (Figure 11-8) would be identical. The only differences would be in adding elements to the Group; that is, there will be one additional element added in the ADD GROUP interaction in Figure 11-8.

The additional element LOCATION-CODE must be defined to link ITEM-NUMBER in the detail set to LOCATION in the second master set. LOCATION-CODE can be used as a link item because it is a search item in the set LOCATION-MASTER. The additional interaction is as follows:

ELEMENT	LOCATION-CODE
ELEMENT ALIAS	
FILE	
VALUE AS A LINK	
DISPLAY ELEMENT ON MENU	(Y/N)? N
DESCRIPTION	

Notice that in this case the user responds N to the prompt to display the element on the menu. The element LOCATION-CODE is to serve only as a link to the element LOCATION in the third set, and will not be displayed on the Data Names Menu.

Linking Files

The examples above have described the process of creating Groups from data sets -- first two, and then three -- within a single database. It is also possible to link KSAM and MPE files to data sets, and to link data sets in one database with data sets in other databases.

The exact way in which INFORM/V links the files determines whether it is possible to generate the requested report and, if so, what specific data will be printed in the report. This subsection describes the ways in which files can be linked, the default considerations that INFORM/V uses in linking files, and the ways in which you can control the linking process.

Direct Links

A link between two files that each contain one or more data elements needed for a report is called a **direct link**.

When two files are linked, the value of the link element is retrieved from the first file and is used to determine the correct record to retrieve from the second file. Obviously, the link element must exist in both files. Either file can be a detail data set, master data set, KSAM file, or MPE file.

Regardless of what type of file it is, the file linked *from* is read serially. It can be a detail data set, master data set, KSAM file, or MPE file.

In contrast, the way that the file being linked *to* is read depends on the type of file it is:

- If the file being linked to is an MPE file, it is read serially, and there is no restriction on the element being linked to, except that it exist in the file.
- If the file being linked to is a KSAM file, the link element must be a key element in the file.

Technical Administration

- If the file being linked to is a data set, either master or detail, the link element must be a search item in the file. This is the only requirement, even when the link is from a file outside the database.

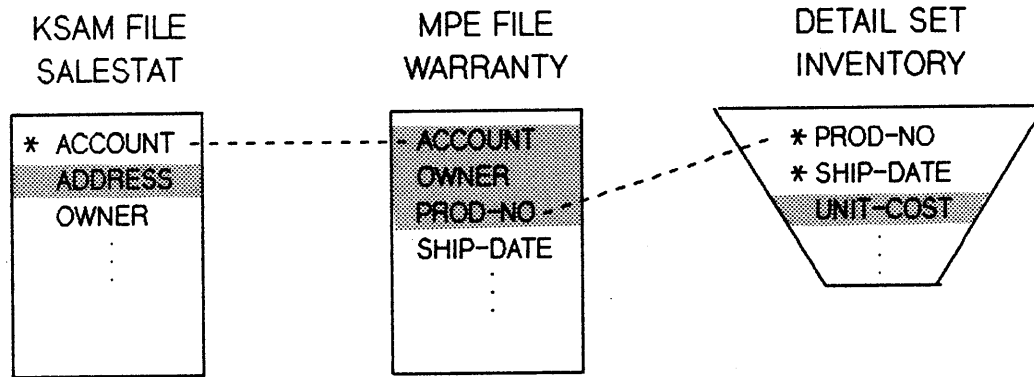


Figure 11-12. Files to be Directly Linked for Data Access

For example, Figure 11-12 shows three files that contain data elements needed for a Group called ACCOUNT ORDERS (an asterisk marks a key item or search item). The group will be used to get reports about the orders for each customer account. The Group, called ACCOUNT ORDERS, consists of the following data elements:

ACCOUNT
ADDRESS
OWNER
PROD-NO
UNIT-COST

By accessing the files SALESTAT and INVENTORY the user could obtain all the elements in the Group; however, it is not possible to link these two files, since there is no element common to both of them. The MPE file WARRANTY contains elements needed for the Group and, in particular, contains the element ACCOUNT, which is also a key element in the KSAM file; hence a direct link can be made from WARRANTY to SALESTAT. In addition, the MPE file contains two elements, PROD-NO and SHIP-DATE, which are also search items in the detail data set; hence a direct link can also be made from WARRANTY to INVENTORY.

The driving file is the one that INFORM/V accesses first. When an MPE file is part of the picture, it is most efficient if it is the driving file, since an MPE file must be serially read each time it is accessed (see "How INFORM/V Picks the Driving File" later in this section).

In the example in Figure 11-12, the MPE file allows a direct link to the other two files, and so the user wants to make it the driving file. This is done by specifying the file name WARRANTY in response to the FILE prompt and a link value of 1 when adding one of the elements from the file WARRANTY to the Group (see Figure 11-13).

It is also important to pick elements that will allow INFORM/V to link the driving file, which is WARRANTY in this example, directly with other files that contain as many elements for the Group as possible.

The elements ACCOUNT and PROD-NO are the two possibilities. (Since SHIP-DATE is not in the Group, it does not make sense to use it. OWNER cannot be used because it is not a key element in the KSAM file.) The element ACCOUNT links WARRANTY to SALESTAT, where ADDRESS can be retrieved. The element PROD-NO links WARRANTY to INVENTORY, where UNIT-COST can be retrieved. (Note that the values for ACCOUNT, OWNER, and PROD-NO will all be retrieved from the MPE file, since it is accessed first.) Since both data elements allow you to link to one other file where one required element can be retrieved, it does not matter which one we use.

After linking WARRANTY to SALESTAT through the element ACCOUNT, INFORM/V will try to use the element in the Group with the next highest priority link value to directly link WARRANTY or SALESTAT with INVENTORY -- assuming that the element PROD-NO or UNIT-COST is requested for the report. To make this most efficient, the element PROD-NO should be given a link value of 2. The interaction is shown in Figure 11-13.

```

> ADD GROUP
      GROUP ACCOUNT ORDERS
      ELEMENT UNIT-COST
      ELEMENT ALIAS COST OF UNIT
      FILE !

      ELEMENT ADDRESS
      ELEMENT ALIAS !

      ELEMENT OWNER
      ELEMENT ALIAS !

      ELEMENT ACCOUNT
      ELEMENT ALIAS !
      FILE WARRANTY
      VALUE AS A LINK 1
      DISPLAY ELEMENT ON MENU (Y/N)?!

      ELEMENT PROD-NO
      ELEMENT ALIAS PRODUCT NUMBER
      FILE !
      VALUE AS A LINK 2
      DISPLAY ELEMENT ON MENU (Y/N)?!

      ELEMENT                     
  
```

>

Figure 11-13. Establishing Direct Links between Files for Data Retrieval

Indirect Links

If two files containing elements needed for a report are linked through other files that contain no elements needed for the report, the link is called an **indirect link**. Indirect links can only occur between data sets within one database. They cannot go from one database to another, nor can they link a KSAM or MPE file to a data set.

There are two kinds of indirect links allowed: (1) a master set to another master set through an intermediate detail, and (2) a detail set to master set through two intervening sets, a master and then a detail. The examples below illustrate each kind.

As an example of the first kind of indirect link, consider the database shown in Figure 11-14.

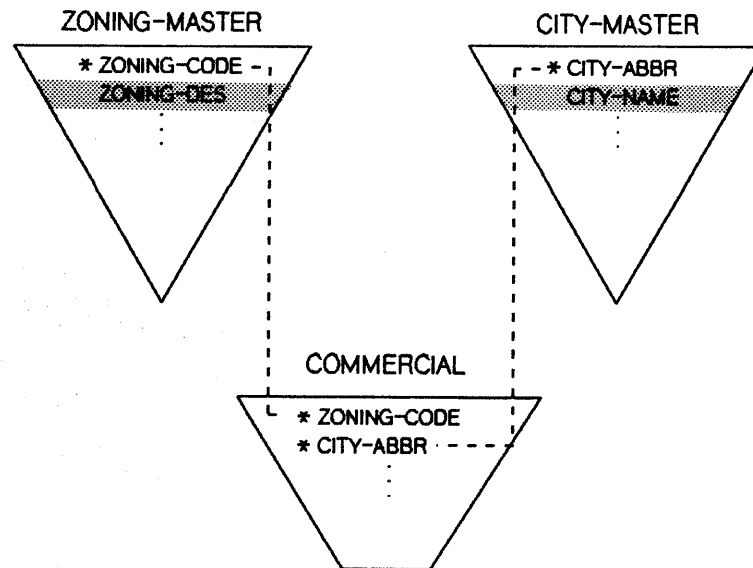


Figure 11-14. An Indirect Link through a Detail Set

The user wants to report the data element ZONING-DES from the master set ZONING-MASTER and the element CITY-NAME from the master set CITY-MASTER. An indirect link can be made by going through the detail set COMMERCIAL. The master set ZONING-MASTER has the search item ZONING-CODE, which forms a path to the detail set COMMERCIAL, and the master set CITY-MASTER has the search item

Technical Administration

CITY-ABBR, which also forms a path to COMMERCIAL. When the element ZONING-CODE is added to the Group, the prompt

DISPLAY ELEMENT ON MENU (Y/N)?>

will be answered N, since this element is only included to serve as a link and is not wanted for inclusion in a report.

The second possibility for indirect linking, going through two intermediate sets, is shown in Figure 11-15.

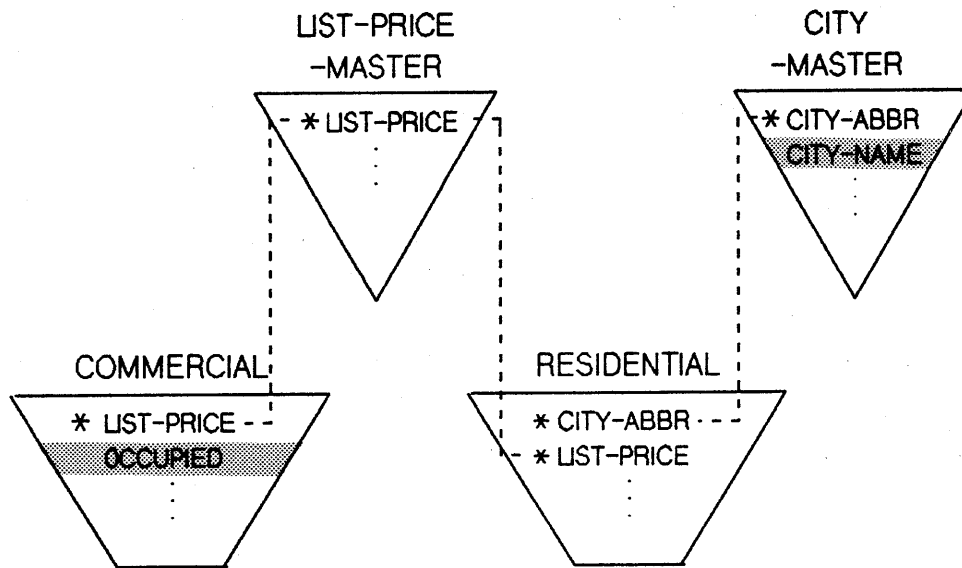


Figure 11-15. Indirect Link through Two Intermediate Sets

In this example, the user wants to include in a report the data element OCCUPIED from the detail set COMMERCIAL and the data element CITY-NAME from the master set CITY-MASTER. An indirect link can be formed by going through the detail set RESIDENTIAL. The detail set COMMERCIAL and the detail set RESIDENTIAL both have the search item LIST-PRICE, which forms paths to the common master set LIST-PRICE-MASTER. The detail set RESIDENTIAL has a second search item CITY-ABBR which forms a path to the master set CITY-MASTER.

How INFORM/V Picks the Driving File

The driving file is the one that is accessed first when INFORM/V creates a report. This file is read serially, and at least one line of the report will be generated for each record retrieved from it. The contents of a report could therefore be quite different, depending on which file is the driving file.

When INFORM/V is selecting the driving file, it first looks for a file that meets the following two criteria:

- The file must contain an element having a positive link value (greater than zero); it is not important whether this element is included in the report.
- The file must also contain an element that is to be included in the report.

What happens next depends on whether one, none, or more than one file meet the two criteria.

1. If only one file meets the two criteria above, that file will be chosen as the driving file.
2. If no files meet the two criteria above, the files which contain an element to be included in the report are considered in the following order:

MPE file
KSAM file
Detail data set
Master data set

If more than one file exists in the highest possible category, the file with the most elements to be included in the report is chosen as the driving file. If there are two such files or more, one of them is arbitrarily chosen.

3. If more than one file meets the two criteria above, the file that has the highest priority link value specified (lowest positive integer) is chosen as the driving file. If more than one of these files has the highest priority link value, then the driving file is chosen from among them as in case 2.

If any of the files that contain elements for the Group is an MPE file, it is desirable to use that file as the driving file. This is because INFORM/V must perform a serial read every time it accesses an MPE file. If the MPE file is the driving file, this serial read is done only once.

This process of picking the driving file is shown graphically in Figure 11-16.

