

# **Advantage™ VISION:Inquiry® for IMS™ and CICS® Automatic Query Facility (AQF)**

## **User Guide**

**6.5**



Computer Associates®

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# Contents

## Chapter 1: What Is VISION:Inquiry?

What Is the Automatic Query Facility (AQF)? .....	1-1
Building INQUIRIES Using AQF .....	1-4
Commands .....	1-8
Stored INQUIRIES and Functions .....	1-8
PF Key Navigation Chart .....	1-9
Contacting Technical Support .....	1-10

## Chapter 2: Databases and Files

What is a Database? .....	2-1
Database Concepts .....	2-1
Field and Segment Names .....	2-2
Multiple Occurrences of Segments .....	2-4
Structured Databases .....	2-5
Root and Dependent Segments and Levels .....	2-5
Database Legs .....	2-6
Database Access .....	2-7
Test Databases .....	2-7
PLANT Database .....	2-8
SKILL Database .....	2-10
VSAM Files .....	2-11
VSAM Test Files .....	2-12
VSPLANT File .....	2-12
VSSKILL File .....	2-12
VSAM Hierarchical Test Files .....	2-13
VSHPLANT File .....	2-15
VSHSKILL File .....	2-16
DB2 Concepts .....	2-16
Structured Query Language (SQL) .....	2-17
DB2 Test Tables .....	2-18
DB2 Test Views .....	2-19

---

## Chapter 3: Structure and Concept of AQF

AQF Statement Structure .....	3-1
VISION:Inquiry AQF SYSTEM Screen.....	3-3
DATABASE/FILE SELECTION Screen .....	3-4
FIELD SELECTION FOR DB/FILE Screen.....	3-5
Names .....	3-6
QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE Screen .....	3-7
DATA DISPLAY Screen .....	3-8
Generated Inquiry and Output Displays in IMS.....	3-9
Generated Inquiry and Output Displays in CICS .....	3-10
Help Screens.....	3-11
Exiting AQF.....	3-12

## Chapter 4: Using AQF

The Terminal .....	4-1
The Keyboard.....	4-1
VISION:Inquiry AQF SYSTEM (Introduction Screen).....	4-2
Program Function PF Keys .....	4-3
Messages.....	4-4
Making No Entry.....	4-4
Making an Incorrect Entry .....	4-4
AQF Operating Modes .....	4-5
VISION:Inquiry Under IMS.....	4-5
Last Page of Output.....	4-6
Asterisks Indicate Last Page .....	4-7
Modifying and Restarting .....	4-7
VISION:Inquiry Under CICS.....	4-7
Screen Sections .....	4-8
Number of Lines for Inquiry and Output .....	4-9
Second to Last Page of Output .....	4-9
Basic Mapping Support (BMS) Paging Options Under CICS.....	4-10
Operating Mode Limits .....	4-10
Continuing and Deferring Inquiries.....	4-11
CONTINUE Command .....	4-11
DEFER Command .....	4-12
CONTINUE DEFERRED INQUIRY.....	4-13
DELETE DEFERRED INQUIRY .....	4-14
Error Handling by AQF .....	4-14
Message Terminology .....	4-15
Operating System Messages.....	4-15
Entering a Second Inquiry .....	4-16
Under IMS .....	4-16

---

Under CICS .....	4-16
AQF REENTRY Screen (Reentry Screen) .....	4-16
Clearing Unwanted Selections .....	4-17
STORED QUERIES FOR DB Screen (Stored Queries Screen) .....	4-18
STORED QUERIES WITH COMMENTS FOR DB Screen (Stored Queries with Comments Screen)...	4-19
Signing Off .....	4-19
Under CICS .....	4-19
Under IMS .....	4-19

## Chapter 5: Simple Reports

Selecting a Database or File on the DB/File Selection Screen .....	5-2
To Select a Database or File .....	5-2
Selecting Fields on the Field Selection Screen .....	5-3
To Select Fields .....	5-3
Formatting Output on the Data Display Screen .....	5-4
To Generate and Execute the Inquiry .....	5-4
Horizontal Reports .....	5-5
Vertical Report Example 1 .....	5-6
Display Order .....	5-7
Alphabetical Order .....	5-7
Hierarchical Order .....	5-7
Order of Appearance on Screen .....	5-7
Changing the Print Order .....	5-7
Row Mode Report Formatting .....	5-8
Vertical Reports - IMS (DL/I) .....	5-8
Vertical Reports - VSAM and DB2 .....	5-9
Horizontal Reports .....	5-9
Vertical Report Example 2 .....	5-9
Accessing Segments of the Database .....	5-11
Using Control Fields .....	5-14
Conditional Selection .....	5-18
Using Conditional Selection .....	5-18
@ Symbol and # Symbol .....	5-19
Entering the Condition .....	5-19
Relational Operators .....	5-20
LIKE Operator in Conditional Selection .....	5-23
Compound Conditional Selection .....	5-25
Logical Operators .....	5-26
Evaluation of Compound Conditions .....	5-26
OR Operator .....	5-29
Numeric Constants .....	5-31
Complex Compound Conditions .....	5-33
Compound Conditional and the Logical Operator OR .....	5-36

---

Sorting Data .....	5-39
Using the SORT Command.....	5-39
Using Multiple SORT Commands .....	5-41
Hierarchy of SORT Action.....	5-43
Grouping and Printing with SORT .....	5-43
Reversing the Order of the Fields to be Sorted .....	5-44
Sorting Blank Fields .....	5-46
Sorting in Descending Order.....	5-48
Ascending and Descending Sorts in the Same Query .....	5-49
Using Multiple SORT DESC Commands.....	5-51
Adding Title to the Output .....	5-53
Limiting the Output.....	5-55
LIMIT Command Applied to the Leftmost Segment.....	5-58
LIMIT Command Applied to the Highest Level Segment.....	5-60
Batch Submission in CICS.....	5-62
Building the JCL Yourself.....	5-63
Using the Defined JCL.....	5-64

## Chapter 6: Summarizing Data

Specifying Totals.....	6-1
Specifying a Grand Total.....	6-1
Conditional Selection with TOTAL .....	6-3
Using TOTAL with Numeric Fields Only.....	6-6
Counting Occurrences .....	6-7
Averaging Data.....	6-9
Combining TOTAL, COUNT, and AVERAGE.....	6-11
Order of Output is COUNT, TOTAL, AVERAGE.....	6-14
Using the TOTAL with Two Fields .....	6-15
Subtotaling - Using a Group Field or Control Break.....	6-19
Using CTL BRK and SUMMARIES columns .....	6-19
Subtotaling with a TOTAL .....	6-20
Subtotaling Several Fields.....	6-22
Subtotaling on Averages .....	6-22
Taking a Subtotal of TOTAL, COUNT, and AVERAGE.....	6-24
Combining Subtotals with the Grand Summaries .....	6-27

---

## Chapter 7: Assignment Statement and Arithmetic Processing

Creating Temporary Fields in the Temporary Field Screen .....	7-2
Arithmetic Calculations .....	7-5
Arithmetic Operators.....	7-6
Hierarchy of Operation .....	7-6
Literals .....	7-6
Number of Decimal Places.....	7-6
Creating a Temporary Field from an Arithmetic Calculation.....	7-6
Arithmetic Processing Using Parentheses .....	7-10
Complex Arithmetic Calculation and a Temporary Field in a Conditional Phrase .....	7-10
Using Negative Values .....	7-15
Using Temporary Fields in Arithmetic Calculations .....	7-19
Using Nested Parentheses.....	7-21

## Chapter 8: Accessing Multiple Databases and Files

Accessing Two Databases .....	8-1
The Generated Inquiry .....	8-8
Matching on Key Fields.....	8-9
Conditional Selection on FIND Database.....	8-14
Using Conditional Selection on USE Database.....	8-20
Using a Compound Complex Condition.....	8-23
Sorting Data Output .....	8-26
Changing the Sort Order .....	8-28
Arithmetic Processing with Two Databases.....	8-29
Using Results of a Calculation in a Condition .....	8-33
Using a FIND Database Calculation with a USE Database Calculation .....	8-35
Creating Temporary Fields from Two Databases .....	8-38
Accessing the Same Database More Than One Time.....	8-44
Accessing VSAM Files and an IMS (DL/I) Database .....	8-47
Accessing DB2 Tables and IMS (DL/I) Databases .....	8-52
Accessing VSAM Files and DB2 Tables.....	8-56

## Chapter 9: Using Directory Commands - Storing Inquiries

Using the Data Display Screen.....	9-2
Storing Inquiries with Substitutable Values.....	9-3
Storing an Inquiry with Several Options.....	9-7
Replacing Stored Inquiries.....	9-9
Storing Inquiries that Call Stored Functions.....	9-11
Using a Stored Function and a Substitutable Value.....	9-14
Storing Inquiries that Access Multiple Databases.....	9-17

---

Storing Inquiries with LIKE Operator and Title Line .....	9-21
Using the Stored Queries Screen.....	9-23
Listing All Inquiries in a Directory.....	9-25
Viewing a Stored Inquiry .....	9-26
Attempting to Display Connected Directories Stored Inquiries .....	9-27
Deleting a Stored Inquiry .....	9-27
Attempting to Delete Connected Directories Stored Inquiries.....	9-29
Editing Stored Inquiries .....	9-30
Viewing Comments Associated with Stored Queries.....	9-32

## Chapter 10: Using Stored Inquiries and Functions

Executing a Stored Inquiry .....	10-2
Using Substitutable Values in a Stored Inquiry .....	10-3
Using Different Substitutable Values .....	10-6
Using COUNT and TOTAL in a Stored Inquiry .....	10-9
Using Stored Functions .....	10-10
Using Multiple Stored Functions.....	10-12
Using a Stored Inquiry with Stored Functions .....	10-15
Using a Stored Inquiry with Stored Functions and a Substitutable Value .....	10-16
Displaying All Stored Inquiries .....	10-19

## Appendix A: Commands, Noise Words, and Name Combinations

Commands .....	A-1
Noise Words.....	A-4
Name Combinations.....	A-5

## Appendix B: Automatic Query Facility (AQF) Screens

VISION:Inquiry AQF SYSTEM or Introduction Screen.....	B-1
Branching from the Introduction Screen.....	B-2
DATABASE/FILE SELECTION or DB/File Selection Screen .....	B-2
Select Codes .....	B-2
Select Code U for Use .....	B-3
Select Code F for Find.....	B-4
Select Code V for View .....	B-5
Next Database Starts With .....	B-6
Branching from the DB/File Selection Screen.....	B-6
Help Screen .....	B-7

---

FIELD SELECTION FOR DB/FILE or Field Selection Screen .....	B-8
Field Selection Screen Select Codes .....	B-9
Selecting Fields for Display .....	B-9
Selecting Data Fields for Qualification or Expression .....	B-9
Selecting Data Fields for Qualification and Display .....	B-10
Selecting Fields to View Descriptions .....	B-10
Using Key Codes .....	B-11
Next Field Starts With.....	B-12
For DB/File .....	B-13
Branching Using PF Keys.....	B-13
TEMPORARY FIELD DEFINITION FROM DB/FILE or Temporary Field Screen.....	B-14
Assigning Data Fields to a Temporary Field Name .....	B-15
Performing Calculations .....	B-15
Temporary Field Screen Select Codes .....	B-17
Using Temporary Fields .....	B-17
Next DB/File to Process .....	B-17
Branching from the Temporary Field Screen .....	B-17
QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE or Qualification Screen.....	B-18
Entering Qualifications or Conditions .....	B-18
Next DB/File to Process .....	B-21
Branching from the Qualification Screen.....	B-21
DATA DISPLAY or Data Display Screen .....	B-22
Using the Data Display Screen .....	B-23
Branching from the Data Display Screen.....	B-24
Batch Submission Under CICS.....	B-25
Branching from the Batch Screen .....	B-27
Stored Inquiries .....	B-27
Selecting Stored Inquiries .....	B-27
Executing Stored Inquiries with Substitutable Values.....	B-30
Branching from the Stored Queries Screen or the Stored Queries with Comments Screen.....	B-32
AQF REENTRY SCREEN or Reentry Screen.....	B-33

## Appendix C: Unique CICS or IMS Features

### Index



# What Is VISION:Inquiry?

Advantage™ VISION:Inquiry® is a simple-to-use system for retrieving information from IMS™ (DL/I) databases, VSAM files, and DB2® tables. This product is an online, interactive, intelligent, immediate response inquiry and reporting system. VISION:Inquiry allows the user to navigate through IMS (DL/I) databases, VSAM files, and DB2 tables simultaneously and transparently. Database and file structures are of little or no concern to the user.