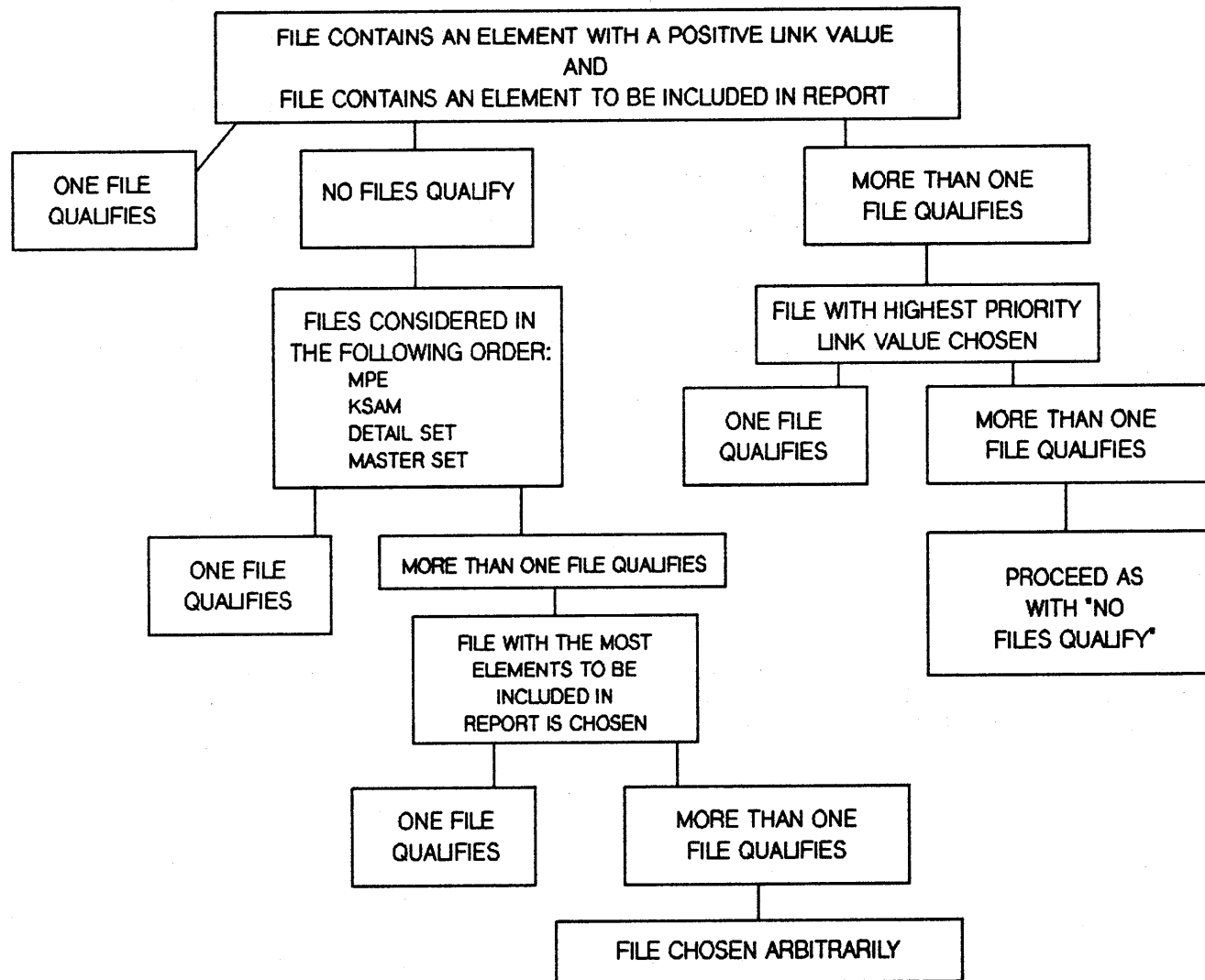


Figure 11-16. Picking the Driving File

You can ensure that a particular file is the driving file by doing the following when adding elements to the Group.

- Add an element from that file to the Group.
- Specify the name of that file in response to the FILE prompt.
- Specify a positive link value in response to the LINK prompt.

The element used should be one that allows INFORM/V to link directly with other files to obtain as many elements from the Group as possible.

The following example shows the importance of picking the right driving file and of selecting the best element within that file for linking to the other files needed for the Group.

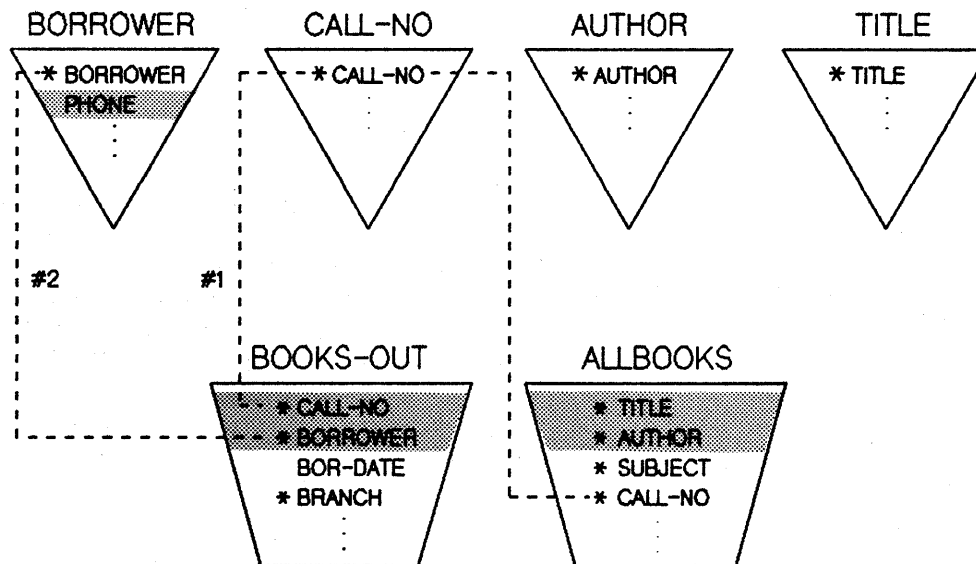


Figure 11-17. Specifying Link Values

Technical Administration

Working with the database shown in Figure 11-17, the user wants to create a Group called BORROWED BOOKS. The purpose of the Group is to generate reports about books that are checked out of the library. The Group consists of the data elements

TITLE
AUTHOR
CALL-NO
BORROWER
PHONE

Since the purpose of the Group is to report on books that are checked out, it makes sense to access the detail set BOOKS-OUT as the first file; since BOOKS-OUT has only one entry for every book checked out, there will be at least one line of the report for each book that is checked out of the library. That is, BOOKS-OUT contains the appropriate subset of data for the reports that will be generated from the Group. The data sets ALLBOOKS, TITLE, and CALL-NO, on the other hand, have one entry for each book in the library; if one of these files is the first file accessed, there will be at least one line of the report for every book in the library. Accessing BORROWER or AUTHOR as the first file would also not be satisfactory, since BORROWER has one entry for each person registered to check out books from the library and AUTHOR has one entry for each author.

To make BOOKS-OUT the driving file, the user specifies the file name BOOKS-OUT in response to the FILE prompt and a link value of 1 in response to the LINK prompt when adding an element from the file BOOKS-OUT to the Group. The user needs to pick an element that will allow INFORM/V to link BOOKS-OUT directly with other files to retrieve as many elements for the Group as possible. The elements CALL-NO and BORROWER are the two possibilities, since they are search items. The element CALL-NO links BOOKS-OUT and ALLBOOKS, where TITLE and AUTHOR can be retrieved; the data element BORROWER links BOOKS-OUT and BORROWER, where only PHONE can be retrieved. Hence, the user picks the element CALL-NO.

After linking BOOKS-OUT and ALLBOOKS through the element CALL-NO, INFORM/V will try to use the element in the Group with the next highest priority link value to directly link BOOKS-OUT or ALLBOOKS with BORROWER, if PHONE is requested for the report. To make this most efficient, the user gives BORROWER a link value of 2. The steps to add these elements to the Group are shown in Figure 11-18.

```

> ADD GROUP
      GROUP BORROWED BOOKS
      ELEMENT TITLE
      ELEMENT ALIAS ?
      ELEMENT AUTHOR
      ELEMENT ALIAS ?
      ELEMENT PHONE
      ELEMENT ALIAS TELEPHONE NUMBER
      FILE ?
      ELEMENT CALL-NO
      ELEMENT ALIAS CALL NUMBER
      FILE BOOKS-OUT
      VALUE AS A LINK 1
      DISPLAY ELEMENT ON MENU (Y/N)?!
      ELEMENT BORROWER
      ELEMENT ALIAS
      FILE
      VALUE AS A LINK 2
      DISPLAY ELEMENT ON MENU (Y/N)?!
      ELEMENT
>

```

Figure 11-18. Interaction to Pick the Driving file and the Linking Elements

How INFORM/V Links Files

All elements in a Group that have been assigned a positive link value form a prioritized list for use by INFORM/V's access algorithm when linking files. Elements that have been added to a Group that will not be displayed on INFORM/V Data Names Menu are included in this list if they have been assigned a positive link value. The following steps outline how INFORM/V links files. If, at any particular step, all files containing elements needed for the report are linked, the steps following that one do not occur.

1. INFORM/V first tries to use the element in the Group with the highest priority link value to directly link the driving file with any other files containing elements needed in the report.
2. INFORM/V next tries to use the element in the Group with the second highest priority link value to directly link those files linked in step 1 with any other files containing elements needed for the report.
3. Next, the elements in the group with the next highest priority link value are used to try to directly link those files linked in steps 1 and 2 with any other files containing elements needed for the report, and so on until the prioritized list of elements with positive link values is exhausted.
4. INFORM/V next tries to use elements in the Group with a link value of zero (the default) to directly link those files linked in steps 1, 2, and 3 with any other files containing elements needed for the report. The elements with a link value of zero are tried in an arbitrary order.
5. If all the files have still not been linked successfully, INFORM/V tries to use elements that are not in the Group to directly link any of the files linked in steps 1, 2, 3, and 4 with any of the remaining files. As always, a direct link is successful if the element exists in both files and if any additional requirements on the file being linked to are met (see earlier discussion of direct links).
6. If still no link can be made and if the files that INFORM/V is attempting to link are data sets, INFORM/V will try the two allowable indirect links. If this fails to link all the needed files, the report cannot be generated, and the user will receive an error message.

Default File Access

INFORM/V provides defaults designed to maximize performance of the file accesses necessary during report production. One such default, which was explained in the discussion on the driving file, is that an MPE file will be used as the driving file whenever possible. In addition, if file names (in response to the FILE prompt) and link values that override the defaults have not been specified, INFORM/V will try to following these guidelines:

- Involve as few files as possible.
- Access a KSAM file in preference to a database, since there is less overhead involved.
- Open as few databases as possible.
- Use master data sets whenever possible, since they will need to be accessed only once per key value, whereas detail data sets and KSAM files may require several accesses per key value.

When a file name is specified in response to the FILE prompt, the INFORM/V access algorithm may not work efficiently, and possibly not at all. It is best not to specify a file name in response to the FILE prompt unless it is necessary to ensure that the correct values of an element are retrieved. If a file name is specified when it is not necessary to do so, it is possible that more files will be accessed than INFORM/V would otherwise use. In the worst case, INFORM/V might be unable to create a link -- when there is no link element to the designated file.

It is also advisable to specify link values sparingly. Link values allow you to override default processing, and in certain circumstances their use will make a critical difference in the reports generated. However, their use when they are not necessary may degrade performance.

INFORM/V Security

INFORM/V security allows you to limit the names of the databases, data sets, data elements, and Groups that are displayed in INFORM/V menus.

If INFORM/V security is not established, all data dictionary entities are available for display. The data can still be protected, as the user will be prompted for passwords and lockwords for each data set or file accessed. However, these prompts occur after the report has been defined, and so the user has already viewed the names of all data elements in the Groups or data sets requested.

Technical Administration

If INFORM/V security is established, the user must supply the password when INFORM/V is first invoked. The passwords for individual entities can be embedded in the INFORM/V security structure, and so, once the user has supplied the INFORM/V password, he need not be prompted for any passwords when the report is produced.

The two different situations are described graphically in Figure 11-19.

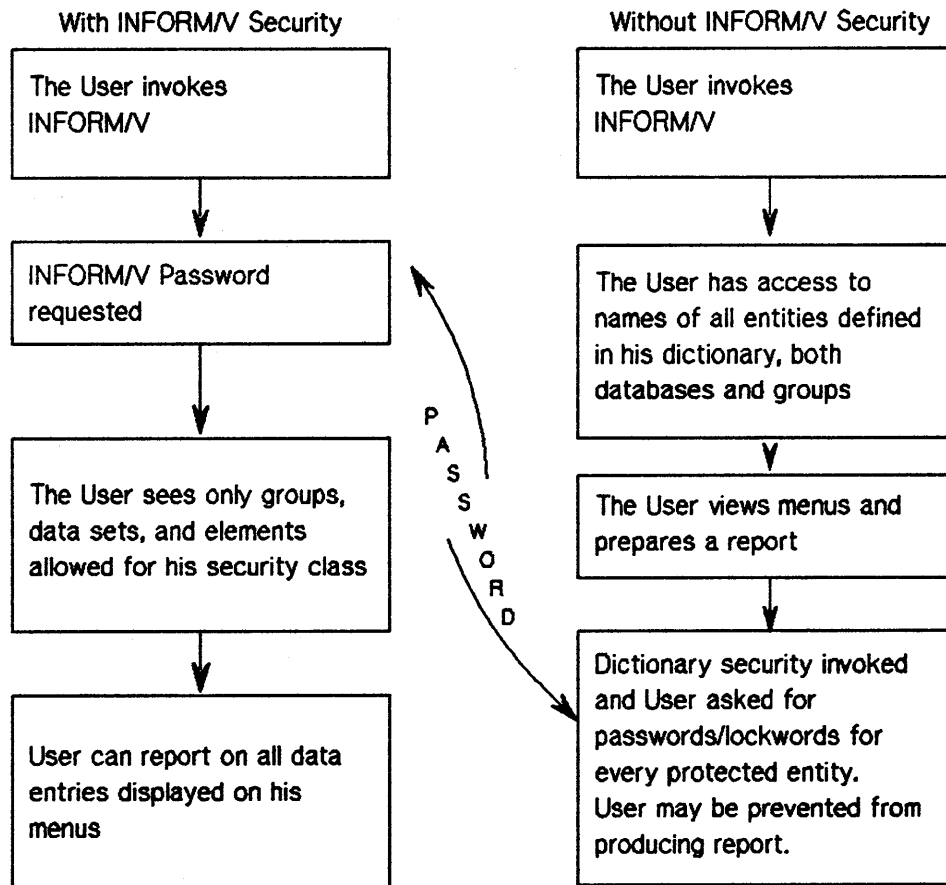


Figure 11-19. The Value of INFORM/V Security

To establish INFORM/V security, you establish an INFORM class for each kind of user. Each INFORM class is assigned a password, and all users in that class must supply the password when they run INFORM/V. Different INFORM classes (i.e., different passwords) are created for the different classes of users who require access to different data in the same dictionary.

It is then necessary to tie the individual entities in the data dictionary to the INFORM classes that have been set up. To do this, INFORM/V security takes advantage of the complete security capabilities already available in DICTIONARY/V for IMAGE/V and TurboIMAGE. All data elements, files (data sets), and data bases are tied to the INFORM/V classes through the intermediate step of one or more IMAGE classes. One view of the kinds of relationships that are established is shown in Figure 11-20.

INFORM/V goes to the data dictionary and checks to see that the password entered is valid. If the password is correct, INFORM/V then checks for the INFORM class number associated with that password. INFORM/V then checks all the IMAGE classes that are related to that INFORM class and builds an IMAGE class list. The information displayed on INFORM/V menus consists of the database files, Groups, and elements that are associated with the IMAGE classes on the IMAGE class list.

The next subsection describes the simplest case of establishing INFORM/V security for a single database. For this discussion, it is assumed that no INFORM/V Groups have been established.

The final discussion in this section then takes up the question of how to relate INFORM/V security to INFORM/V Groups, and explains how to establish security when Groups are drawn from multiple files and data sets.

Establishing Security for a Database (Without Groups)

If you want to allow users to access a database directly, without establishing INFORM/V Groups, but still want to use INFORM/V security, it is very simple to establish that security. The best plan is to establish a one-to-one correlation between the IMAGE class and the INFORM class.

Figure 11-20 shows a simplified view of the relationships that are established. A single database serves two different classes of users, who require access to different data elements in the database. The database administrator establishes two INFORM classes and relates a single IMAGE class to each. The elements needed by each INFORM class are then related to the IMAGE class.

Technical Administration

It is important to relate only one **IMAGE** class for a given data set to an **INFORM** class. When **INFORM/V** builds the class list, it includes all references to the database, but, when the class list is used, **INFORM/V** always stops at the first **IMAGE** class it finds on the class list for that database.

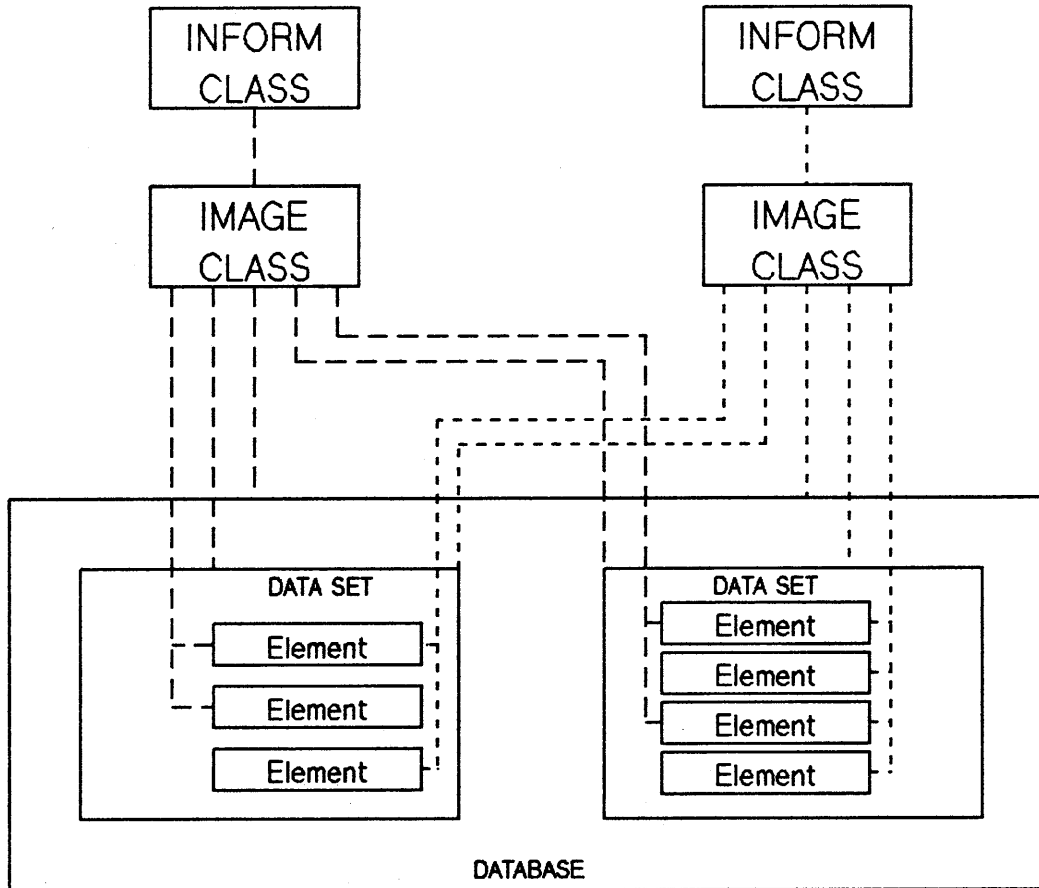


Figure 11-20. Hierarchy for Security for a Database

Figure 11-20 illustrates another important requirement: not only is the data element related to the **IMAGE** class, but also the data set that contains the element and the database that contains the data set must also be related to the **IMAGE** class.

The steps that will be used in the example shown here are as follows:

- Create the INFORM classes.
- Create IMAGE classes, one for each INFORM class.
- Relate each IMAGE class to one of the INFORM classes.
- Add (or secure) database file, data set files, and elements to each IMAGE class.

The optimal situation is to plan the INFORM/V security and IMAGE security at the same time, when you are designing the database. Or, it is quite likely that the IMAGE security designed for the database will also fit the requirements of INFORM/V security. It makes sense that reporting access requirements will match database access requirements.

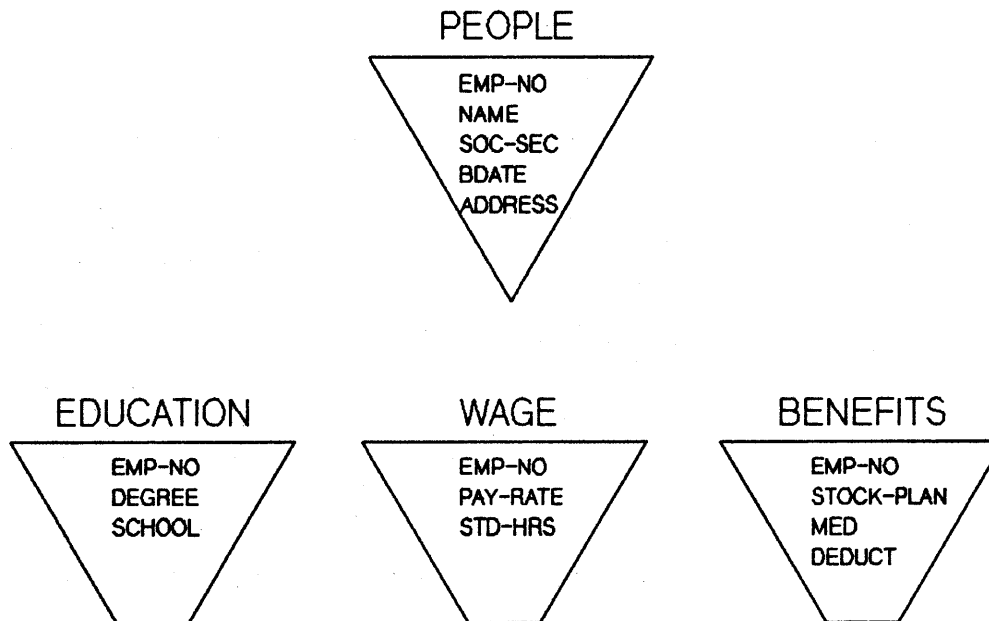


Figure 11-21. The Database Used to Establish INFORM/V Security

Technical Administration

The example shown here will use the the database shown in Figure 11-21. Four IMAGE security classes will be established, one each for benefits clerks, for records clerks, for compensation clerks, and for the manager. Each of these four IMAGE classes will be related to a parallel INFORM class.

Table 11-1. IMAGE and INFORM Classes to Establish Security

INFORM CLASS		IMAGE CLASS		ELEMENTS AND DATA SETS
Number	Password	Number	Password	
650	CLK	50	CLK1	All elements in PEOPLE except BDATE All elements in BENEFITS
660	RECORDS	60	REC	All Elements in PEOPLE All elements in EDUCATION STD.HRS in WAGE All elements in BENEFITS
670	SALARY	70	SALMGR	All elements in PEOPLE All elements in WAGE
680	BOSS	80	VP	All elements in all data sets

Table 11-1 identifies which elements each of the four classes of users can see. The first three classes are limited to read-only access to certain parts of the database. The fourth user, the manager, can see and modify the entire database. The table also shows the numbering pattern that the user has established for the classes to make it easy to correlate each INFORM class with its IMAGE class.

The passwords assigned to the IMAGE classes are the same as the passwords for the EMPBAS database. When INFORM/V is producing a report, it opens the database using these passwords.

Figure 11-22 shows the first step in establishing security for the example database. The four INFORM classes are established. Although TYPE is usually an optional prompt, the response INFO is required when an INFORM class is being established. The INFORM class number can be an integer between 0 and 9999.

```
> REPEAT CREATE CLASS
      CLASS 50
      NAME
      TYPE
      PASSWORD CLK1
      RESPONSIBILITY !
      CLASS 60
      NAME
      TYPE
      PASSWORD REC
      RESPONSIBILITY !
      CLASS 70
      NAME
      TYPE
      PASSWORD SALMGR
      RESPONSIBILITY !
      CLASS 80
      NAME
      TYPE
      PASSWORD VP
      RESPONSIBILITY !
      CLASS
>
```

Figure 11-23. Creating IMAGE Classes to Parallel the INFORM/V Classes

Technical Administration

Once all the IMAGE and INFORM classes have been created, they must be related to one another. The INFORM class is the parent, and the IMAGE class is the child. An example is shown in Figure 11-24.

The first step of each hierarchy has been established, and the next requirement is to associate the database file, the data set files, and the individual elements with the appropriate IMAGE class. Two different commands can be used: SECURE associates a file and all its contents, whereas ADD-CLASS is more selective and associates only the named element or file.

```
> REPEAT SECURE FILE
      FILE EMPBAS
      CLASS 80
      ACCESS CAPABILITY M
ELEMENTS WILL BE SECURED TO CLASS.
SECURE FILE(S) TO CLASS(N/Y)?Y
FILE ACCESS CAPABILITY W

      FILE BENEFITS
      CLASS 50
      ACCESS CAPABILITY R
ELEMENTS WILL BE SECURED TO CLASS.
SECURE FILE(S) TO CLASS(N/Y)?Y
FILE ACCESS CAPABILITY R

      FILE PEOPLE
      CLASS 60
      ACCESS CAPABILITY R
ELEMENTS WILL BE SECURED TO CLASS.
SECURE FILE(S) TO CLASS(N/Y)?Y
FILE ACCESS CAPABILITY R
```

Figure 11-25. Securing Database and Data Sets to the IMAGE Classes

```

      FILE EDUCATION
      CLASS 60
      ACCESS CAPABILITY R
      ELEMENTS WILL BE SECURED TO CLASS.
      SECURE FILE(S) TO CLASS(N/Y)?Y
      FILE ACCESS CAPABILITY R

      FILE BENEFITS
      CLASS 60
      ACCESS CAPABILITY R
      ELEMENTS WILL BE SECURED TO CLASS.
      SECURE FILE(S) TO CLASS(N/Y)?Y
      FILE ACCESS CAPABILITY R

      FILE PEOPLE
      CLASS 70
      ACCESS CAPABILITY R
      ELEMENTS WILL BE SECURED TO CLASS.
      SECURE FILE(S) TO CLASS(N/Y)?Y
      FILE ACCESS CAPABILITY R

      FILE WAGE
      CLASS 70
      ACCESS CAPABILITY R
      ELEMENTS WILL BE SECURED TO CLASS.
      SECURE FILE(S) TO CLASS(N/Y)?Y
      FILE ACCESS CAPABILITY R

      FILE
  >

```

Figure 11-25. Securing Database and Data Sets to the IMAGE Classes (continued)

Technical Administration

Figure 11-25 shows an example of using the `SECURE` command. This command secures not only the file that is named, but also all the elements within that file. If the file being secured is a database, `SECURE` secures not only the database, but also all data sets and all elements.

Therefore, the first series of prompts in Figure 11-25 shows `SECURE` being used to secure files to the manager class, which is allowed to modify all the elements in all the data sets. Note that the `ACCESS CAPABILITY` is `M`, for modify. `INFORM/V` needs only read access, but this `IMAGE` class will also be used by the data dictionary for other tasks, and so the broader category is specified.

The remaining interactions in Figure 11-25 secure those data sets in which all elements are to be available to the given classes. The prompt

```
SECURE FILE(S) TO CLASS (N/Y)?>
```

will be answered with `Y` in all cases, since for every file the user wants to secure both the file and the elements within the file.