VISION:Inquiry supports VSAM file types in all environments except IMS online (MPP). You can, however, generate (and save) AQF inquiries which access VSAM files in an IMS (Information Management System) environment. The processing of these stored inquiries can be done by native VISION:Inquiry in the batch, BMP, CICS®, and TSO environments. For a more detailed description of the features and commands of the system, see the *Advantage VISION:Inquiry Reference Guide*.

Note that accessing DB2 tables is an optional feature. Check with your system administrator for the DB2 option.

## What Is the Automatic Query Facility (AQF)?

The Automatic Query Facility is the menu-driven portion of the multifaceted VISION:Inquiry system. It automatically creates inquiries and executes them. AQF is a fill-in-the-blanks approach to querying the data. It is ideal for the first time or occasional user. It requires no knowledge of VISION:Inquiry syntax. The user need not be familiar with the VISION:Inquiry databases, field names, or commands.

**Note:** In this guide, the term “database” can usually be interpreted as IMS (DL/I) databases, DB2 tables/views, or VSAM files except as noted.

AQF is an easy way for a person with little or no data processing background to produce a variety of reports using information stored in IMS (DL/I) databases, DB2 tables, and VSAM files. Simply by selecting options from the menu screens, you can access data fields in the databases and produce reports.

If you are unsure about an AQF selection code, option, arithmetic operator, or logical operator, VISION:Inquiry contains a complete set of Help panels for each screen. PF1 always displays the Help panels from any screen. Pressing PF3 returns you to the previous selection screen.

**Note:** The native SQL syntax facility is not supported under AQF. You cannot generate inquiries, or process stored inquiries, with embedded SQL SELECT statements using AQF.

When using AQF, you proceed from one screen to another by pressing a PF key or Enter. Scrolling of data items on some screens is also accomplished by using PF keys. The function of the PF keys and Enter is defined at the bottom portion of each screen.

To start AQF, you enter an AQF transaction code:

- For IMS (Information Management System), the default transaction code is IIAQF.
- For CICS (Customer Information Control System), the default transaction code is IQBE.

Note that the screens in this guide are the AQF screens for IMS. The CICS screens can have some slight differences. For example:

- To exit AQF in CICS, press Clear. At the bottom of the CICS AQF screens, you will see CLEAR=EXIT.
- To exit AQF in IMS, first press the Clear key, type /EXIT, and press Enter.

[Figure 1-1](#) shows the VISION:Inquiry AQF SYSTEM screen, hereafter referred to as the Introduction screen.

```

                                VISION:Inquiry AQF SYSTEM                                AQFM01

Enter your VISION:Inquiry transaction code:      II

VISION:Inquiry lists you as terminal/user:      MXA

Press ENTER to use this transaction code and display DBD/File names to
process. Press CLEAR to clear screen and type "/EXIT" to exit from
AQF system.

PF1=Help      PF4=          PF7=          PF10=      ENTER=Next Scr
PF2=          PF5=          PF8=          PF11=      PF12=
PF3=          PF6=          PF9=          Clear, "/Exit"=Exit
    
```

Figure 1-1 Introduction Screen

In the Introduction screen in [Figure 1-1](#), a native (free-form) VISION:Inquiry transaction code is already present when the screen displays. This indicates that a default transaction code has been provided for you.

- The default native (free-form) VISION:Inquiry transaction code for IMS is II.
- The default native (free-form) VISION:Inquiry transaction code for CICS is IQIO.

If your system is different, your system administrator will provide you with a transaction code. Record your transaction code here. If you are viewing this documentation on line, you can print this page to record your transaction code. Or, make a facsimile, fill it out, and store it in a convenient location.

Transaction Code	Purpose/System

Either accept the default transaction code and press Enter, or enter the transaction code provided by your system administrator, and press Enter.

With AQF, querying data can be as simple as selecting items (files, databases or fields) from a list. AQF interprets your selection of items on the various screens and creates an inquiry for VISION:Inquiry. The inquiry produces the required report.

After completing the appropriate screens, AQF will:

- Create your inquiry
- Execute your inquiry
- Format your report

**Note:** This is an inquiry system only. No updating facilities are provided.

You can also:

- Access the information in two databases in one inquiry
- Store your created inquiry
- Replace your stored inquiry
- Use mathematical operations, known as functions, in an AQF inquiry.

## Building Inquiries Using AQF

The words in an inquiry represent commands, database names, file names, field names, and operators. The commands tell VISION:Inquiry what actions to perform. The database and field names indicate what database information should be used. The other words clarify or modify the operations being performed.

The flowchart in [Figure 1-2](#) indicates the usual flow or method for selecting data and building inquiries. The process requires asking yourself some questions about the report you are planning, such as:

- What do I want to see?
- What do I require for the report:
  - Employee data?
  - Accounting data?
  - A combination of the employee and accounting data?
- Do I need data on all the employees or some of the employees?
- Are any totals or subtotals required?

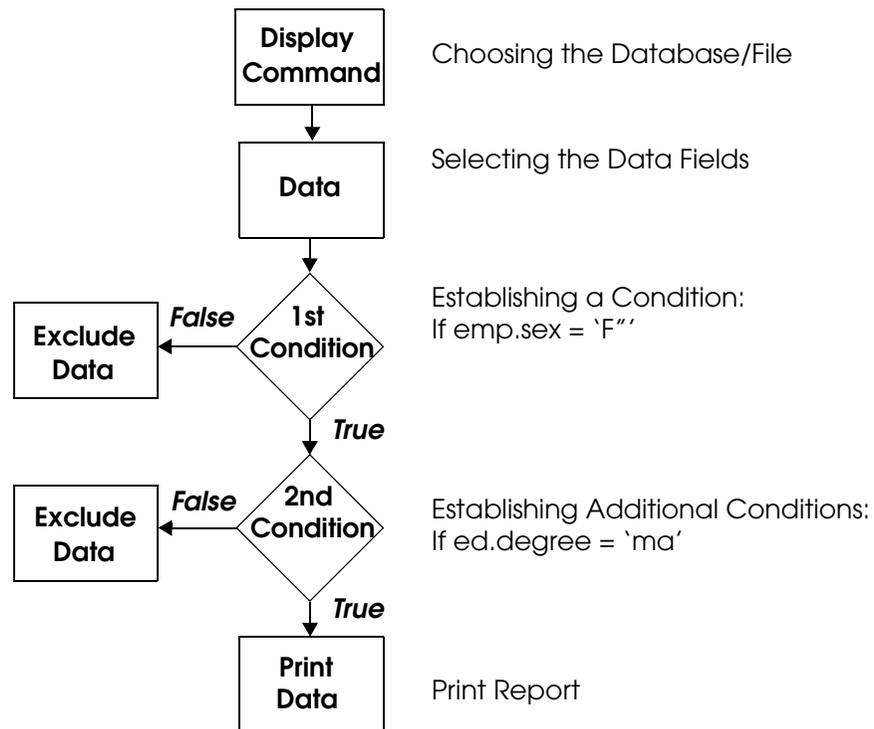


Figure 1-2 Flowchart of an Inquiry

The selection of items from the AQF screens depends upon the answers to your initial questions. You may want to exclude some data from your report based upon conditions, such as hire date, educational levels, or sex. You may want to list and total some accounting data or perform other arithmetic operations.

Using AQF, your questions are immediately answered and your output is displayed at your terminal or printed on your system printer.

**Note:** Batch is available to CICS users only.

[Figure 1-3 on page 1-6](#) is a graphic depiction of the AQF screens. These graphics do not appear as part of the AQF system, but are presented here as a reminder of the location and sequences of screens in AQF. You can print this page and keep it near your terminal as a guide to moving between screens while using VISION:Inquiry AQF. (See [Figure 1-5 on page 1-9](#) for a navigational cross-reference of screens and PF keys.)

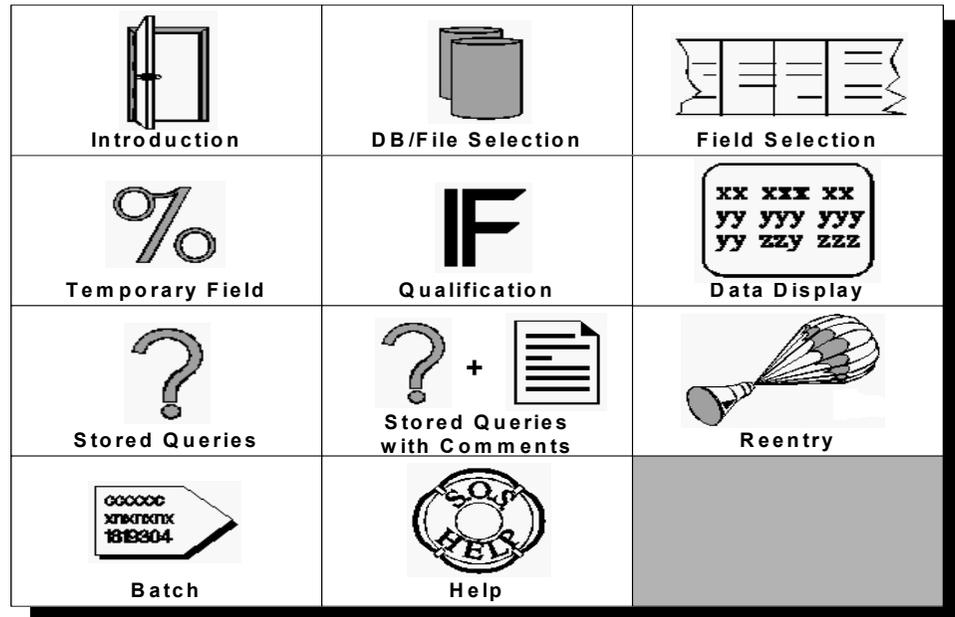


Figure 1-3 Graphical Depiction of AQF Screens

Because AQF has long screen names, an abbreviated form of the screen name is used in text references. After each screen is introduced, the shortened form of the screen name is used.

The following table shows the correspondence between references to AQF screens in the text of this guide, and the AQF screen names as they appear on the screen.