The next step is to add to each class those data set files that have not already been secured. These are the files in which not all elements are going to be available in the respective classes. Therefore, the file must be added as a separate entity, then the individual elements that are to be available to the given class are added to it.

Figure 11-26 shows the `ADD CLASS-FILE` interactions that are required by the example. The database file `EMPBAS` is added to class 50, 60, and 70. In addition, the data set file `WAGE` is added to the class 60, so that records clerks can access the element `WAGE`.

The next, and final step, is to add the elements to the `IMAGE` classes. Figure 11-27 shows an example. First, all elements from data set `PEOPLE` are added to class 50 except `EMP-NO` and `BDATE`. `EMP-NO` is left out because it will be picked up from the `BENEFITS` data set, which was already secured to `IMAGE` class 50. `BDATE` is not added because it is not to be available to class 50.

For `INFORM` class 660 (`IMAGE` class 60), `STD-HOURS` is the only element from data set `WAGE` that is to be available.

```

> REPEAT ADD CLASS-FILE
      CLASS 50
          FILE EMPBAS
          DESCRIPTION
          FILE PEOPLE
ACCESS CAPABILITY R
          DESCRIPTION
          FILE
          CLASS 60
          FILE EMPBAS
          DESCRIPTION
          FILE WAGE
ACCESS CAPABILITY R
          DESCRIPTION
          FILE
          CLASS 70
          FILE EMPBAS
          DESCRIPTION
          FILE
          CLASS
>

```

Figure 11-26. Adding Files to the IMAGE Class

Technical Administration

```
> REPEAT ADD CLASS
      CLASS 50
          ELEMENT NAME
ACCESS CAPABILITY R
DESCRIPTION
          ELEMENT SOC-SEC
ACCESS CAPABILITY R
DESCRIPTION
          ELEMENT ADDRESS
ACCESS CAPABILITY R
DESCRIPTION
          ELEMENT
          CLASS 60
          ELEMENT STD-HOURS
ACCESS CAPABILITY R
DESCRIPTION
          ELEMENT
          CLASS
>
```

Figure 11-27. Adding Individual Elements to Each IMAGE Class

The INFORM/V security is now completed for EMPBAS, and users can begin using INFORM/V.

Relationship of INFORM/V Security to Groups

Earlier in this section, the process of setting up INFORM/V Groups was described. Recall that all Groups and subgroups fit into a hierarchy under the primary Group \$MENU, which is established automatically when the data dictionary is created.

If you do not define INFORM/V security, then the complete hierarchy of all Groups and subgroups defined under \$MENU is available to all users of the data dictionary.

The job of INFORM/V security is to overlay a filter that presents different views of the hierarchy to different users. For example, assume that you have set up five INFORM/V Groups, all directly related to \$MENU. This hierarchy is shown in Figure 11-28. If you do not define INFORM/V security, then any user of the data dictionary who runs INFORM/V will see all five Groups on his Group Menu.

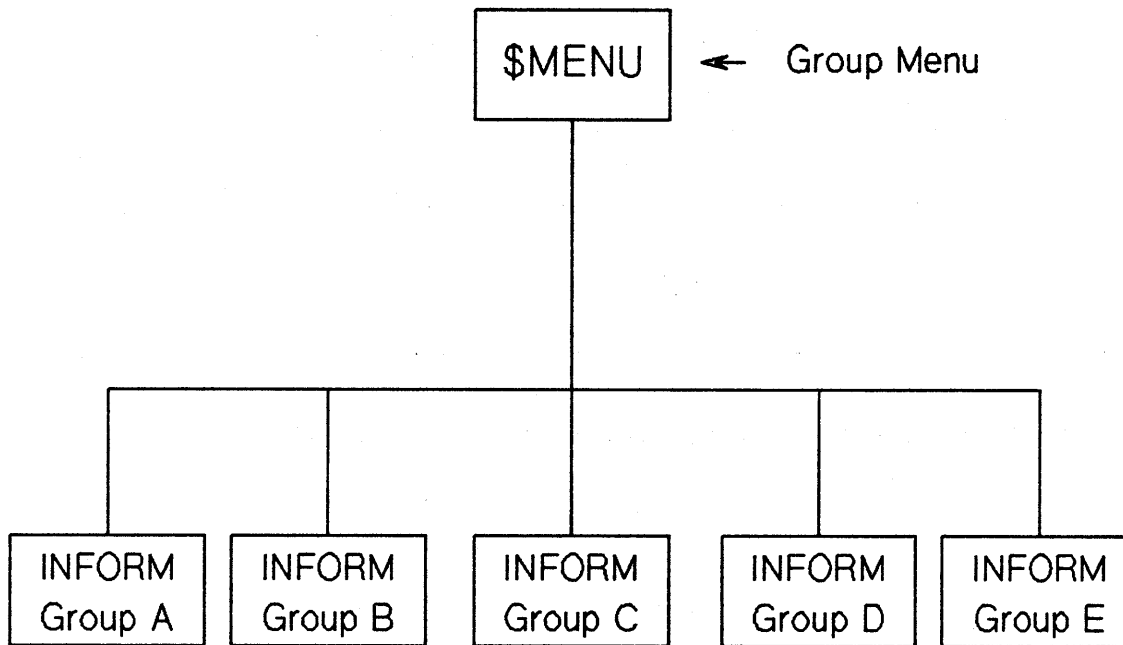


Figure 11-28. A Simple INFORM/V Hierarchy

Technical Administration

Suppose that you want to restrict the view of users in department 50 to Groups A, B, and C, whereas users in department 60 need access to Groups B, C, D, and E. You establish two security classes (called INFORM classes), one for department 50 and one for department 60. Each class is assigned a password, and the Groups to be used by each class are related to it. The result is shown in Figure 11-29.

Now any user in department 50, when accessing INFORM/V, is asked for the department's password. When the Group Menu comes up, it will show only Groups A, B, and C. By the same token, a user in department 60, after supplying the password, will see only Groups B, C, D, and E on his Group Menu.

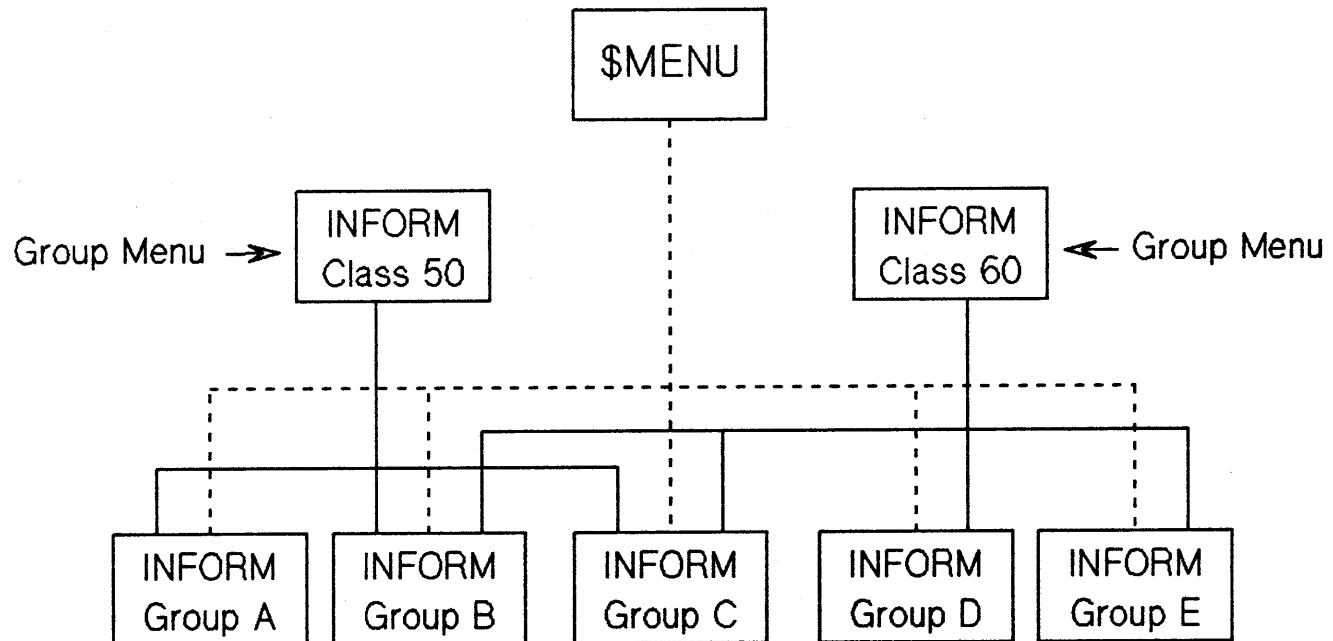


Figure 11-29. INFORM/V Security Limits Access to Groups

The preceding subsection described a way to establish INFORM/V security for four classes of users working with one database when Groups have not been established. The procedure for establishing security when INFORM/V Groups have been established is very similar. Exactly the same commands are used, and the hierarchical pattern is similar. However, there are two important differences:

- You need to be sure that all the elements in all the Groups for a given INFORM class have been related to IMAGE classes for the same INFORM class. If you have added elements to an INFORM/V Group, but have neglected to add those elements to the IMAGE classes that are related to the same INFORM class, the security feature will prevent the elements from being displayed in the Group.
- When security was established for a database with no Groups, each INFORM class had only one IMAGE class related to it. However, if you have established Groups, you will very likely have more than one IMAGE class per INFORM class, particularly if you have established Groups to take advantage of INFORM/V's ability to create one Group from multiple files. It would then be most practical to set up an IMAGE class for the elements from a given file, and relate all IMAGE classes that pertain to one set of Groups to the INFORM class for those Groups.

Technical Administration

Consider Figure 11-30, which shows the relationship of INFORM/V Groups to one INFORM class. As was described in the first part of this section, a given Group can be drawn from multiple files and data sets, so long as the elements are reasonably linked.

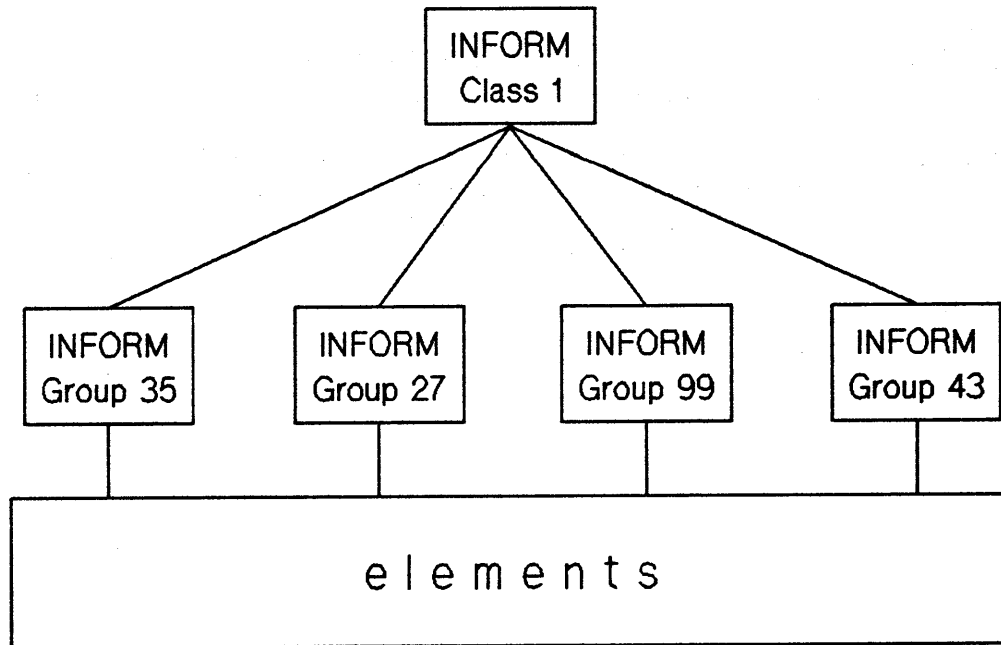


Figure 11-30. Many INFORM Groups Can Be Defined for One INFORM/V Class

Figure 11-31 shows the IMAGE classes for the same INFORM class. Each IMAGE class will probably contain the elements from only one file or database. The only important relationship between the two figures lies in the elements. All of the elements related through IMAGE classes to INFORM class 1 must also be related through INFORM/V Groups to INFORM class 1. However, there need not be any correlation between the INFORM/V Groups and the IMAGE classes themselves.

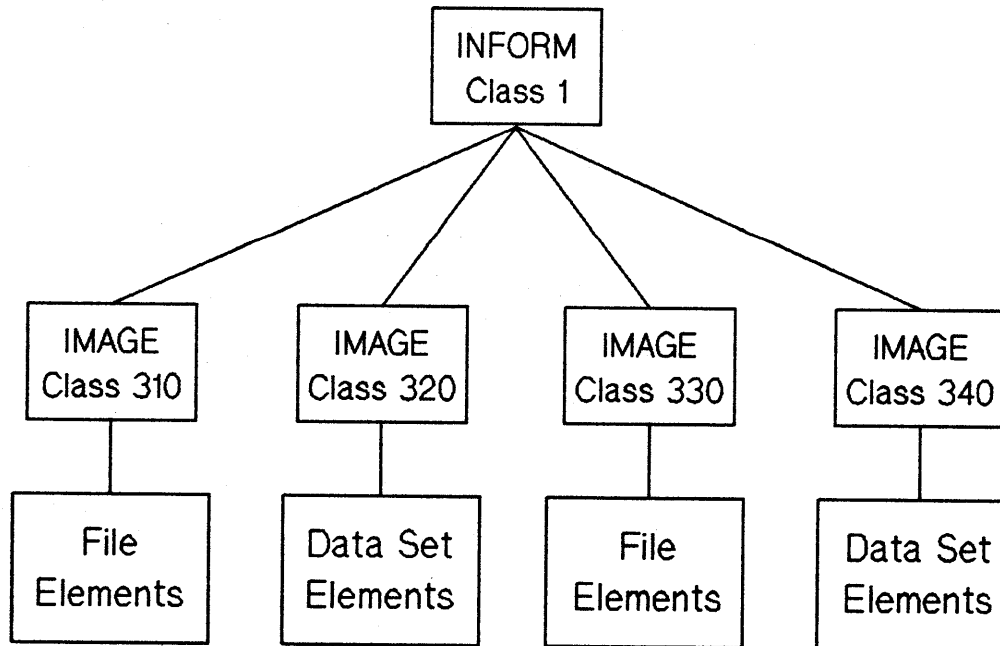


Figure 11-31. IMAGE Classes for the same INFORM Class

Technical Administration

A given INFORM Group can be related to more than one INFORM class. In other words, if an INFORM Group is appropriate to more than one class of user, it can be used by each of those classes. The relationship is shown in Figure 11-32.

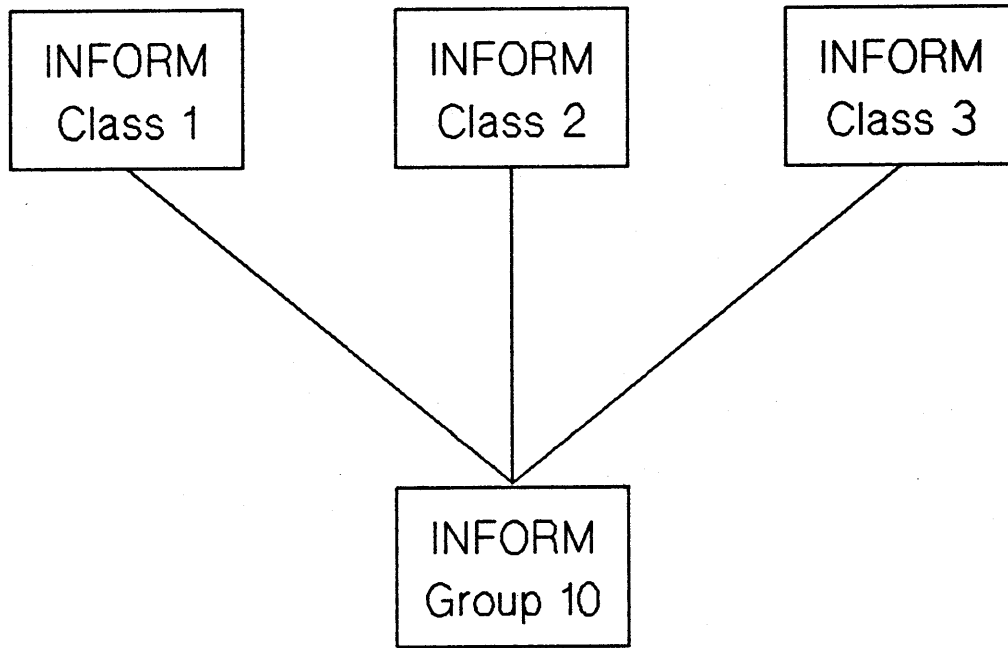


Figure 11-32. An INFORM Group Can be Used by More than One INFORM Class

One IMAGE class can also be associated with more than one INFORM class. The relationship is shown in Figure 11-33.

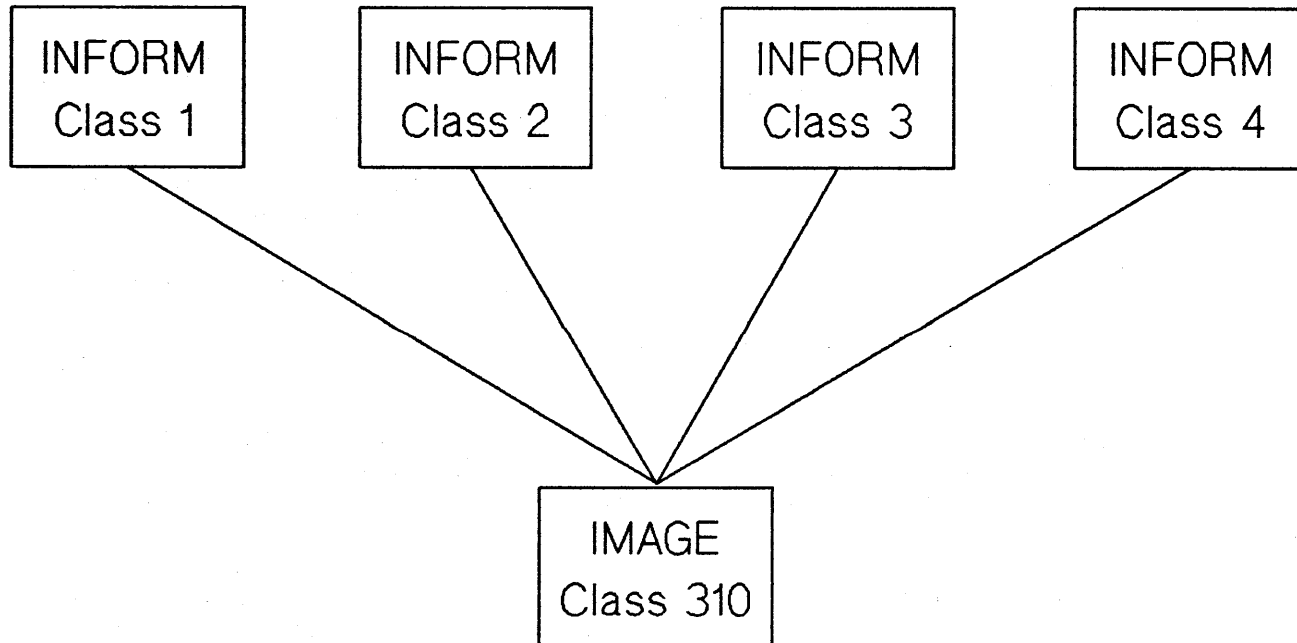


Figure 11-33. An IMAGE Class Can Be Used by More than One INFORM Class

How will INFORM/V know what to display on the Data Names Menu for a Group? When the user enters his password, INFORM/V checks the data dictionary to see what IMAGE classes are related to the INFORM class that has that password. It also checks to see what Groups are related to that INFORM class, and then checks for the elements in those Groups. Only if the elements are associated with one of the IMAGE classes are they displayed on the menu.

When INFORM/V opens an MPE or KSAM file that has a lockword, INFORM/V uses the password of the IMAGE class as the lockword of the file. Therefore, you must assign a password to the IMAGE class that is the same as the lockword on the file. If the password and lockword are not identical, then the user will be prompted for the lockword when the report is being produced.

Technical Administration

MPE and KSAM files do not have to be added to the IMAGE classes unless they have lockwords.

Summary of Security Commands

Use the REPORT command to see the elements related to an IMAGE class. REPORT will not work with INFORM classes, however, because elements are directly related to them. For INFORM classes, use SHOW CLASS. This displays all the associations for class and all the related child classes as well.

Use DISPLAY CLASS ! (for all classes) to see the attributes for a class plus the directly related classes. This command will also show you the passwords.

The following list includes all the DICTIONARY/V commands that will be used for setting up and maintaining INFORM/V security.

Table 11-2. Dictionary Commands Used to Establish and Maintain INFORM Security

Function	Command
Creating IMAGE or INFORM classes	CREATE CLASS
Modifying IMAGE or INFORM classes	MODIFY CLASS RENAME CLASS PURGE CLASS
Reporting IMAGE or INFORM classes	LIST CLASS DISPLAY CLASS

Table 11-2. Dictionary Commands Used to Establish and Maintain INFORM Security (continued)

Function	Command
<p>Adding entities to an IMAGE class</p> <p>Modifying entities added to an IMAGE class</p> <p>Reporting entities added to an IMAGE class</p>	<p>ADD CLASS ADD CLASS-FILE SECURE FILE</p> <p>UPDATE CLASS UPDATE CLASS-FILE DELETE CLASS DELETE CLASS-FILE</p> <p>REPORT CLASS SHOW CLASS</p>
<p>Relating IMAGE classes to INFORM classes</p> <p>Modifying relationship of IMAGE and INFORM classes</p> <p>Reporting relationship of IMAGE and INFORM classes</p>	<p>RELATE CLASS</p> <p>CHANGE CLASS REMOVE CLASS</p> <p>SHOW CLASS DISPLAY CLASS</p>
<p>Adding INFORM Groups to INFORM classes</p> <p>Modifying INFORM Groups</p> <p>Reporting INFORM Groups</p>	<p>ADD CLASS-GROUP SECURE GROUP</p> <p>UPDATE CLASS-GROUP DELETE CLASS-GROUP</p> <p>DISPLAY GROUP</p>

STACKING RESPONSES TO PROMPTS

APPENDIX

A

Experienced users can save time by stacking their input to options on the Main and other menus. You may stack responses for the interactions that begin with the first four options on the Main Menu. These options are:

1. DEFINE A REPORT -- Data Organization Menu through Data Names Menu
2. DISPLAY REPORT CATALOG -- account and group name through display or print
3. SELECT A REPORT DEFINITION -- report name through produce report
4. PREVIEW REPORT LAYOUT -- display/print through number of lines

To stack responses, you enter input to consecutive prompts, beginning on the current menu, as a series of numbers, separated by commas. For example, suppose you have the Main Menu on your screen and want to define a report using the fifth data set in the first database. You would respond to the prompt as follows:

```
TYPE AN OPTION NUMBER> 1,3,1,5
```

The numbers in this response have the following effect:

- 1 = Main Menu option 1, Define a Report, which goes to the Data Organization Menu.
- 3 = Data Organization Menu option 3, Display Data Base Menu, where you would be prompted for a database number.
- 1 = On the Data Base Menu, database number 1 is selected.
- 5 = On the Data Set Menu, data set number 5 is selected.

Stacking Responses to Prompts

Instead of reading and responding to three intermediate menus, you go directly to the one needed. Stacking responses reduces screen display considerably.

You are not restricted to stacking responses starting with the Main Menu and you may stop at any prompt that allows stacked responses. In the example above, you might not begin to stack until you were in the Data Organization Menu. If you entered 3, 1, 5 at the prompt on that menu, the results would be the same.

Frequent use of INFORM/V is the best preparation for using the stacking feature. You must know your menus and data to make stacking an efficient and useful shortcut. Also, changes to the data dictionary, such as adding or deleting databases, or changes within databases, may make selection numbers invalid.

Default Values in Stacked Responses

The default value is always the first displayed when there are two in parenthesis. Display (D) is the default value in the following instance: DISPLAY OR PRINT (D/P). When you wish to use a default value, type a comma for the associated prompt. If, for example, you are in the Main Menu and want to display the cataloged report definitions under your logon group, you could respond to the prompt for an option in the following way:

```
TYPE AN OPTION NUMBER> 2,,D
```

Any extra input, beyond the last prompt for which stacking is allowed, will be ignored. Suppose you were in the Main Menu and responded to the option prompt in the following way:

```
TYPE AN OPTION NUMBER> 1,3,1,5,7
```

Since stacking is not allowed beyond the Data Names Menu, the last number, 7, would be ignored.

FILES USED BY INFORM/V

APPENDIX

B

INFORM/V often creates and uses files that are not apparent to the user. For the most part, you need not concern yourself with these files or the formal file designators that INFORM/V uses. Information about the files that INFORM/V uses is collected here for those advanced users who need to change the default file environment.

Names of Files

INFORM/V considers your terminal as a file from which it reads the responses to prompts; the formal file designator that INFORM/V uses for this file is INFOIN. The default for INFOIN is the MPE file \$STDINX. If you want INFORM/V to get your responses from some other file, you must have a file equation that tells it the name of your file, and you must put your responses in this file in the same order that INFORM/V issues the prompts. For example, if you want to put your responses in a file named RESPOND, you would type the following file equation before running INFORM/V:

```
:FILE INFOIN=RESPOND
```

When INFORM/V prepares the report it will look in the file named RESPOND for responses to prompts. The file must be unnumbered ASCII.

Similarly, when INFORM/V sends prompts or a report to your terminal, it uses the formal file name INFOOUT for the terminal (known to MPE/V as \$STDLIST). If you do not want prompts or your report sent to the terminal, you can type a file equation. For example:

```
:FILE INFOOUT=MYFILE
```

In this case, anything that normally appears at the terminal goes to a file named MYFILE.

INFOLIST is the INFORM/V formal file designator for sending your report to the line printer. As previously explained, this destination can be changed with a file equation. To save output in a disc file, type

Files Used by INFORM/V

```
FILE INFOLIST=filename,NEW;DEV=DISC;REC=132,1,F,ASCII;SAVE
```

If you request sorting on one or more data names, INFORM/V uses a file named INFOSORT. The default size of this file is 10,000 records divided into 30 extents (an extent is a way of grouping records). You can change the size of this file by using the MPE FILE command. For example, if you want to decrease the size of INFOSORT to 5000 records, type the following:

```
:FILE INFOSORT;DISC=5000
```

For further information, see the *MPE/V File System Reference Manual (30000-90236)*, and the *MPE/V Commands Reference Manual (30000-90009)*.

These files are represented graphically in Figure B-1.