<b>AQF SCREEN NAMES AND NUMBERS</b>	
<i>Text Reference</i>	<i>AQF Screen Name</i>
Introduction	VISION:Inquiry AQF SYSTEM
DB/File Selection	DATABASE / FILE SELECTION
Field Selection	FIELD SELECTION FOR DB/FILE
Temporary Field	TEMPORARY FIELD DEFINITIONS FROM DB/FILE
Qualification	QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE
Data Display	DATA DISPLAY
Stored Queries	STORED QUERIES FOR DB
Stored Queries with Comments	STORED QUERIES WITH COMMENTS FOR DB

---

**AQF SCREEN NAMES AND NUMBERS**


---

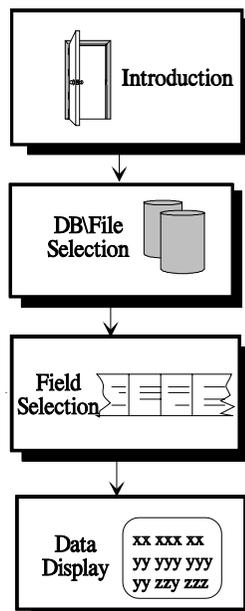
Reentry	AQF REENTRY SCREEN
Batch	BATCH JOB SUBMISSION (Batch is available to CICS users only)
Help	Screen name depends on the name of the screen from which Help is requested.

---

You can access Help for every screen by pressing PF1. A Reentry screen provides you with easy access to AQF after your inquiry has been executed. Pressing Enter takes you to the next logical screen. If you want to bypass a screen, press the applicable PF key (see [Figure 1-5 on page 1-9](#)).

You can:

- Execute AQF inquiries online.
- Display the generated free-form inquiry created from AQF with your output.
- View generated inquiries prior to execution.
- Save inquiries for execution at a later time.



[Figure 1-4](#) illustrates the execution of a simple inquiry. You access AQF through the Introduction screen, choose the database/file on the DB/File Selection screen, select the information you require on the Field Selection screen, and execute the inquiry on the Data Display screen.

You will usually access the first two screens when building inquiries or executing stored inquiries. Some screens, such as the Temporary Field screen, can be bypassed when creating simple inquiries. The Reentry screen provides re-access to AQF following the display of output.

Complex inquiries involving two databases, arithmetic operations, and conditional statements will involve more screens. Building and executing inquiries is discussed in [Chapter 2, "Databases and Files"](#). Examples of simple and complex inquiries are provided in these chapters.

Figure 1-4 Executing an Inquiry

## Commands

AQF inquiries generate the following VISION:Inquiry commands which are described and illustrated in detail in Chapters 2 through 10 of this guide.

<b>AVERAGE</b>	Averages the contents of a specified numeric field
<b>COUNT</b>	Counts the number of occurrences of a specified field
<b>DDI (DEFINE DIRECTORY INQUIRY)</b>	Stores an inquiry in the directory
<b>DELETE DIRECTORY INQUIRY</b>	Deletes a stored inquiry from the directory
<b>DISPLAY</b>	Displays data from specified fields
<b>EDITSQ</b>	Displays the stored inquiry in Text Editor mode for editing
<b>FIND</b>	Allows two databases, two VSAM files, or one of each, to be accessed in one inquiry
<b>LIMIT</b>	Limits the number of output lines displayed
<b>PDI (DISPLAY DIRECTORY INQUIRY)</b>	Displays a stored inquiry
<b>SORT</b>	Sequences data into a specified order
<b>TOTAL</b>	Totals the contents of a specified numeric field

## Stored Inquiries and Functions

You can store AQF inquiries for execution at a later time. You can view the stored inquiries, choose one for execution, execute it, and receive the output. Creating and storing inquiries are discussed in [Chapter 9, “Using Directory Commands - Storing Inquiries”](#) and [Chapter 10, “Using Stored Inquiries and Functions”](#).

You can select stored functions and include them in your inquiry. Functions are mathematical operations, and the results from a function appear on your report. See [Chapter 9, “Using Directory Commands - Storing Inquiries”](#) and [Chapter 10, “Using Stored Inquiries and Functions”](#) for examples.

## PF Key Navigation Chart

Figure 1-5 is a chart that cross-lists each of the AQF screens and the screens that can be accessed from each using PF keys. If you are viewing this manual on line, you can print the chart and keep it near your terminal for quick reference.

<i>TO screen</i>											
<i>Name</i>	<i>Intro- duction</i>	<i>DB/File Selection</i>	<i>Field</i>	<i>Temp- orary Field</i>	<i>Qualifi- cation</i>	<i>Data Display</i>	<i>Batch (CICS only)</i>	<i>Stored Queries</i>	<i>Stored Queries with Comments</i>	<i>Reentry</i>	<i>Run</i>
<i>F</i> Introduction	⌘	Enter									
<i>R</i>											
<i>O</i> DB/ <i>M</i> File Selection		⌘	PF3					PF9			
<i>s</i>											
<i>c</i> Field		PF2	⌘	PF4	PF5	PF6		PF9			
<i>r</i> Temporary <i>e</i> Field		PF2	PF3	⌘	PF5	PF6		PF9			
<i>e</i>											
<i>n</i> Qualification		PF2	PF3	PF4	⌘	PF6		PF9			
Data Display		PF2	PF3	PF4	PF5	⌘	PF12 (CICS)	PF9			PF6
Batch (CICS only)		PF2	PF3	PF4	PF5	PF6	⌘	PF9			
Stored Queries		PF2	PF3	PF4	PF5	PF6		⌘	PF10		
Stored Queries with Comments		PF2	PF3	PF4	PF5	PF6		PF9	⌘		
Reentry		PF2	PF3	PF4	PF5	PF6		PF9	PF10	⌘	
Run											PF4 (IMS) ⌘

Figure 1-5 PF Key Navigation Chart

### Notes:

- An ♣ indicates that the TO screen and the FROM screen are the same.
- For Help, press PF1. To exit from Help, press PF3.
- Notice that some of the columns have empty spaces. If a screen cannot be reached from another screen, the TO screen column is blank. For example, you cannot reach the Introduction screen from the Temporary Field screen.
- In CICS only, press PF12 from the Data Display screen to reach the Batch screen. There is no Batch screen in IMS.
- In IMS only, press PF4 from the Run screen to reach the Reentry screen. This function is not available under CICS.

## Contacting Technical Support

For technical assistance with this product, contact Computer Associates Technical Support on the Internet at [SupportConnect.ca.com](http://SupportConnect.ca.com). Technical support is available 24 hours a day, 7 days a week.

# Databases and Files

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## What is a Database?

A **database** (or **file**) is a collection of information relating to a certain subject or class of information, such as payroll, inventory, shipments, or sales.

VISION:Inquiry can access the information in a database, restructure it to meet the needs of the inquiry statement, and then display it on the terminal screen or list it on the printer.

The data in the database, however, always remains the same. It is not affected by how you manipulate data in your inquiries, as VISION:Inquiry accesses the data in READ ONLY mode.

The database is created by data processing personnel and is usually stored on disk.

## Database Concepts

The elements which make up a database are defined below and illustrated in [Figure 2-1 on page 2-2](#).

A **database** is a collection of related records that forms a unit.

A **record** is a set of related data. For example, the information relating to the code, description, quantity on hand, and selling price of a toy, the plant where it is produced, and the people who work at that plant could constitute a record.

A **segment** of a record is a collection of related pieces of information. For example, information relating to employee number, employee name, and employee sex might compose a segment. There may be more than one segment in a record, each relating to different information.

Each one of the items of information within a segment is a field. A field holds one individual piece of data or information, such as a name or a number.

DUNN, SUSAN	LA	1990	BOOKR	25000	EBERLY, JOHN	LA	1989	PGR	27000
field	field	field	field	field	field	field	field	field	field
segment		segment			segment		segment		
record					record				

DATABASE

Figure 2-1 Elements of a Database

### Field and Segment Names

Names can be assigned to both fields and segments to represent the kind of data they hold. For example, the database shown in [Figure 2-1](#) could be illustrated as shown in [Figure 2-2](#).

NAME	LOCATION	YEAR	JOB	SALARY	NAME	LOCATION	YEAR	JOB	SALARY
employee		position			employee		position		

DATABASE

Figure 2-2 Field and Segment Names

Each record in the database has the same layout, segments, and fields. Thus, all records in a database could be represented by the diagram in [Figure 2-3](#). The segment name is at the top of each box; the field names are listed below each segment name.

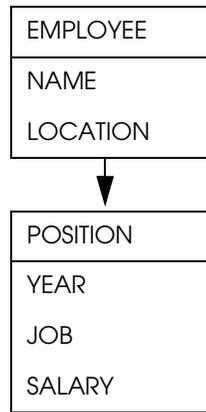


Figure 2-3 Relationship of Fields and Segments in a Record

## Multiple Occurrences of Segments

Suppose, for example, Susan Dunn has held jobs in several departments in the company. She has one occurrence of each of the fields in the POSITION segment for each job. [Figure 2-4](#) shows this arrangement.

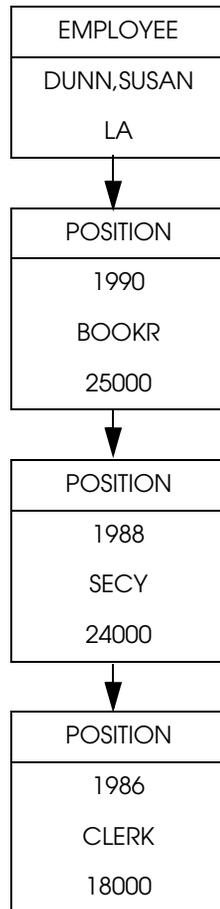


Figure 2-4 Multiple Occurrences of the Position Segment

Other employees with different job histories have a different number of occurrences of the POSITION segment. For example, John Eberly may have only two occurrences, and new hires in the firm have only one, representing their current position.

## Structured Databases

A database containing records with multiple occurrences of segments and fields is called a **structured**, or **hierarchical**, database. It is organized in a dependency-related format; each lower segment is dependent upon a higher segment.

For example, all three occurrences of POSITION for Susan Dunn in [Figure 2-4 on page 2-4](#) are dependent upon the same EMPLOYEE segment. This creates a structure that resembles an inverted tree; there is a primary element (the root) and various dependent elements (the branches).

All of these elements are called segments. The root segment ordinarily contains the name of a large generalized subject area or class of information. The lower level segments are dependent segments containing specific subtopics and details that relate to the root segment. Each segment is made up of related fields.

### Root and Dependent Segments and Levels

The root segment is the identifying segment for an entire record. Each record in a database contains only one root segment. Root segments are always at level 1. All other segments are dependent (or subordinate) segments. They begin at level 2.

[Figure 2-5 on page 2-6](#) shows the arrangement of a database with a root segment and dependent segments at various levels. The segments have been labeled A to F.

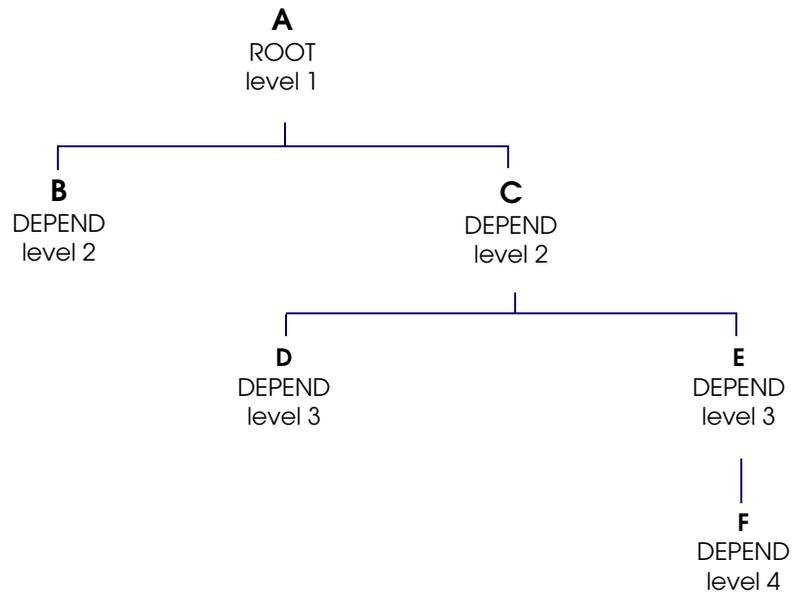


Figure 2-5 Dependency Levels

The connecting lines and level numbers show relationships between segments. Level 4 is dependent upon level 3, level 3 is dependent upon level 2, and level 2 is dependent upon level 1, the root segment.