File Locations

DICTIONARY/V supplies the location for any files needed by INFORM/V in the form of a file equation, which has the syntax shown below. The locations of each file must have been specified in the data dictionary by your dictionary administrator. If there is more than one location related to the file or data base, the first one specified is used. INFORM/V issues the file equation before opening the file and resets it afterwards.

```
:FILE filename = alias[/lockword][.group[.account]][;DEV=cpu#DISC]
```

where:

- | | |
|-----------------|---|
| <i>filename</i> | is the file's primary name. |
| <i>alias</i> | is the file's alias within the location. |
| <i>lockword</i> | is the file's lockword, if the file is a MPE and KSAM file, or the password that was related to the file, if the file is a database file. |
| <i>group</i> | is the group the location is in. (optional) |
| <i>account</i> | is the account the location is in. (optional) |
| <i>cpu</i> | is the nodename specified on the already open DSLINE to the desired system. |

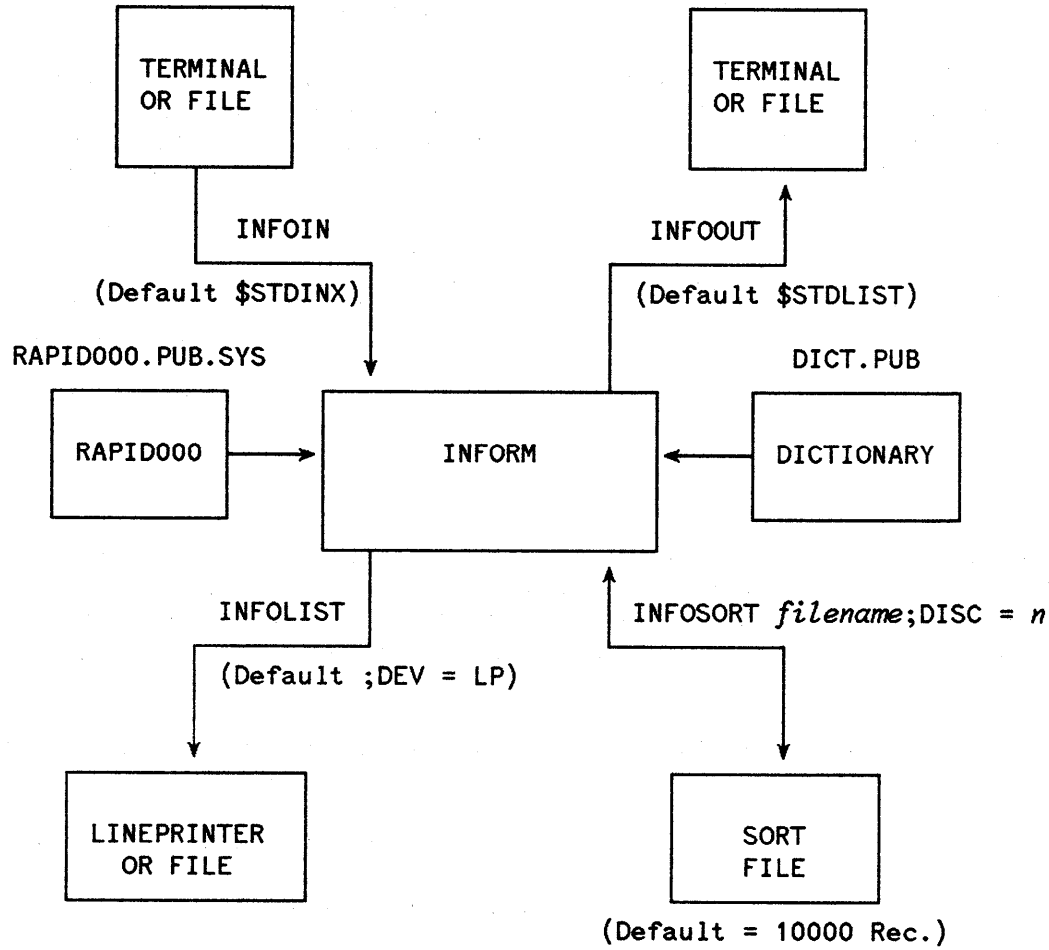


Figure B-1. File Designators Used by INFORM/V

LIMITS

APPENDIX

C

Data names (items) per Data Names Menu The number of items that can be displayed on an INFORM/V Data Names Menu depends on the database that the user is reporting from:

IMAGE/V databases - 128 items can be displayed.
TurboIMAGE/V databases - 256 items can be displayed.

These limits apply both when Groups are made up from the databases and when databases are accessed directly.

KSAM or MPE file The number of data names that can be included in a KSAM or MPE file record is limited by the DICTIONARY/V requirements that only 128 items can be defined for a KSAM or MPE record.

Items in a report The number of items that can be included in a report is 128.

User-defined data names The number of user-defined data names allowed depends on the number of permanent data names in the Group. User-defined data names can be added to a Group until the limits given above for Groups are met.

When a report is being drawn from a KSAM or MPE file, INFORM/V includes all items defined in the data dictionary for that file in its internal table, even though all items are not being reported. If items are being drawn from more than one file, it is therefore possible that limits will be exceeded even though very few items are included in a report.

For example, assume that a KSAM file having 50 items defined in the data dictionary has 5 items defined in a Group. A second KSAM file has 20 items defined in the data dictionary, but only 5 defined in the Group. If a report calls for one item from each file, the internal table will contain 70 items (50 plus 20).

When a child item is being reported, INFORM/V includes the parent item, as well as the child item, in the internal table.

ERROR MESSAGES

APPENDIX

D

Table D-1 lists all the error messages that might appear when you are using INFORM/V. Table D-2 contains a list of fatal processing error messages; i.e., those messages that are identified by the message FATAL PROCESSING ERROR *number* at your terminal. The information in Table D-2 will be of particular value to your database administrator if you should get a fatal processing error message.

Table D-1. User Error Messages

Message	Explanation and/or Action
ACCOUNT CAPABILITIES DO NOT ALLOW A JOB TO BE STREAMED	The user's account does not have batch (BA) capability.
ACCOUNT PASSWORD EXPECTED	An account password must be entered.
ARGUMENT REGISTER OVERFLOW	Report error to DBA.
ARITHMETIC CONVERSION FOR ITEM: <i>item-name</i>	Report error to DBA.
ARITHMETIC CONVERSION FOR TABLE LITERAL	A program constant cannot be converted to the binary equivalent as the current statement requires.

Error Messages

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
ARITHMETIC TRAP	Processor has detected an arithmetic trap condition in its internal processing. Report the error to the DBA.
ATTEMPT TO ASSIGN NEGATIVE VALUE TO ITEM: <i>item-name</i>	The processor has detected an attempt to assign a negative value to a positive-type field.
BAD PASSWORD - GRANTS ACCESS TO NOTHING	An invalid password was entered.
BASE DOES NOT EXIST IN DICTIONARY	The database selected does not exist in the data dictionary.
BATCH FILE INTERNAL SET UP ERROR	MPE/V cannot set up the batch job.
BATCH FILE INTERNAL WRITE ERROR	MPE/V cannot set up the batch job.
BROKEN WORKSPACE CHAIN	Processor has detected a break in a work space link list. Report the error to the DBA.

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
CANNOT ACCESS REPORT FILE, ERROR= <i>number</i>	The report file cannot be found or accessed -- an MPE File System error number is indicated.
CANNOT CREATE A REPORT FILE	The report file cannot be created, e.g., not enough disc space.
CANNOT OPEN DATA BASE: <i>basename</i>	Data base needed by INFORM/V cannot be accessed. Report error to DBA.
CANNOT OPEN PRINT FILE	The processor is unable to open the print file.
CHILD ITEMS ARE NOT VALID IN COMPARISON EXPRESSION	The data name chosen cannot be used in a data-name to data-name comparison.
COMMAND INTRINSIC ERROR PLEASE REPORT	INFORM/V cannot create or stream the batch job.
COMPUTATION WORKSPACE OVERFLOW	Internal error. Report the error to DBA.
COMPUTE ITEMS ARE NOT VALID IN COMPARISON EXPRESSIONS	Temporary data names cannot be used in data-name to data-name comparisons.
COMPUTED NAMES CANNOT BE USED FOR SELECTION CRITERIA	A computed data name added to the group with "+" cannot be used with selection criteria.
CURRENT REPORT HAS NOT BEEN SPECIFIED	To produce a report, a report must be defined or specified (option 1, 2, or 3 of the Main Menu).
DATA DICTIONARY INACCESSIBLE	The dictionary database cannot be accessed; see the DBA.

Error Messages

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
DATA DICTIONARY INFORMATION ERROR: <i>number</i>	Report error to the DBA.
DATA NAMES MUST BE SPECIFIED TO PRODUCE A REPORT	No data names have been specified. Since there is nothing to report, no report can be produced.
DATA NAME MUST BE 20 CHARACTERS OR FEWER	Check length of data name; cannot be greater than 20 characters.
DATA NAMES SELECTED MUST BE IN SORT LIST	Sorted data names are the only ones that can be used to subdivide a report.
DATA NOT NUMERIC	Data must be of numeric type to be used in a computational expression.
DATA SET DOES NOT EXIST IN DICTIONARY	The data selected does not exist in the data dictionary.
DECIMAL DIVIDE BY ZERO	Processor has detected a divide by zero in a packed decimal computation.
DECIMAL LENGTHS OF ITEMS IN COMPARISON EXPRESSION MUST BE EQUAL	Data names used in comparisons must be defined with the same length.
DECIMAL OVERFLOW	Processor has detected an overflow in a packed decimal computation.
DELETE NOT CONFIRMED - REPORT UNCHANGED	User indicated that report was not to be purged.

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
DISC SPACE NOT AVAILABLE FOR SORT FILE	Not enough space available for SORT operation.
DISPLAY FORMAT LEVEL OVERFLOW	Processor has detected an overflow in managing format levels. Report the error to the DBA.
DISPLAY FORMAT LEVEL UNDERFLOW	Processor has detected an underflow in managing format levels. Report the error to the DBA.
DUPLICATE ENTRY IGNORED	Data name has been specified more than once.
EDIT MASK CANNOT BE GREATER THAN 30 CHARACTERS	Edit mask entered was greater than 30 characters.
EDIT MASK WORKSPACE OVERFLOW	<p>The total number of characters allowed for all edit masks for new data names is too large. The total must be less than 512 characters. Calculate the total number of characters with the following formula:</p> $ \begin{aligned} &(\text{number of characters in edit mask1} + 4) \\ &\quad + \\ &(\text{number of characters in edit mask2} + 4) \\ &\quad + \dots + \\ &(\text{number of characters in edit maskn} + 4) \\ &< 512 \text{ characters.} \end{aligned} $
EMPTY REPORT FILE	The report selected is empty, possibly because of an internal error. Report the error to the DBA.

Error Messages

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
ENTRY CANNOT BE NEGATIVE	The data name is defined in the data dictionary as being positive.
ENTRY NOT NUMERIC	Data type is integer, floating point, or numeric ASCII and a nonnumeric character has been detected in the data entry field.
*ERROR DETECTED IN SELECTION EXPRESSION AT FIELD <i>n</i>	An error has been detected in the selection criteria at the position indicated.
*ERROR: ILLEGAL DATA TYPE FOUND, DATA NAME: <i>data name</i>	A data name with unsupported data type is found.
*ERROR: INTERNAL ERROR <i>number</i> PLEASE REPORT	An unexpected error occurred.
*ERROR: MPE ERROR <i>number</i> IN MESSAGE CATALOG	A MPE error occurred.
*ERROR: MPE FILE SYSTEM ERROR <i>number</i> ON TERMINAL	An error occurred while prompting or writing a message.
* ERROR: WORKSPACE ENTRIES FULL	Ran out of entries of an internal table, report the error to the DBA.
*ERROR: WORKSPACE FULL	An internal table is full, report the error to the DBA.

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
EXCEED MAXIMUM PERFORM	Report the error to the DBA.
EXPRESSION CANNOT BE GREATER THAN 50 CHARACTERS	The computational expression given for the new data name must be 50 characters or fewer.
EXPRESSION ERROR	The computational expression contains an error, such as a missing arithmetic operator.
EXTENDED PRECISION DIVIDE BY ZERO	Processor has detected a divide by zero in a double-precision floating point computation.
EXTENDED PRECISION OVERFLOW	Processor has detected an overflow in a double-precision floating point computation.
EXTENDED PRECISION UNDERFLOW	Processor has detected an underflow in a double-precision floating point computation.
FATAL PROCESSING ERROR <i>number</i>	Refer to Table D-2.
FLOATING POINT DIVIDE BY ZERO	Processor has detected a divide by zero in a single-precision floating point computation.
FLOATING POINT OVERFLOW	Processor has detected an overflow in a single-precision floating point operation.
FLOATING POINT UNDERFLOW	Processor has detected an underflow in a single-precision floating point operation.

Error Messages

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
FOLLOWING DATA NAMES ARE NOT IN ANY DATA SET OR FILE: <i>datanames</i>	INFORM/V is unable to make a link between the first and second group of file names. Check with the DBA.
FOLLOWING FILE(S) CANNOT BE RELATED: <i>filename(s)</i> TO FILES: <i>filename(s)</i>	The two specified groups of files have not been linked to each other in the data dictionary.
GROUP DOES NOT EXIST IN DICTIONARY	The INFORM/V Group selected does not exist in the data dictionary.
GROUP PASSWORD EXPECTED	A group password must be entered.
IMAGE ERROR <i>number</i> ON DICTIONARY	An error occurred getting some security or file equate information from the data dictionary.
IMAGE ERROR <i>number</i> ON FILE	An error occurred on an open. The file is the name of the file it tried to open.
INCOMPATIBLE REPORT FILE	Report was created by an earlier version of INFORM/V and, for internal reasons, can no longer operate with the current version of INFORM/V.
INPUT FIELD LONGER THAN <i>n</i>	Length of data entered exceeds <i>n</i> , the size defined for the data name.
INSUFFICIENT STACK FOR SYSTEM LOAD	Report the error to the DBA.
INSUFFICIENT STACK FOR WORKSPACE RELOAD	Report the error to the DBA.