The number of dependent segments and their arrangements varies with each database, but each record within the database has the same arrangement.

## Database Legs

The pathway formed by the root segment and its dependent segments is called a **database leg**. For example, in [Figure 2-5](#), the root segment A and the dependent segment B form one database leg. A second leg is formed by the segments A, C, and D. Segments A, C, E, and F form a third leg. Another entire set of legs is formed by using segment C as the root segment. In this instance, C and D form one database leg and C, E, and F form a second leg.

## Database Access

Database segments can be accessed in a variety of ways by an inquiry.

Vertically	All or some of the fields in one leg can be used by an inquiry.
Horizontally	Information in all occurrences of one segment (for all records) can be used.
Combination	Many combinations of these two patterns can be used.

An inquiry may address all, or only some, of the occurrences of segments that are available.

## Test Databases

The examples in this guide are built around two databases, PLANT and SKILL (the test databases). They describe a toy company with seven plants and 26 employees. The PLANT database contains information relating to the products and employees of the company. The SKILL database describes each employee's job classification and job code.

The databases are organized as hierarchical, structured files. Each record in the database has a root segment, and one or more dependent or subordinate segments, forming a three-dimensional, tree-like structure.

[Figure 2-6](#) lists some information on the plants in the databases.

Plant Number	Plant Name	Number of Employees	Number of Toys
10100	DALLAS SALES	3	0
20150	REMOTE CONTROL PRODUCTS	4	6
30200	CORPORATE HDQTRS DALLAS	6	0
40300	DELUXE PRODUCTS	2	4
50300	MECHANICAL PRODUCTS	3	6
60200	BASIC TOYS	4	9
70500	DISTRIBUTION	4	20

Figure 2-6 Plants in the Test Databases

## PLANT Database

Figure 2-7 on page 2-8 diagrams a record in the PLANT database. The segment name is shown at the top of each box. The field names in that segment are shown below the horizontal line. The level number is indicated outside the box. There is one of these structures for each plant in the database.

In the PLANT database, each record describes a plant within the company. Because there are seven plants in the toy company, there are seven root segments. Each has its own tree-like structure. The root segment is named PLANT and contains the plant number and name, phone number, and code representing the region of the country where it is located.

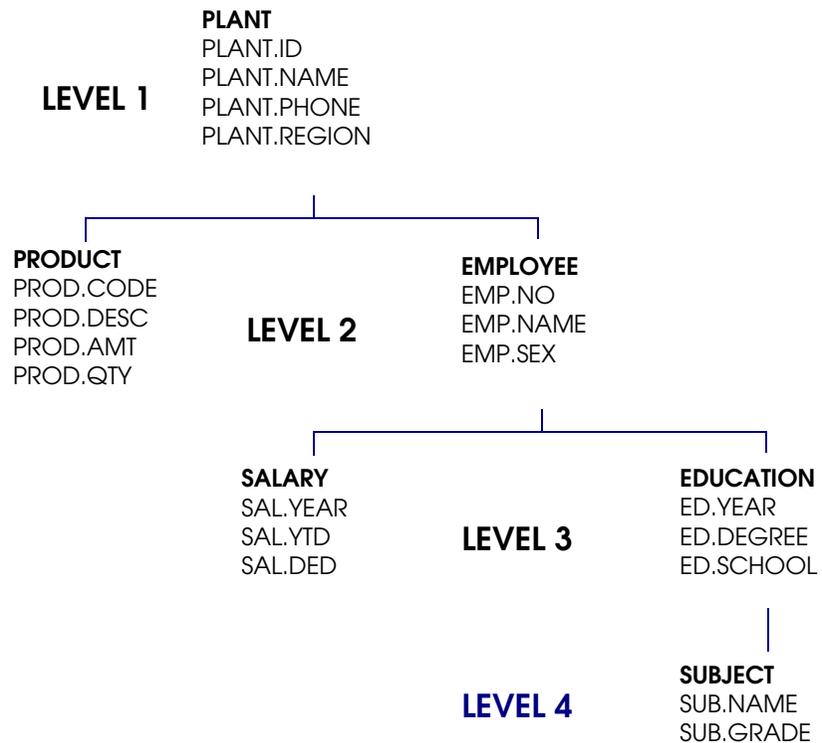


Figure 2-7 A Record in the PLANT Database

There are two segments at level 2, both dependent on the root segment.

- The first, PRODUCT, contains the names and codes of each toy manufactured, its selling price, and inventory on hand. There is one occurrence of this segment for each toy manufactured or distributed by a plant. Some toys are found at several plants, and there is one occurrence of the PRODUCT segment for this toy at each plant. Only five plants produce toys; the other two are concerned with sales and administration. Therefore, only five records have PRODUCT segments. The other two records have the potential for this segment, but it is not used. The PRODUCT and root segments form the left leg of the database.
- The second dependent segment at level 2, EMPLOYEE, contains the employee's name, identification number, and sex. There is one occurrence of this segment for each employee in a plant. The first plant, 10100, has three occurrences of this segment; the next plant, 20150, has four occurrences, and so on. Altogether, since there are 26 employees represented in the database disbursed among the seven plants, there is a total of 26 occurrences of this segment in the database.

The two segments at level 3, SALARY and EDUCATION, are subordinate to the EMPLOYEE segment. There may be multiple occurrences of these segments for each employee.

- The SALARY segment contains information regarding salary amount, salary deductions, and the year represented. There is one occurrence of this segment for each year the person was employed at the toy company.
- The EDUCATION segment contains information about the dates of graduation, the degree(s) earned, and the school(s) attended. There is one occurrence of this segment for each degree the employee has earned. For college graduates, high school records are ignored; for those who graduated from high school only, there is one occurrence of this segment, indicating year of graduation and "HS" for degree.

The SUBJECT segment, at level 4, is dependent upon the EDUCATION segment. There is one occurrence of this segment for each college degree an employee has earned. Each contains information about the major area of study for that degree and the grade earned.

The PLANT, PRODUCT, and SALARY segments form one leg, and the PLANT, EMPLOYEE, EDUCATION, and SUBJECT segments form a second leg.

## SKILL Database

The SKILL database is a one-legged hierarchical structure that describes the job classifications in the toy company. [Figure 2-8](#) diagrams a record in the SKILL database. There are 13 records in the database, each representing one job classification. The root segment, SKILL, contains the name of one job skill and its code number.

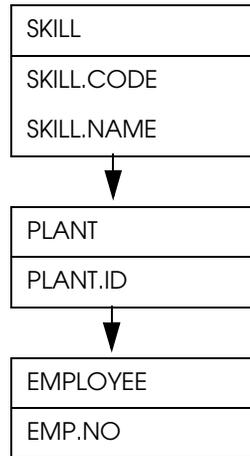


Figure 2-8 A Record in the SKILL Database

The PLANT segment, at level 2, is dependent upon the SKILL segment. There is one occurrence of PLANT for each plant in the company that employs a person in this job classification.

The EMPLOYEE segment, at level 3, is dependent upon the PLANT segment. It contains the identification number of each employee in the plant holding that job classification. Two fields, PLANT.ID and EMP.NO, are present in both databases and allow the databases to be related to each other.

The field names and data types for the PLANT and SKILL databases are listed in [Figure 2-9](#).

### Plant Database

Field Name	Type	Field Name	Type
PLANT.ID	character	EMP.NO	numeric
PLANT.NAME	character	EMP.NAME	character
PLANT.PHONE	character	EMP.SEX	character
PLANT.REGION	character	SAL.YEAR	numeric
PROD.CODE	character	SAL.YTD	numeric

**Plant Database <math>\langle \text{paranum} \text{>**

Field Name	Type	Field Name	Type
PROD.DESC	character	SAL.DED	numeric
PROD.AMT	numeric	ED.YEAR	numeric
PROD.QTY	numeric	ED.DEGREE	character
		ED.SCHOOL	character
		SUB.NAME	character
		SUB.GRADE	character

**Skill Database**

Field Name	Type
SKILL.CODE	numeric
SKILL.NAME	character
PLANT.ID	numeric
EMP.NO	character

Figure 2-9 Field Names for PLANT and SKILL Databases

You need to know the field names in your database when you write inquiries using VISION:Inquiry. Your system administrator can give you a list of the names and indicate whether they hold numeric or character data.

## VSAM Files

VISION:Inquiry supports the following VSAM file types in all environments except IMS online (MPP). You may, however, generate (and save) AQF inquiries which access VSAM files in an IMS (Information Management System) environment. The processing of these stored inquiries can be done by native VISION:Inquiry in the batch, BMP, CICS, and TSO environments.

- Key Sequenced Data Set (KSDS): a keyed type data set. As such, data can be accessed directly by using the key field.
- Entry Sequenced Data Set (ESDS): processed sequentially.
- Relative Record Data Set (RRDS): processed sequentially.

There are two types of VSAM files supported in VISION:Inquiry: single segment and multiple segment. A multiple segment structure is used to define a VSAM file that uses the COBOL occurs clause. For the purpose of this guide, the single segment structure is called **VSAM non-hierarchical** and the multiple segment structure is called **VSAM hierarchical**.

## VSAM Test Files

The VSAM test files are VSPLANT, VSSKILL, VSHPLANT, and VSHSKILL. They describe a company with seven plants and 26 employees. The VSPLANT and VSHPLANT VSAM files contain information relating to the employees of the company. The VSSKILL and VSHSKILL VSAM files describe each employee's job classification and job code.

- The VSPLANT file is organized as a KSDS VSAM file with the employee number as the key field.
- The VSSKILL file is organized as an RRDS VSAM file.
- The VSHPLANT file is organized as a KSDS VSAM file with the plant id as the key field.
- The VSHSKILL file is organized as a KSDS VSAM file with the job classification as the key field.

## VSPLANT File

[Figure 2-10 on page 2-12](#) shows a record and its field names in the VSPLANT file. The VSPLANT file describes the employees of the plants within the company. The company has 26 employees in seven plants. It is a KSDS VSAM file and the key field is VSEMP.NO.

```
VSPLANT.ID VSEMP.NO VSEMP.NAME VSEMP.SEX VSED.DEGREE VSSAL.YTD VSSAL.DED
```

Figure 2-10 A Record in the VSPLANT File

## VSSKILL File

[Figure 2-11 on page 2-12](#) diagrams a record and the field names in the VSSKILL file. The VSSKILL file describes the job classification in the company. It is an RRDS VSAM file and is processed sequentially.

```
VSPLANT.ID VSEMP.NO VSSKILL.CODE VSSKILL.NAME
```

Figure 2-11 A Record in the VSSKILL File

The field names and data types for the test VSAM files are listed in [Figure 2-12](#).

VSPLANT File		VSSKILL File	
Field Name	Type	Field Name	Type
VSPLANT.ID	character	VSPLANT.ID	numeric
VSEMP.NO	numeric	VSEMP.NO	character
VSEMP.NAME	character	VSSKILL.CODE	numeric
VSEMP.SEX	character	VSSKILL.NAME	character
VSED.DEGREE	character		
VSSAL.YTD	numeric		
VSSAL.DED	numeric		

Figure 2-12 Field Names for the VSAM Test Files

## VSAM Hierarchical Test Files

A VSAM hierarchical file structure allows you to define VSAM files with fixed or variable occurrences of data items to VISION:Inquiry.

[Figure 2-13](#) is an example of a VSAM hierarchical record layout in COBOL. This record has both fixed and variable occurrences.

```

01  EMPLOYEE-RECORD.
    05  EMP-NO          PIC 9(5) .
    05  EMP-NAME       PIC X(30) .
    05  EMP-NUM-DEGREES PIC 9 .
        .
        .
    05  EMP-DEGREE-DATA OCCURS 1 TO 5 TIMES
        DEPENDING ON EMP-NUM-DEGREES.
        10  YEAR          PIC 99 .
        10  SCHOOL        PIC X(20) .
        10  DEGREE        PIC X(10) .
    05  SAL-HISTORY     OCCURS 10 TIMES .
        10  SAL-YEAR      PIC 99 .
        10  SAL-AMT       PIC S9(8)V99 .

```

Figure 2-13 VSAM Hierarchical Record Layout (In COBOL)

VISION:Inquiry maps the VSAM hierarchical record layout in [Figure 2-13](#) into the hierarchical structure in [Figure 2-14 on page 2-14](#).

Fixed occurring segments always occur the same number of times for each record of the file. Variable occurring segments occur a different number of times based upon a field in the parent segment.

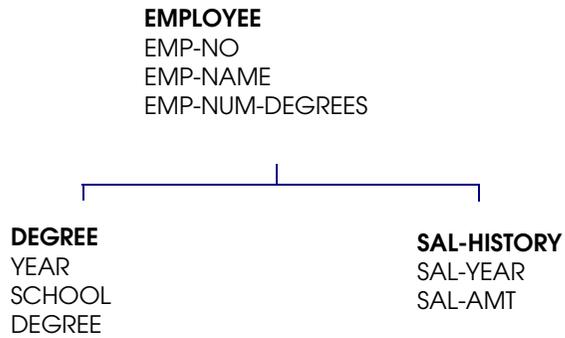


Figure 2-14 VSAM Hierarchical Record Layout (in VISION:inquiry)

In [Figure 2-14](#), the DEGREE segment is variable occurring based upon the field EMP-NUM-DEGREES. EMP-NUM-DEGREES must be in the DEGREE segment's parent (EMPLOYEE segment).

- Variable occurring segments are allowed for KSDS and ESDS files.
- Fixed occurring segments are allowed for KSDS, ESDS, and RRDS files.

The following sections describe two sample VSAM hierarchical test files supplied with the product.

## VSHPLANT File

[Figure 2-15](#) diagrams a record and the field names in the VSHPLANT file. Each record describes a plant within the company. Since the company has seven plants, there are seven records in the VSAM file. Each record contains multiple occurrences of product and employee data. The file is a KSDS file with VSHPLANT.ID as the KEY field.

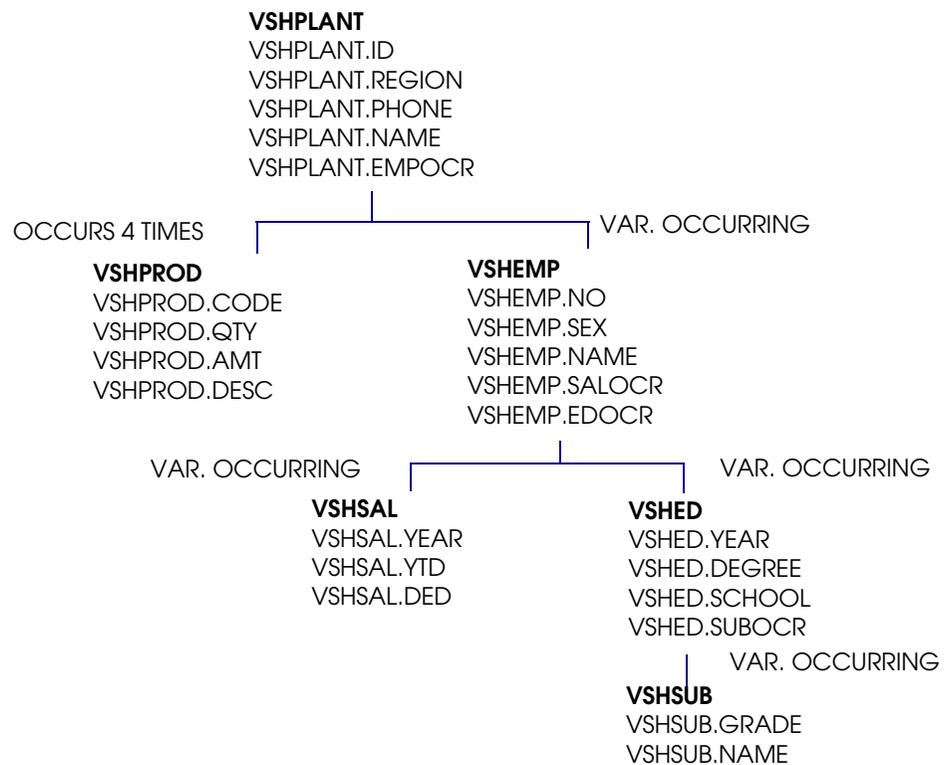


Figure 2-15 Description of VSHPLANT File

## VSHSKILL File

Figure 2-16 diagrams a record and the field names in the VSHSKILL file. Each record describes a job classification within the company. There are 13 records in the VSAM file, one for each job classification. Each record contains multiple occurrences of plant and employee data. The file is a KSDS file with VSHSKILL.CODE as the KEY field.

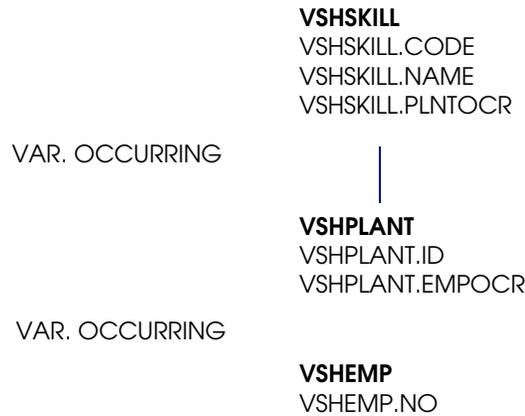


Figure 2-16 A Record in VSHSKILL File

## DB2 Concepts

DATABASE 2 (DB2) is a relational database management system that manages data for large system users. All DB2 data exists in one or more tables. A table consists of a specific number of columns and some number of unordered rows.

The following table compares conventional terms with terms used with DB2.

Conventional Term	Relational Term
Database: A collection of data sets	Relational Database: A collection of tables
Data Set: A collection of records	Table: A collection of rows
Records: A collection of fields	Row: A collection of values
Field	Column

Figure 2-17 Comparison of Conventional Terms to Relational (DB2) Terms

The data in a table is arranged in columns and rows.

- Columns contain the same kind of data, have names (which appear at the top when columns are displayed on a terminal screen), and appear vertically when displayed on a terminal screen.
- Rows usually contain different kinds of data about a single entity, do not have names, and appear horizontally when displayed on a terminal screen.

A table can consist of several rows with several columns. However, a table can also consist of one of the following:

- One row with several columns

DEPTNO	DEPTNAME	MGRNO
BO1	PLANNING	000020

- Several rows with one column

DEPTNO
A00
B01

- One row with one column

DEPTNO
A00

- No rows with one or more columns. This is sometimes called an “empty table.”

## Structured Query Language (SQL)

SQL is the basic language used to communicate with DB2. Despite its simpler structure, it provides a richer database manipulation language than the basic language (DL/I) used to access IMS. However, the VISION:Inquiry language contains the same kinds of advanced database query capabilities and can be used effectively with either database system. Users will find no difference between DB2 tables and IMS databases with only one segment type.

[Figure 2-18 on page 2-18](#) and [Figure 2-19 on page 2-19](#) illustrate the DB2 test tables and views associated with column names used in this guide to run the examples.

DB2 Test Tables

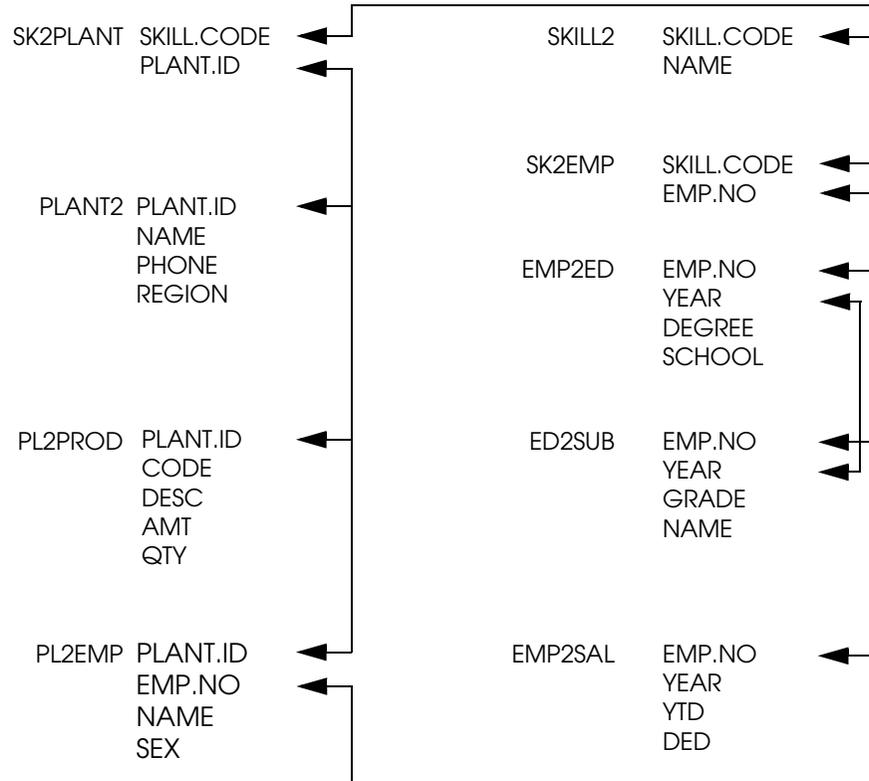


Figure 2-18 DB2 Test Tables

The arrows indicate the columns on which the tables can be joined. In AQF terms, when databases have fields in common, they are called matching fields.

## DB2 Test Views

<b>PRODUCTS</b>	<b>SALARIES</b>	<b>EDUCATION</b>	<b>SKILLS</b>
PLANT_ID	PLANT_ID	PLANT_ID	SKILL_CODE
PLANT_NAME	PLANT_NAME	PLANT_NAME	SKILL_NAME
PLANT_PHONE	PLANT_PHONE	PLANT_PHONE	PLANT_ID
PLANT_REGION	PLANT_REGION	PLANT_REGION	EMP_NO
PROD_CODE	EMP_NO	EMP_NO	
PROD_DESC	EMP_NAME	EMP_NAME	
PROD_AMT	EMP_SEX	EMP_SEX	
PROD_QTY	SAL_YEAR	ED_YEAR	
	SAL_YTD	ED_DEGREE	
	SAL_DED	ED_SCHOOL	
		SUB_NAME	
		SUB_GRADE	

Figure 2-19 DB2 Test Views

Note that accessing DB2 tables is an optional VISION:Inquiry feature. Check with your system administrator to verify that the DB2 option is available at your installation.



# Structure and Concept of AQF

AQF generates inquiries for VISION:Inquiry to execute. Inquiries are composed of one or more statements.

## AQF Statement Structure

Statements instruct VISION:Inquiry on what databases/files to use, what data to select from the databases/files, and how to summarize the data selected.