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
INTEGER DIVIDE BY ZERO	Processor has detected a divide by zero in an integer arithmetic computation.
INTEGER OVERFLOW	Processor has detected an overflow in an integer arithmetic operation.
INTERNAL FILE ERROR, PLEASE REPORT	An error occurred in creating the batch file.
INVALID ACCOUNT, USER, OR GROUP PASSWORD	Password is not correct; batch job cannot be streamed.
INVALID ARITHMETIC FIELD FOR ITEM: <i>item-name</i>	The processor is attempting to execute an arithmetic operation using a data name defined as character, zoned or packed decimal (type=X,U,Z or P), and has detected an invalid data storage format for the name.
INVALID DATA NAME FORMAT	Format of data name not consistent with format defined in the data dictionary.
INVALID DATA NUMBER	Number indicated does not appear on menu of data names.
INVALID ENTRY IGNORED	Entry is either non-numeric or not within the range of available options.

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
INVALID FILE NAME FORMAT	Name given to report does not conform to file naming conventions.
INVALID ITEM TO ITEM COMPARISION	The syntax for the data-name to data-name comparison is not valid.
INVALID LOCKWORD	The lockword entered was invalid.
INVALID LOGICAL CONNECTOR	Connector must be AND or OR.
INVALID MODE	The mode used in opening the database must be numeric and must be between 1 and 8 inclusively.
INVALID MODE, RE-ENTER MODE >	Data base open mode specified was invalid.
INVALID NUMBER: <i>expression</i>	Expression indicated is not a valid number.
INVALID NUMBER, RANGE IS $x - y$	Number entered falls outside the given range.
INVALID NUMERIC ENTRY	A numeric value was expected in response to the prompt.
INVALID OPEN MODE. DATA BASE WILL BE OPENED IN MODE 5.	You can respond <i>password,mode</i> to any database password prompt, where mode is a number from 1 to 8, representing the access mode you want to open the database in.
INVALID RELATIONAL OPERATOR	Operator must be EQ, GT, LE, GE, LT, or NE.

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
ITEM SIZES IN COMPARISON EXPRESSION MUST BE EQUAL	Data names used in comparison must be defined with the same length.
ITEM TYPES IN COMPARISON EXPRESSION MUST BE THE SAME	Data names used in comparison must be of the same data types.
LOCKWORD CANNOT CONTAIN SPECIAL CHARACTERS	MPE lockwords cannot contain special characters.
LOCKWORD MUST NOT BE GREATER THAN EIGHT CHARACTERS	MPE lockwords cannot contain more than eight characters.
MISMATCHED PARENTHESES: <i>expression</i>	The computational expression indicated did not contain a matching number of open and close parentheses.
MPE COMMAND ERROR	An error occurred setting or resetting a file equation.
MPE FILE SYSTEM <i>number</i> ON FILE <i>filename</i>	An error occurred on an open. The file is the name of the file it tried to open.

Error Messages

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
NO DATA BASES ARE IN THE DICTIONARY	No databases are identified in the data dictionary.
NO DATA NAMES ARE DEFINED IN THIS DATA SET	No data names have been assigned to this data set in the data dictionary.
NO DATA NAMES ARE DEFINED IN THIS SUBGROUP	No data names have been assigned to this subgroup in the data dictionary.
NO DATA SETS ARE IN THIS DATA BASE	The data dictionary shows no association between this database and its corresponding data sets.
NO INFORM GROUPS ARE IN THE DICTIONARY	No INFORM/V Groups have been set up in the data dictionary.
<NO RECORDS FOUND>	The report processor could not find any matching record in the file or database.
NO REPORTS FOUND UNDER <i>groupname</i>	Within the specified computer group, no reports appear in the catalog.
NO SUCH REPORT NAME	The report name specified is not listed in the report catalog.

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
NUMERIC DECIMAL PART LONGER THAN <i>n</i>	Decimal part of a decimal number exceeds the length <i>n</i> defined for the associated data name.
NUMERIC INTEGER PART LONGER THAN <i>n</i>	Integer part of a decimal number exceeds the length <i>n</i> defined for the associated data name.
ONLY ONE ENTRY EXPECTED - REMAINDER IGNORED	Only one entry can be made.
ONLY <i>number</i> ENTRIES EXPECTED - REMAINDER IGNORED	Only the specified number of entries can be made.
OUT OF RANGE PCODE ADDRESS	Report the error to the DBA.
OUTPUT FILE ACCESS	The output device is unavailable. Check FILE statement or call system operator.
PASSWORD CANNOT CONTAIN SPECIAL CHARACTERS	Passwords cannot contain special characters.
PASSWORD MUST BE 8 CHARACTERS OR LESS	Password entered was longer than eight characters.
PASSWORD MUST NOT BE GREATER THAN EIGHT CHARACTERS	Password entered was longer than eight characters.
PRINT FILE ACCESS	The print device is unavailable. Check FILE statement or call system operator.

Error Messages

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
RELATIONAL OPERATOR IN EXPRESSION INVALID WITH ITEM TYPE	The operator entered is not compatible with the type of these data types.
REPORT FILE ALREADY EXISTS, PURGE OLD FILE(N/Y)?>	The report file name already exists in the report catalog. Should the existing report definition be replaced with the new one?
REPORT FILE CLOSE FAILURE	The report cannot be added to the catalog--see the DBA.
REPORT FILE ERROR	Report the error to the DBA.
REPORT FILE RENAME FAILURE	Contact the DBA.
SELECTED DATA IS NON-NUMERIC	Data name selected is not defined as numeric type in the data dictionary.
SORT END	Error in MPE SORT Utility during exit procedures. If cause is not apparent to the resident system programmer, contact the DBA.
SORT FILE WRITE	Error on releasing record to the MPE SORT Utility. If cause is not apparent to the resident system programmer, then contact the DBA.
SORT INITIALIZATION	Error in call to MPE SORT Utility. The probable cause is insufficient disc space for sorting.

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
SORT OUTPUT	Error on requesting record from MPE SORT Utility. If cause is not apparent to the resident system programmer, then contact the DBA.
THAT PASSWORD IS UNKNOWN	An invalid password (one that does not belong to any of the classes in DATA-CLASS that are of type INFO) has been entered.
TITLE CANNOT BE LONGER THAN 79 CHARACTERS	A report title longer than 79 characters was entered.
<p>TOO MANY _____ DEFINED IN _____</p> <p>DATA NAMES/GROUP DATA NAMES/SET</p> <p>DATA BASES/Dictionary DATA SETS/DATA BASE GROUPS/Dictionary SUBGROUPS/GROUP</p>	<p>Blank spaces may contain any of the following combinations:</p> <p>The limit of 255 data names per dataset or 128 data names per Group has been exceeded. After this message appears, the current Data Names Menu is redisplayed and will include all new data names up to but not including the name that caused the error.</p> <p>Report the error to the DBA.</p>
TOO MANY FILES	The data names to be included in the report are listed in more than 255 files--the maximum number files that can be accessed.

Error Messages

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
TOO MANY FILE ELEMENT RELATIONSHIPS	There are too many file-element relationships defined for the particular list of data names selected for the report. Report the error the DBA.
TOO MANY FILES EXIST; UNABLE TO CREATE A UNIQUE FILE	INFORM/V job files and cataloged reports must total fewer than 99.
TOO MANY SUBDIVISIONS, SUBTOTALS, AND TOTALS	The total number of data names selected to be subdivided, subtotaled, and totaled exceeds the maximum of 255.
TOO MANY VARIABLES IN REPORT TITLE	No more than six variables can be used in the report title.
UNDELIMITED TEXT STRING	A string value must begin and end with quotes.
UNEXPECTED EOF IN REPORT FILE	The processor encountered an unexpected end-of-file while reading the report file. Notify the DBA.
USER OR ACCOUNT DOES NOT POSSESS THE CAPABILITY TO STREAM A JOB	User or account does not have the authority to stream a batch job.
USER CAPABILITIES DO NOT ALLOW A JOB TO BE STREAMED	The user does not have the authority to stream a batch job.

Table D-1. User Error Messages (continued)

Message	Explanation and/or Action
WARNING: DATA IS TYPE X OR U	Data name used in the computational expression is of type X or U. Conversion error might occur if data is not numeric.
WARNING: DATA NAME * IS OF TYPE X OR U, DATA MANY NOT BE NUMERIC	Data name used at the SUMMARIZE FOR prompt is type X or U. Conversion error might occur if data is not numeric.
WARNING ** REPORT MAY CONTAIN A MAXIMUM OF 128 ENTRIES	No more than 128 data names can be included in the report.
YOUR PASSWORD DOES NOT ALLOW YOU TO RUN THIS REPORT	User is attempting to produce a report created by another user having different access authority.

Error Messages

Table D-2. Fatal Processing Errors.

Number	Explanation and/or Action
2	Too many file set links (file/element relationships); the limit is 255.
3	Exceeded allowable p-code instructions; the maximum is 255.
6	Overflowed internal registers. Over 255 entries or 1024 words data.
7	Too many data elements to fit into data register. maximum is 1024 words.
11	Link table overflow; limit is 128 items.
12	Zsize error; ran out of stack.
13	Too many items selected; the maximum is 128.
100	Table holding files overflowed; the maximum is 32 files.
101	Too many databases to load; the limit is 16 databases.
102	Too many file/element relationships; the maximum is 255.
112	Table holding items overflowed; the maximum is 128 items.
113	Cannot find a starting file for the report; missing file/element relationship.

GLOSSARY

APPENDIX

E

account name	The name which when combined with a computer group name and user name identifies you as a user on the HP 3000.
CONTROL Y	The combination of terminal keys that returns you to the Main Menu.
computational expression	The expression that determines the values of new, temporary data names.
computer group name	The name which when combined with an account name and a user name identifies you as a user on the HP 3000.
connector	AND, OR, or TO. A word that expresses the connection between two or more selection values in the selection criteria.
current report	The report definition you are currently working on.
cursor	The flashing underline that shows where the next character you type will appear on the terminal.
data name	The name given to a collection of similar data, for example, address.
data name, temporary	Data name which is not present in an INFORM/V Group but may be defined by a user for a particular report.
Data Names Menu	The menu that lets you choose the data names on which you want to report.
Data Organization Menu	The menu from which you specify whether the information you want is contained in an INFORM/V Group or a single database.
data set	A file within a database.
Data Set Menu	The menu that lets you choose the data set from which you want to report.

Glossary

database	A collection of logically related files containing both data and structural information.
Database Menu	The menu that lets you choose the database from which you want to report.
DBA	Database administrator.
default value	The value that takes effect automatically if the user does not specify one.
DICTIONARY/V	The centralized source of information about the data processing system used with the HP 3000; among other things, it lists and defines data names and defines INFORM/V Groups.
edit mask	A formatting tool used to transform stored data into commonly accepted forms, e. g., when an edit mask is applied to the value 2943, it may be displayed as \$29.43.
file	A collection of related data treated as a unit.
Group, INFORM/V	A collection of data names you can choose from to produce report specifications; INFORM/V Groups are defined in DICTIONARY/V by the database administrator.
Group Menu	The menu that lets you choose the INFORM/V Group from which you want to report.
INFORM/V Group	A collection of data names you can choose from to produce report specifications; INFORM/V Groups are defined in DICTIONARY/V by the database administrator.
KSAM/V	Keyed Sequential Access Method; a system that organizes files on the HP 3000 in such a way as to provide quick access to data records.
layout	Specifies how information is arranged or presented.
lockword	The secret word used as a security measure to protect MPE and KSAM files.

log on	The process of establishing communication between a user and the computer.
Main Menu	The menu that is the starting point for all INFORM/V operations.
menu	A list of information from which you can choose certain options.
menu-driven	An application program in which the user accomplishes tasks by choosing responses from lists displayed on the terminal screen.
MPE	Multiprogramming Executive; a system that maintains files on the HP 3000; it also executes all user programs, including INFORM/V.
operator	A symbol denoting a mathematical or logical relationship between a data name and a value.
password	The secret word that allows you to use data bases for INFORM/V reports and in some cases to log on; password must be typed exactly the way it appears in the Dictionary.
preview	An option in INFORM/V that allows the user to look at the layout of a report; the preview contains dummy data.
prompt	A question posed to you by INFORM/V.
report, current	The report definition you are presently working on.
report description	Descriptive text (up to 50 characters long) that the user can supply when a report is saved in the catalog.
report name	Six-character identifier supplied when the report definition is stored in the catalog.
report title	The text (up to 79 characters) that prints at the top of each page of a report when the report is displayed or printed.
response	The answer you give to an INFORM/V prompt.

Glossary

selection criteria	The expression you type when you produce a report that specifies which values of data should be displayed on your report; the expression that makes up the selection criteria usually contains an operator, a numeric or character constant, and (optionally) a connector.
sort	To arrange data in ascending or descending order, either alphabetically or numerically.
temporary data names	See data names, temporary.
user name	The name which when combined with a computer group name and an account name identifies you as a user on the HP 3000.
user-defined data name	A data name that you create which is contains data derived from permanent data names.
variable, title	A placeholder in a Report Title which will be replaced with the appropriate information when the report is run.
wild card character	The caret character (^), which tells INFORM/V to accept any character in this position when matching on selection criteria. Is used with literals that must be matched exactly.

INDEX TO PROMPTS

APPENDIX

F

This Appendix lists all prompts and messages (except error messages) that appear on INFORM/V menus, and gives the page numbers where the prompt or message is discussed. Error messages are listed in Appendix D. A separate index to the text follows this Appendix.