For example, to retrieve the plant number, name, educational degree, and school attended for all female employees, the following five AQF screens would accomplish the task:

<b>AQF Screen</b>	<b>Sample VISION:Inquiry Equivalent Inquiry Statements</b>
Introduction	
Database/File Selection	PLANT
Field Selection for DB/File	PLANT.ID EMP.NAME ED.DEGREE ED.SCHOOL
Qualification/Conditional	IF EMP.SEX = 'F'
Data Display	ORDER OUTPUT (SORT, TOTAL, LIST, and so on)

The generated VISION:Inquiry statement looks like this on your output screen:

DISPLAY	FROM	PLANT	THE	PLANT.ID EMP.NAME ED.DEGREE ED.SCHOOL
command to list	noise word	database to be accessed	noise word	fields from the database to be listed
IF EMP.SEX = 'F'			;	
conditional selection phrase				termination symbol

This inquiry generates, for each plant, a list of the female employees and their educational history. The inquiry tells VISION:Inquiry the specific processing to be performed. The database PLANT and the contents of fields are displayed.

The generated inquiry may be modified before execution. You may add noise words at this time. These noise words (AN, BY, FROM, and so on) are optional words used in an inquiry for clarity. They are not required. A complete list of noise words and commands are in [Appendix A, "Commands, Noise Words, and Name Combinations"](#).

This inquiry can be created and executed by the AQF System using five screens. From your terminal, access AQF. Enter your AQF transaction code and press Enter to display the VISION:Inquiry AQF SYSTEM screen.

## VISION:Inquiry AQF SYSTEM Screen

The VISION:Inquiry AQF SYSTEM or **Introduction** screen, shown in [Figure 3-1](#), welcomes you to AQF. Your terminal/user ID is displayed below your transaction code.

```
VISION:Inquiry AQF SYSTEM          AQFM01

Enter your VISION:Inquiry Transaction Code:      II

VISION:Inquiry Lists You as Terminal/user:      MXA

Press ENTER to use this Transaction Code and display DBD/File Names to
process. Press CLEAR to clear screen and type "/EXIT" to exit from
AQF system.

PF1=Help      PF4=          PF7=          PF10=          ENTER=Next Scr
PF2=          PF5=          PF8=          PF11=          PF12=
PF3=          PF6=          PF9=          Clear, "/Exit"=Exit
```

Figure 3-1 Introduction Screen

Enter your native VISION:Inquiry transaction code and press Enter to display the DATABASE/FILE SELECTION screen, shown in [Figure 3-2](#).

## DATABASE/FILE SELECTION Screen

The DATABASE/FILE SELECTION screen, hereafter referred to as the **DB/File Selection** screen, lists all the available databases, VSAM files, and DB2 tables.

A database or file is required for every inquiry. Begin building your inquiry by selecting a database. Select PLANT with the code, U (U for Use), as shown in [Figure 3-2](#). PLANT is the database name. The select code, U, tells AQF which file to access and how to access it. File selection is discussed more fully in Chapters 5 and 8.

**Note:** DB2 is a VISION:Inquiry option. If DB2 tables do not appear on your DB/File Selection screen, the DB2 option for VISION:Inquiry might not be installed on your system.

DATABASE / FILE SELECTION						AQFM02		
SELECT CODE	DB/FILE NAME	TYPE	SELECT CODE	DB/FILE NAME	TYPE	SELECT CODE	DB/FILE NAME	TYPE
	ACTYPE	DB2		DEPT	DB2		ED2SUB	DB2
	EMPL	DB2		EMPRAC	DB2		EMP2ED	DB2
	EMP2SAL	DB2	U	PLANT	IMS		PLANT2	DB2
	PL2EMP	DB2		PL2PROD	DB2		PRODUCTS	DB2
	PROJ	DB2		PROJAC	DB2		SALARIES	DB2
	SKILL	IMS		SKILLS	DB2		SKILL2	DB2
	SK2EMP	DB2		SK2PLANT	DB2		SUBJECTS	DB2
	VSPLANT	VSAMKSDS		VSSKILL	VSAMRRDS			

Next database starts with:

SELECT CODE: U = Use for query, V = View description, F = Find for query

PF1=Help      PF4=      PF7=      PF10=      ENTER=Next Scr  
 PF2=      PF5=      PF8=      PF11=      PF12=  
 PF3= Fields      PF6=      PF9=List Query Clear, "/Exit"=Exit

Figure 3-2 DB/File Selection Screen

The databases we are using in this guide are named PLANT and SKILL. Your system administrator can tell you the names of the databases you can use at your installation.

To view the fields in the PLANT database, type U in the Select Code column next to PLANT, and press PF3 to branch to the FIELD SELECTION FOR DB/FILE screen.

## FIELD SELECTION FOR DB/FILE Screen

Fields are chosen on the FIELD SELECTION FOR DB/FILE screen, hereafter referred to as the **Field Selection** screen.

The field names represent fields in the database being accessed. These names tell AQF which data in the database to use for the inquiry and output.

```

FIELD SELECTION FOR DB/FILE - PLANT      U      AQFM03

-CODES-
SEL KEY  FIELD NAME                      -CODES-
SEL KEY  FIELD NAME                      SEL KEY  FIELD NAME

D      ED.DEGREE                          D      ED.SCHOOL
      ED.YEAR                             D      EMP.NAME
      EMP.NO                               Q      EMP.SEX
D      PLANT.ID                           PLANT.NAME
      PLANT.PHONE                         PLANT.REGION
      PROD.AMT                             PROD.CODE
      PROD.DESC                            PROD.QTY
      SAL.DED                              SAL.DED.DEC
      SAL.DED.T                            SAL.YEAR

Next field starts with: SAL.YTD           For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
              B = Both Display and Qualify/Expression,  V = View description
KEY:  Enter number For relating database fields when using find
PF1=Help   PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File PF5=Qualify   PF8=          PF11=          PF12=
PF3=Completed PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit

```

Figure 3-3 Field Selection Screen

Select the fields with one of the four select codes, as shown in [Figure 3-3](#).

- The fields EMP.NAME, ED.DEGREE, ED.SCHOOL, and PLANT.ID have been selected with Ds (D for Display). The contents of these fields will be displayed in the output.
- The field, EMP.SEX, has been selected with a Q (Q for Qualify). The contents of this field will not be displayed in the output. The field will be used in a conditional phrase to exclude data from the report.

Press PF5 to access the Qualification screen, which is discussed in the section [QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE Screen on page 3-7](#).

## Names

A name identifies a database, a field, a temporary field, or a stored inquiry or function.

- The database and field names are assigned in the database definition.
- Temporary field names, stored inquiries, and function names are assigned by the user.

Names have the following characteristics:

- In AQF, the symbols A-Z, \$, @, and # are recognized as alphabetic characters and 0-9 are recognized as numeric characters.
- Underscores ( \_ ) and periods ( . ) are recognized as special characters.
- An alphanumeric character is either an alphabetic or a numeric character.
- **Database names** may have up to eight characters. The first must be alphabetic; the remainder can be alphanumeric characters.
- **Field names, stored inquiry names, and stored function names** may have up to 32 characters. The first character must be alphabetic; the remainder can be alphanumeric, special characters, or a combination of both.
- **Temporary field names** may have up to 32 characters. They always start with the % symbol followed by alphanumeric, special, or a combination of both characters.
- **Field names** may not duplicate system defined names, such as commands, built-in function names, and operators.

Below are examples of valid and invalid names.

Valid Examples of Names	Invalid Examples of Names
sal.year	4salary
Z123	,T93
A	79

The invalid examples are incorrect because names must begin with an alphabetic character.

## QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE Screen

To select female employees only, use the QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE screen, hereafter referred to as the **Qualification** screen, shown in [Figure 3-4](#).

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT  U  AQFM05
Next DB/File to process : U

@01 EMP.SEX

EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
      @01  =  'F'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear,"/Exit"=Exit
    
```

Figure 3-4 Qualification Screen

The field, EMP.SEX, has been assigned a field identifier and number. The field identifier and number are entered in the FIELD column for defining a conditional phrase.

The relational operator meaning equal to (symbol =) is entered in the OP column. Relational operators provide the comparison criteria for data selection—equal to, greater than, and so on. This is more fully discussed in [Chapter 5, “Simple Reports”](#).

The ‘F’ in the LITERAL VALUE column in [Figure 3-4](#) is a character constant (‘F’ is the code or field value for females). Character constants are used on the Qualification screen.

A **character constant** represents explicit character data.

- It consists of up to 50 characters enclosed in single quotation marks. Any character that can be entered from the keyboard may be included within the character constant.
- A character constant is extended on the right with blanks. A character value is left-aligned when it is output.
- Blank spaces that are part of the character constant must be enclosed within single quotation marks. (When using a display terminal keyboard, you indicate a space by pressing the space bar, not by moving the cursor.)
- Constants do not change during the execution of an inquiry.

Press PF6 to proceed to the DATA DISPLAY screen.

## DATA DISPLAY Screen

The DATA DISPLAY screen, hereafter referred to as the **Data Display** screen is used to specify what fields are to be displayed and the order in which they are to be displayed.

AQF lists the selected fields on the Data Display screen. You can list, sort, total, count, and/or average these fields.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                    BRK  CNT  TOT  AVG  ORDER  DESC?
  3      U  PLANT    ED.DEGREE
  4      U  PLANT    ED.SCHOOL
  2      U  PLANT    EMP.NAME
  1      U  PLANT    PLANT.ID

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File   ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 3-5 Data Display Screen

You can change the printing order by entering the desired order in the LIST ORDER column, as shown in [Figure 3-5](#). PLANT.ID is the first column printed, followed by EMP.NAME, ED.DEGREE, and ED.SCHOOL.

Press PF6 to generate the VISION:Inquiry free-form inquiry. Press Enter to run the inquiry.

## Generated Inquiry and Output Displays in IMS

[Figure 3-6](#) is the generated VISION:Inquiry free-form inquiry. It is displayed prior to execution. It can be changed prior to execution if you understand the free-form syntax. See the *Advantage VISION:Inquiry Reference Guide* for additional information on the free-form syntax of VISION:Inquiry.

In IMS, the generated free-form inquiry appears on a separate screen (see [Figure 3-6](#)) before the display of output (as in [Figure 3-7](#)).

```

PAGE:          TRANCODE: II   INQUIRY: PLANT D PLANT.ID EMP.NAME ED.DEGREE
ED.SCHOOL IF EMP.SEX = 'F' ;;

PF4=RETURN TO AQF      ENTER=Run Query

```

Figure 3-6 Generated Inquiry

```

PAGE:          TRANCODE: II   INQUIRY:

PLANT.ID  EMP.NAME          ED.DEGREE  ED.SCHOOL
10100    PHYLLIS LOCKMEYER      BA         WISCONSIN
        MARY ANN THOMAS      HS
20150    WILMA FORD             HS
        SUSAN WARE          BS         MICHIGAN
30200    JANE LOWELL           HS
        PATRICIA BLAKELY    BS         ARIZONA
        SHARON DALEY        HS
40300    JOAN EVANS           BS         U OF CONN
        MS                 MIT
        PD                 MIT
50300    MADELYN BATES        BA         OBERLIN
        VICKY WARD          HS
60200    MARCIE MORINO        BA         TUFTS
        KAREN REDFERN       HS
70500    AGNES COVINGTON      HS
        MARTHA WALLINGHAM  BS         OHIO STATE
*
*
IXX9121 END OF INQUIRY      (85,7 USER DB CALLS, ROOTS)

```

Figure 3-7 Output from Inquiry Under IMS

[Figure 3-7 on page 3-9](#) shows the output from the inquiry just entered. Notice that the fields you selected, PLANT.ID, EMP.NAME, ED.DEGREE, and ED.SCHOOL, head the columns of your output. Below these column headings is the output from your inquiry.

## Generated Inquiry and Output Displays in CICS

In CICS, the generated inquiry and your output are displayed together on the output screen (see [Figure 3-8](#)).

**Note:** The examples in this guide show the output displayed by an IMS system.

**Example:** "List female employees, their plant identification, degrees, and schools."

```

PAGE: P/N   TRANSACTION: IQIO
                                Enter Inquiry Below:
PLANT D PLANT.ID EMP.NAME ED.DEGREE ED.SCHOOL IF EMP.SEX = 'F' ;;

PLANT.ID  EMP.NAME                ED.DEGREE  ED.SCHOOL
10100     PHYLLIS LOCKMEYER           BA          WISCONSIN
          MARY ANN THOMAS       HS
20150     WILMA FORD             HS
          SUSAN WARE            BS          MICHIGAN
30200     JANE LOWELL            HS
          PATRICIA BLAKELY      BS          ARIZONA
          SHARON DALEY          HS
40300     JOAN EVANS            BS          U OF CONN
          MS                     MIT
          PD                     MIT
50300     MADELYN BATES         BA          OBERLIN
          VICKY WARD            HS
60200     MARCIE MORINO         BA          TUFTS
          KAREN REDFERN         HS
70500     AGNES COVINGTON       HS
TYPE IN INQUIRY, PRESS ENTER TO RUN QUERY
(SPECIAL) TRANSACTION: 4 = AQF, 3 = RUN DEFERRED QUERY (INPUT = CHECKPOINT #)

```

Figure 3-8 Output from Query Under CICS

## Help Screens

[Figure 3-9 on page 3-11](#) shows the first panel of Help for the DB/File Selection screen. This is displayed when PF1 (Help) key is pressed when viewing the DB/File Selection screen. Online Help is available for every screen. An example for completing each screen is included as part of the Help screens.

Notice that the available PF keys are listed at the bottom of the screen. You can press PF8 or Enter to page forward through the Help screens or press PF7 to page backward. PF3 exits Help and returns to the screen from which Help was requested.

```
Page: 1 of 3      HELP:  DATABASE/FILE SELECTION      AQFH02

Select IMS(DL/I) databases, DB2 tables, and VSAM files to be queried.
You can also choose to relate one database (or file) to another database
(or file). Select at least one database as "U" or "F" to continue your
query or to list stored queries for that database.

The fields on the panel are defined as follows:

SELECT CODE      -      Enter one of the following values opposite
                        the desired database, table, or file.

                        U - Use this database, table, or file to query.
                          Enter at most one "U" per query.

                        V - View a description of the database, table,
                          or file. May enter more than one "V".

                        F - Find a database, table, or file related by a
                          field to another database, table, or file.
                          Enter at most one "F" per query.

PF3=EXIT HELP          PF8/ENTER=PAGE FORWARD
```

Figure 3-9 Help Screen

## Exiting AQF

To exit AQF:

- For CICS, press Clear

or

- For IMS, press Clear, type /EXIT, and press Enter.

This option is available when viewing any screen. See your system administrator about which key can be used as the Clear key.

When you exit AQF, you may enter any IMS or CICS command including your AQF transaction code.

When restarting AQF using your transaction code, residual entries from previous inquiries will appear on the AQF screens. Be sure to delete any unnecessary entries, particularly from the Temporary Field screen and the Qualification screen.

**Note:** To clear any unwanted or extraneous selections from the previous inquiry, press PF11 or enter S (S for Start over) opposite Introduction on the Reentry screen. AQF branches to the Introduction screen and blanks out all previous entries on the AQF screens.

Installations access AQF using a terminal operating under IMS or CICS. You can call up AQF, enter your inquiry, and receive your results at your terminal.

## The Terminal

Terminals vary from one system to another, but all have keys that perform similar functions. Your system administrator can give you instructions on how to use your particular terminal. You need to know which keys do the following actions:

- Enter (submit) lines
- Page forward or backward
- Move the cursor
- Insert characters
- Delete characters
- Clear the screen

## The Keyboard

When using AQF, certain keys on your keyboard are reserved. These include the Enter key, the EOF key, the Clear key, and the program function PF keys.

**Note:** Terminals vary from one system to another. If your keyboard lacks any of these keys, for example, a Clear or EOF key, please check with your system administrator. Equivalent keys are available for your keyboard.

The Enter key is assigned to the 'Next Screen'. Pressing this key causes the next screen to be displayed.

The EOF key can be used to clear unwanted data from the input fields. If your keyboard lacks an EOF key and you have incorrectly entered a number in an input field of the Field Selection screen, you can:

- enter (overtyping) 0 in place of the incorrect number  
or
- blank the input field using a combination of Shift+Space bar.

Under CICS, the Clear key terminates the AQF session. Under IMS, press the Clear key, type /EXIT, and press Enter to terminate the AQF session. You are returned to your operating system. You can terminate the AQF session from any screen.

Use the Tab key to proceed from one field to another.

## VISION:Inquiry AQF SYSTEM (Introduction Screen)

To use AQF, enter your AQF transaction code and press Enter. The VISION:Inquiry AQF SYSTEM screen, hereafter called the **Introduction screen** displays (see [Figure 4-1](#)). The supplied transaction code for IMS is IIAQF; for CICS it is IQBE.

The cursor is positioned at the 'Enter Your VISION:Inquiry Transaction Code:' prompt. Your system administrator will tell you what VISION:Inquiry transaction code to enter. You accept the default transaction code by pressing Enter, or type the transaction code given to you by your system administrator and press Enter.

```
VISION:Inquiry AQF SYSTEM                                AQFM01

Enter your VISION:Inquiry Transaction Code:             II

VISION:Inquiry Lists You as Terminal/user:              MXA

Press ENTER to use this Transaction Code and display DBD/File Names to
process. Press CLEAR to clear screen and type "/EXIT" to exit from
AQF system.

PF1=Help  PF4=          PF7=          PF10=          ENTER=Next Scr
PF2=      PF5=          PF8=          PF11=          PF12=
PF3=      PF6=          PF9=          Clear, "/Exit"=Exit
```

Figure 4-1 Introduction Screen

Notice that the terminal/user ID, MXA, is displayed on this screen. The terminal/user ID is automatically displayed by AQF. MXA is the terminal/user ID used in this guide.

The output screen ([Figure 4-4 on page 4-5](#)) displays three fields—PAGE, TRANCODE, and INQUIRY. The default transaction code, II, appears after the TRANCODE field in each example in this guide. The fields are explained later in this chapter.

## Program Function PF Keys

The **program function keys**, hereafter referred to as **PF keys**, are normally located above the typing area on your keyboard. The keys and their assignments, for example, PF1 = Help, are displayed at the bottom of each AQF screen (see [Figure 4-2](#)). These keys display action alternatives.

PF1 summons Help on every screen except the output screen. The specific use of each of the other PF keys for this screen, as well as for all other AQF screens, is discussed in [Chapter 5, “Simple Reports”](#) through [Chapter 10, “Using Stored Inquiries and Functions”](#). The DATABASE / FILE SELECTION, hereafter called the **DB/File Selection screen** is reached by entering your transaction code on the Introduction screen and pressing Enter.

DATABASE / FILE SELECTION						AQFM02		
SELECT CODE	DB/FILE NAME	TYPE	SELECT CODE	DB/FILE NAME	TYPE	SELECT CODE	DB/FILE NAME	TYPE
	ACTYPE	DB2		DEPT	DB2		ED2SUB	DB2
	EMPL	DB2		EMPRAC	DB2		EMP2ED	DB2
	EMP2SAL	DB2		PLANT	IMS		PLANT2	DB2
	PL2EMP	DB2		PL2PROD	DB2		PRODUCTS	DB2
	PROJ	DB2		PROJAC	DB2		SALARIES	DB2
	SKILL	IMS		SKILLS	DB2		SKILL2	DB2
	SK2EMP	DB2		SK2PLANT	DB2		SUBJECTS	DB2
	VSPLANT	VSAMKSDS		VSSKILL	VSAMRRDS			

Next database starts with:

SELECT CODE: U = Use for query, V = View description, F = Find for query

PF1=Help      PF4=              PF7=              PF10=              ENTER=Next Scr  
 PF2=              PF5=              PF8=              PF11=              PF12=  
 PF3=Fields      PF6=              PF9=List Query Clear, "/Exit"=Exit

Figure 4-2 DB/File Selection Screen

### Notes:

- The PF keys cannot be reassigned while using AQF.
- DB2 is a VISION:Inquiry option. If DB2 tables do not appear on your DB/File Selection screen, the DB2 option for VISION:Inquiry might not be installed on your system.
- Notice that the AQF screen is divided into two sections:
  - The upper portion is reserved for the selected data items, for example, DB/FILE NAME.
  - The lower portion contains the select code definitions and the PF key assignments. A blank line appears beneath the PF keys. AQF displays information and error messages on this line.

## Messages

AQF issues informational and error messages. These messages appear beneath the list of applicable PF keys.

```

                                     DATABASE / FILE SELECTION
                                     AQFM02
SELECT  DB/FILE                      SELECT  DB/FILE                      SELECT  DB/FILE
CODE    NAME      TYPE                CODE    NAME      TYPE                CODE    NAME      TYPE
      ACTYPE  DB2                    DEPT    DB2                    ED2SUB  DB2
      EMPL    DB2                    EMPRAC  DB2                    EMP2ED  DB2
      EMP2SAL DB2                    PLANT   IMS                    PLANT2  DB2
      PL2EMP  DB2                    PL2PROD DB2                    PRODUCTS DB2
      PROJ   DB2                    PROJAC  DB2                    SALARIES DB2
      SKILL  IMS                    SKILLS  DB2                    SKILL2  DB2
      SK2EMP DB2                    SK2PLANT DB2                   SUBJECTS DB2
      VSPLANT VSAMKSDS                VSSKILL VSAMRRDS

Next database starts with:
SELECT CODE:  U = Use for query,  V = View description,  F = Find for query

PF1=Help      PF4=          PF7=          PF10=        ENTER=Next Scr
PF2=          PF5=          PF8=          PF11=        PF12=
PF3=Fields    PF6=          PF9=List Query Clear, "/Exit"=Exit
AQF-011 Please select a database or file.
    