B

BASE DOES NOT EXIST IN DICTIONARY, 4-11
BATCH JOB SUCCESSFULLY STREAMED, 3-8

C

COMPUTATIONAL EXPRESSION>, 7-2
CONTINUATION LINE>, 6-6
CONTINUE(Y/N)>, 3-4
CURRENT REPORT HAS NOT BEEN SPECIFIED, 4-4, 10-1

D

DATA SET DOES NOT EXIST IN DICTIONARY, 4-11
DELETE NOT CONFIRMED - REPORT UNCHANGED, 4-10
DELETE REPORT *reportname* (N/Y)?>, 4-9
DISPLAY OR PRINT(D/P)?>, 3-3, 4-6

E

EDIT MASK, 7-3
ELIMINATE BLANK LINES (NO)>, 8-4
ELIMINATE DUPLICATE LINES (NO)>, 8-4
END OF REPORT, 3-5

Index to Prompts

ENTER ACCOUNT PASSWORD>, 3-8
ENTER GROUP PASSWORD>, 3-8
ENTER JOB NAME (INFJOB)>, 8-5
ENTER JOB PRIORITY>, 8-7
ENTER USER PASSWORD>, 3-8
ERROR *data-name* DOES NOT BELONG TO THIS GROUP OR DATA SET, 4-11

F

FOR REPORT SUMMARY>, 5-11
FOR SELECTION CRITERIA>, 6-1, 6-10

G

GROUP DOES NOT EXIST IN DICTIONARY, 4-11

J

Jnn, 3-8

N

NATIVE LANGUAGE (*default language*)>, 8-4
NEW DATA NAME>, 7-1
NO SUCH REPORT NAME, 4-9

P

PASSWORD FOR *database*>, 3-3
PREPARE TO STREAM BATCH JOB, 3-8
PREPARING REPORT, 2-17, 3-1
PRINTER PAGE LENGTH (58)>, 8-4
PRINTER PAGE WIDTH (132)>, 8-4

PRODUCE REPORT IN BATCH MODE?(N/Y)>, 3-2, 3-6
PRODUCE THE REPORT(Y/N)?>, 2-17, 3-6, 4-7, 4-8
PURGE JOB FILE UPON COMPLETION OF JOB?(Y/N)>, 8-5
PURGE OLD FILE (N/Y)?>, 4-3
PURGE \$STDLIST UPON COMPLETION OF JOB?(N/Y)>, 8-5

R

REPORT DELETED, 4-10
REPORT FILE ALREADY EXISTS, 4-3
REPORT PROCESS STARTED, 3-3
REPORT TITLE>, 2-16
RETURN TO CURRENT DATA NAMES MENU(Y/N)?>, 2-17, 3-5, 3-7, 3-8, 10-1

S

SAVE REPORT IN CATALOG?(N/Y)>, 8-5
SELECTION CRITERIA FOR *data name*>, 6-2
SHOW HEADINGS (YES)>, 8-4
SHOW TITLE LINE (YES)>, 8-4

T

TERMINAL PAGE LENGTH (22)>, 8-3
TERMINAL PAGE WIDTH (79)>, 8-3
TO INCLUDE IN REPORT>, 2-15, 5-14, 7-1
TO SORT BY>, 5-2
TO SUBDIVIDE BY>, 5-5
TO SUMMARIZE FOR: *dataname*>, 5-8
TYPE A DATA BASE NUMBER, 2-11
TYPE A DATA SET NUMBER>, 2-12
TYPE A GROUP NUMBER>, 2-5
TYPE A NUMBER>
 Option 1, 2-4
 Option 2, 2-9

Index to Prompts

Option 3, 2-10
Option 4, 2-13
TYPE A REPORT NAME(6)>, 4-3, 4-6, 4-8, 10-1
TYPE A SUBGROUP NUMBER>, 2-8
TYPE AN OPTION NUMBER>
Option 1, 2-3
Option 2, 4-5
Option 3, 4-8
Option 4, 3-10
Option 5, 3-9
Option 6, 4-3
Option 7, 4-10
Option 8, 8-2
Option 9, 10-2
Option 10, 1-7
TYPE COMPUTER GROUP NAME>, 4-5
TYPE REPORT DESCRIPTION(50)>, 4-3, 8-5
TYPE REPORT NAME TO BE DELETED>, 4-9
TYPE REPORT NAME(6)>, 8-5
TYPE THE DATA BASE NAME>, 2-13
TYPE THE INFORM/3000 GROUP NAME>, 2-9
TYPE YOUR INFORM PASSWORD>, 1-3
TYPE 'RETURN' KEY TO CONTINUE>, 2-11, 4-4, 4-9, 4-11

U

USE DEFAULT BATCH RESPONSES (YES)>, 8-4

Y

YOUR PASSWORD DOES NOT ALLOW YOU TO RUN THIS REPORT, 4-7

Also see the "Index to Prompts" in Appendix F.

A

Adding a report definition to the catalog, 4-2, 8-5
Adding elements to a Group
 example, 11-6, 11-10
Adding elements to IMAGE classes, example, 11-40
Adding files to IMAGE classes
 example, 11-36, 11-39
Arithmetic functions, 5-8
Average in report, 5-8

B

Batch options, 8-5
 overriding defaults, 8-4
Batch processing, 3-5
Blank lines in reports, eliminating, 8-4
Brackets, ix

C

Capital letters, ix
Carriage return, 1-5
Catalog, see Report catalog, 4-1
Changes to underlying data sets or files, 4-11
Characters that control execution, 1-6
Child group, 11-2
Column headings, suppressing, 8-4
Comparison operator, in selection criteria, 6-5
Computational expressions for user-defined data names, 7-6
Connectors, in selection criteria, 6-6
Control Y, ix, 1-6

Index

- Controlling execution, 1-6
- Conventions, ix
- Count of data names in a report, 5-8
- Creating a Group
 - example, 11-5, 11-9
 - from a file, 11-4
 - from three or more files, 11-13
 - from two files, 11-8
- Creating data names, 7-1
- Creating IMAGE classes, example, 11-35
- Creating INFORM/V classes, example, 11-33
- Current report, defined, 4-1

D

- Data name numbers, how to enter, 2-15
- Data names
 - creating, 7-1
 - missing, 4-11
 - number allowed, 2-14
 - renumbered, 4-11
 - user-defined, 7-1
- Data Names Menu, 2-14
 - creating a user-defined data name, 7-2
 - data-name to data-name comparison, 6-9
 - defining a summary-only report, 5-16
 - manual control of batch options, 8-6
 - modifying a report, 10-3
 - producing a report, 3-1, 3-2
 - renumbered data names, 4-12, 4-13
 - selection criteria, 6-2
 - showing a user-defined data name, 7-4
 - sorting, 5-2, 5-4
 - specifying a report summary, 5-12
 - specifying variables in report titles, 9-2
 - subdividing, 5-6
 - summarizing, 5-9

- Data Organization Menu, 2-4
 - option 1, 2-5
 - option 2, 2-8
 - option 3, 2-10
 - option 4, 2-12
- Data set, structural changes to, 4-11
- Data Set Menu, 2-12
- Data-name to data-name comparison, 6-8
- Database Menu, 2-11
- Database
 - reporting from, 2-10
 - structural changes to, 4-11
- Default batch responses, overriding, 8-4
- Default file access, 11-27
- Default file names, B-1
- Default job name, changing, 8-5
- Default value, defined, 1-5
- Defining a report, 2-1, 2-15
- Defining data names, 7-1
- Deleting a report definition from the catalog, 4-9
- Description of report, 4-3, 8-5
- Displaying a report, 3-4
- Displaying Group
 - example, 11-8, 11-13
- Displaying the report catalog, 4-4
- DICTDBM utility, 11-4
- DICTIONARY/V, 11-1
- Dots, ix
- Driving file
 - default, 11-21
 - defined, 11-17, 11-21
 - user control of, 11-23
- Duplicate lines in reports, eliminating, 8-4

Index

E

Edit masks for user-defined data names, 7-6
 examples of, 7-8
 table of, 7-7
Ellipsis, ix
Entering INFORM/V, 1-3
Error messages, D-1
Errors, 1-6
Establishing INFORM/V Group, 11-1
Exiting INFORM/V, 1-7

F

Fatal processing errors, D-18
File locations, B-2
Files
 linking, 11-8, 11-15
 structural changes to, 4-11
 used by INFORM/V, B-1
Format options, 8-1
 in a saved report, 8-2
Format Options Menu, 8-2

G

General forms for selection criteria, 6-4
Glossary, E-1
Group Menu, 2-7
Group
 changing, 11-8
 creating from a file, 11-4
 creating from three or more files, 11-13
 creating from two files, 11-8
 defined, 2-4
 establishing, 11-1

reporting from, 2-5

Groups

hierarchy of, 11-3, 11-42

relation to INFORM classes, 11-44

relation to security, 11-41

H

Header line, suppressing, 8-4

Headings of columns, suppressing, 8-4

I

IMAGE classes

relation to INFORM/V classes, 11-45, 11-47

Index to prompts, F-1

Indirect links, 11-19

INFJOB*nn*, 3-6, 8-5

INFORM/V classes

relation to IMAGE classes, 11-45, 11-47

relation to INFORM/V Groups, 11-46

INFORM/V Group

changing, 11-8

creating from a file, 11-4

creating from three or more files, 11-13

creating from two files, 11-8

defined, 2-4

establishing, 11-1

reporting from, 2-5

INFORM/V Groups

hierarchy of, 11-3, 11-42

relation to INFORM/V classes, 11-44, 11-46

relation to security, 11-41

Italics, ix

Index

J

Job name, changing default, 8-5
Job number, 3-7
Job priority, 8-7

K

Keys that control execution, 1-6

L

Leaving INFORM/V, 1-7
Limits, C-1
Linking files, 11-8, 11-15
 default, 11-26
 direct links, 11-15
 example, 11-18, 11-25
 indirect links, 11-19
Lockword, 3-3

M

Main Menu, 1-1, 1-4
 option 1, 2-3
 option 2, 4-5
 option 3, 4-7
 option 4, 3-9
 option 5, 3-8
 option 6, 4-3
 option 7, 4-9
 option 8, 8-2
 option 9, 10-2
 option 10, 1-8
Maximum in report, 5-8

Menu-driven, defined, 1-1
Minimum in report, 5-8
Missing data names, 4-11
Modifying a report definition, 10-1

N

Name of report, 4-3, 8-5
Native language, changing, 8-4
Numbers for data names, how to enter, 2-15

O

Operator
for defining user-defined data names, 7-6
in selection criteria, 6-5

P

Page length, 8-3, 8-4
Page width, 8-3
Password, 1-3, 3-3, 3-6, 4-5
Periods, ix
Previewing a report layout, 3-9
example, 3-11
Printer page length, 8-4
Printer page width, 8-3
Printing a report, 3-4
Priority of batch job, 8-7
Producing a report, 3-1
from the Data Names Menu, 3-1
from the Main Menu, 3-8
in batch mode, 3-5
interactively, 3-1

Index

Prompts

- defined, 1-4
- index to, F-1
- stacking responses, A-1

R

Relating Group to Group

- example, 11-7, 11-12

Relating IMAGE classes to INFORM/V classes, example, 11-36

Renumbered data names, 4-11

Report catalog, 4-1

- adding report to, 4-2, 8-5
- deleting a report, 4-9
- displaying, 4-4
- example, 4-6
- selecting report definition, 4-7

Report definition

- creating, 2-1
- modifying, 10-1

Report description, 4-3, 8-5

Report example

- data-name to data-name comparison, 6-10
- report summary, 5-13, 5-14
- result from selection criteria, 6-4
- simple report, 3-4
- single sort, 5-3
- subdividing, 5-7
- summarizing, 5-10
- summary-only report, 5-17
- triple sort, 5-5
- user-defined data name, 7-5
- variables in report titles, 9-3
- with summary counts, 5-15

Report format options, 8-1

- in a saved report, 8-2

Report name, 4-3, 8-5

Report preview, example, 3-11
Report Process Menu, 3-3
 batch job, 3-7
 manual control of batch options, 8-7
 specifying selection criteria, 6-3
Report summary, 5-11
 specifying on Data Names Menu, 5-12
Report title, 2-16
 variables in, 9-1
Reporting
 from a database, 2-10
 from a Group, 2-5
Responses to prompts, 1-5
 stacking, A-1
Return, ix, 1-5
RUN INFORM.PUB.SYS, 1-3

S

Security commands, summary, 11-48
Security, 1-3, 3-3, 3-6, 4-5
 establishing, 11-27
 hierarchy for a database, 11-30
 relation to INFORM/V Groups, 11-41
Selecting a report definition, 4-7
Selecting data
 from a database, 2-10
 from an INFORM/V Group, 2-5
Selection criteria, 6-1
 data-name to data-name comparison, 6-8
 examples, 6-8
 general forms for, 6-4
Sorting, 5-2
 descending order, 5-3
Stacking responses to prompts, A-1
Structural changes to data sets or files, 4-11
Subdividing, 5-5

Index

Subgroup Menu, 2-8
Subgroups, 2-7, 11-2
Summarizing, 5-11, 5-14
Summary-only reports, 5-14

T

Technical administration, 11-1
Terminal page length, 8-3
Terminal page width, 8-3
Title for report, 2-16
 variables in, 9-1
Title line, suppressing, 8-4
Total in report, 5-8
TYPE prompt, required response, 11-34

U

Underlining, ix
User-defined data names, 7-1

V

Variables in report titles, 9-1

W

Wild-card characters, in selection criteria, 6-4

SPECIAL CHARACTERS

\$MENU, 11-2
\$STDLIST, keeping, 8-5

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