```

Figure 4-3 Message Display on DB/File Selection Screen

### Making No Entry

When no entry is made on a screen and a PF key or Enter is pressed, AQF issues a message (as shown in [Figure 4-3](#)):

```
AQF-011 Please select a database or file.
```

When an entry is made and Enter is pressed, AQF displays the next page. If this is the last page, you will be forwarded to the next screen.

Press Enter to continue to the next screen. To move to the next screen directly, press the applicable PF key after making the necessary entries on the screen.

### Making an Incorrect Entry

When an incorrect entry has been made on a screen, AQF highlights the error. AQF will not proceed with the inquiry until the error is corrected. Error handling is discussed later in this chapter.

You can find messages as well as diagnostics in the *Advantage VISION:Inquiry Messages Guide*.

## AQF Operating Modes

Inquiries run online. Inquiries are created, executed, and the output returned to the same terminal while you wait. The common operating modes for online processing are continuous and conversational mode. The examples presented so far have been in continuous mode. The output can be viewed in two ways:

- **Continuous mode** allows you to page forward, studying each page until you receive the "IXX9121 END OF INQUIRY" message. The examples in this guide are in continuous mode.
- **Conversational mode** allows you to limit the output. This can be done either by limiting the number of calls to the database or limiting the number of pages output.

### VISION:Inquiry Under IMS

After you have entered your inquiry and submitted it for execution, the output screen, shown in [Figure 4-4](#), is displayed.

EMP.NAME	ED.DEGREE	SAL.YTD
WILLIAM AMES		52,000.00
PHYLLIS LOCKMEYER	BA	64,000.00
CHARLES SALTER	BA	48,000.00
PETER ZATKIN	BA	59,000.00
		24,000.00
		30,000.00
	BA	39,000.00
		44,000.00
		50,000.00
	BA	56,000.00
	MA	
SUSAN WARE		32,000.00
	BS	41,000.00
JOHN HENRY CRANE	HS	22,000.00
FREDERICH GRAY		48,000.00
	BA	59,000.00
	MA	
MITCHELL J HOOPS		76,000.00
		92,000.00

Figure 4-4 The First Page of Output Under IMS

Notice the following fields on this screen (some installations may use slightly different wording, but the command performs the same function):

- PAGE:** This field, at the left of the screen, is an option used to view a specific group of lines on the screen. Its operation is defined at each installation and can be explained by your system administrator. A page contains the lines of output data that fit on one screen.
- TRANCODE:** This field is used to enter your transaction code. The transaction code is a string of one to eight characters that tell VISION:Inquiry what User Profile to use for your inquiry. It is assigned by your system administrator at your installation. If your installation uses only one User Profile for everyone, you do not have to enter a trancode.
- INQUIRY:** This field indicates that your inquiry comes next.

Press the page forward key or enter the page forward command in the PAGE field. The next output page is displayed, overlaying the bottom 16 lines.

### Last Page of Output

[Figure 4-5](#) shows the last page of output from your inquiry.

```

PAGE:      TRANCODE: II INQUIRY:

EMP.NAME           ED.DEGREE           SAL.YTD
DAVID YORK 37,000.00      BA                43,000.00
RUSSELL M SIMMONS      BA                48,000.00
                                MA                60,000.00
MARCIE MORINO          BA                31,000.00
KAREN REDFERN          HS                22,000.00
                                HS                26,000.00
RONALD T JACKSON      32,000.00
                                39,000.00
                                46,000.00
                                52,000.00
STEPHEN MCGEE          BA                23,000.00
AGNES COVINGTON        HS                20,000.00
                                HS                23,000.00
MARTHA WALLINGHAM     BS                33,000.00
*
*
  IXX9121 END OF INQUIRY (226,7 USER DB CALLS, ROOTS)
  
```

Figure 4-5 Last Page of Output Under IMS

### Asterisks Indicate Last Page

The asterisks at the left side of the screen and the informational message “IXX9121 END OF INQUIRY” at the bottom of the page tell you this is the last page of the output. The message also shows the total number of user database calls and root calls. Other informational messages can appear after an inquiry is executed, depending on the steps it performs.

### Modifying and Restarting

If the generated inquiry requires correction, additions, or deletions, you can restart AQF following output by pressing PF4. The Reentry screen appears. While viewing the Reentry screen, press the appropriate PF key or type S opposite the screen name that requires correction. Press Enter.

### VISION:Inquiry Under CICS

After you have entered your inquiry and submitted it for execution, the output screen, as shown in [Figure 4-6](#), is displayed.

```

PAGE: P/N      TRANSACTION: IQIO
                Enter Inquiry Below:
PLANT D EMP.NAME ED.DEGREE SAL.YTD IF EMP.SEX = 'F' & ED.DEGREE = 'MS' |
SAL.YTD >= 20000 ;;

EMP.NAME           ED.DEGREE           SAL.YTD
WILLIAM AMES              BA              52,000.00
PHYLLIS LOCKMEYER        BA              48,000.00
CHARLES SALTER           BA              59,000.00
                        BA              24,000.00
                        BA              30,000.00
PETER ZATKIN             BA              39,000.00
                        BA              44,000.00
                        MA              50,000.00
                        MA              56,000.00
SUSAN WARE               BS              32,000.00
                        HS              41,000.00
JOHN HENRY CRANE         HS              22,000.00
FREDERICH GRAY           HS              48,000.00
TYPE IN INQUIRY, PRESS ENTER TO RUN QUERY
(SPECIAL) TRANSACTION: 4 = AQF, 3 = RUN DEFERRED QUERY (INPUT = CHECKPOINT #)

```

Figure 4-6 The First Page of Output Under CICS

Notice the following field names at the top of the screen in [Figure 4-6](#).

**PAGE:** This field, at the left of the screen, is an option used to view a specific group of lines on the screen. Its operation is defined at each installation and can be explained by your system administrator.

A page contains the lines of output data that fit on one screen.

- To view a specific page, type P/n and press Enter, where n = page number or 'L' for last.
- To send the output to a specific terminal, type C/terminal ID and press Enter.

**TRANSACTION:** This field is used to enter your transaction ID. The transaction ID is a string of 1 to 4 characters that tells AQF what User Profile to use for your inquiry. It is assigned by the system administrator at your installation.

Be sure to delete any entry in the PAGE field before making any entries in the TRANSACTION field. The TRANSACTION field can be used to input the AQF restart option.

If the generated inquiry requires corrections, additions, or deletions, type a 4 in the TRANSACTION field. Press Enter to return to the AQF Reentry screen. While viewing the Reentry screen, press the appropriate key or type S opposite the screen name which requires correction. Press Enter.

**Enter Inquiry Below:** This field indicates that the generated inquiry comes next.

## Screen Sections

In the examples in this guide, the VISION:Inquiry screen is divided into two sections:

- The top portion is reserved for the inquiry (starting from the third line)
- The bottom portion is reserved for the output. VISION:Inquiry executes the inquiry and displays the output on the bottom portion of the screen.

## Number of Lines for Inquiry and Output

Depending on your system, the number of lines allocated to the inquiry and output portions may vary.

- Systems may allow more or fewer lines for the inquiry portion.
- Any inquiry requiring more than the inquiry portion area is not executed. In some systems, the output lines may overlay some parts of the inquiry.
- In other systems, inquiry and output lines do not share a screen and do not appear at the same time. In this arrangement, the inquiry appears by itself on one screen and the output appears on subsequent screens, overlaying the inquiry.

## Second to Last Page of Output

The output is displayed a page at a time. Each page of output is terminated with an informational message. The second to last page of output (see [Figure 4-7](#)) is terminated with an “IXX9121 END OF INQUIRY” informational message. The message also shows the total number of user database calls and root calls used for processing the inquiry.

```

PAGE: P/N          TRANSACTION: IQIO
                                Enter Inquiry Below:
PLANT D EMP.NAME ED.DEGREE SAL.YTD IF EMP.SEX = 'F' & ED.DEGREE = 'MS' |
SAL.YTD >= 20000 ;;

EMP.NAME          ED.DEGREE          SAL.YTD
KAREN REDFERN     HS                26,000.00
RONALD T JACKSON          32,000.00
                                39,000.00
                                46,000.00
                                52,000.00
STEPHEN MCGEE     BA                23,000.00
AGNES COVINGTON   HS                20,000.00
                                23,000.00
MARTHA WALLINGHAM HS                33,000.00
*
*
*
*
IXX9121  END OF INQUIRY.          (226,7 USER DB CALLS,ROOTS)
TYPE IN INQUIRY, PRESS ENTER TO RUN QUERY
(SPECIAL) TRANSLACTION: 4 = AQF, 3 + RUN DEFERRED QUERY (INPUT = CHECKPOINT #)

```

Figure 4-7 Second to Last Page of Output Under CICS

The last page contains only the generated inquiry.

## Basic Mapping Support (BMS) Paging Options Under CICS

Basic Mapping Support is unique to CICS. Each input and output screen is called a **map**. Each map contains areas for input and informational messages. Output can be accessed by using the PAGE field. Enter standard BMS paging options in the PAGE field.

Some of the BMS paging options are indicated at the bottom of each output screen.

- Type P/n (where n=page number) in the PAGE field to access the next page of output.
- Type P/2 to access the second page. P/3 accesses the third page, and so on.
- P/L displays the last page. This page contains only your inquiry. (P/ is the IBM® default, but may be different at your installation.)

### Note:

If the page forward key is pressed after the last page of output, or a page number is entered that is greater than the number of output pages of the inquiry, the screen is cleared and a CICS message displays, for example:

```
DFHTP4108 Requested page xxxx does not exist (it is less than 1 or more than the number of pages in the message).
```

You can clear the screen and either start your process again or enter a valid P/ command, clear the rest of the message, and press Enter to get back to the output of the inquiry.

## Operating Mode Limits

If you are limited by the number of database calls, the following VISION:Inquiry message displays on the output screen when the maximum number of calls has been made:

```
IXX9123 INQUIRY TIME LIMIT EXCEEDED
```

The following VISION:Inquiry message displays when the maximum number of pages has been displayed:

```
IXX9122 INQUIRY PAGE END
```

After each checkpoint (if the checkpoint facility is included), you can elect to continue with the next group of output lines or to defer viewing the output until a later time.

## Continuing and Deferring Inquiries

You may receive the “IXX9122 INQUIRY PAGE END” message part way through the output. VISION:Inquiry stops and waits for you to continue or defer processing the inquiry.

EMP.NAME	ED.DEGREE	SAL.YTD
WILLIAM AMES		52,000.00
PHYLLIS LOCKMEYER	BA	64,000.00
CHARLES SALTER	BA	48,000.00
		59,000.00
		24,000.00
		30,000.00
PETER ZATKIN	BA	39,000.00
		44,000.00
		50,000.00
	BA	56,000.00
	MA	
SUSAN WARE		32,000.00
	BS	41,000.00
JOHN HENRY CRANE	HS	22,000.00
FREDERICH GRAY		48,000.00
	BA	59,000.00
	MA	
MITCHELL J HOOPS		76,000.00
IXX9122 INQUIRY PAGE END.		(82,3 USER DB CALLS,ROOTS)

Figure 4-8 “INQUIRY PAGE END” Message

## CONTINUE Command

In IMS, if you decide you want to see more of the output now, press the PF1 key, or enter

CONTINUE;

and press Enter.

In CICS, enter 1 in the TRANSACTION field to continue an inquiry. Erase any entry in the PAGE field. Press Enter. In this case, the last page of the output, which contains the generated inquiry only, is replaced by the # command which is the synonym of the CONTINUE command.

In [Figure 4-9](#), “CONTINUE;” has been entered next to INQUIRY on the top line. VISION:Inquiry displays the next group of output lines, and once again runs into a page limit.

EMP.NAME	ED.DEGREE	SAL.YTD
		92,000.00
	BS	98,000.00
	MA	
JANE LOWELL		22,000.00
	HS	26,000.00
PATRICIA BLAKELY	BS	30,000.00
DONALD M KING		58,000.00
		66,000.00
	BS	75,000.00
	MS	
	PD	
JOAN EVANS		64,000.00
	BS	73,200.00
	MS	
	PD	
JONATHAN OAKS		36,000.00
	BS	46,000.00
MADELYN BATES	BA	32,000.00
IXX9121 INQUIRY PAGE END		(160,5 USER DB CALLS,ROOTS)

Figure 4-9 CONTINUE Command

You can continue to view the next portion or you can defer processing the next part of the inquiry. VISION:Inquiry saves the rest of the output until you are ready to continue viewing the lines, or you delete the rest of the inquiry.

### DEFER Command

In IMS, to defer viewing the output, press PF2 or type

DEFER;

and press Enter.

In CICS, type 2 in the TRANSACTION field to defer an inquiry. Erase any entry in the PAGE field. Press Enter. In this case, the last page of the output, which contains the generated inquiry only, is replaced by the DI command which is the synonym for the DEFER command.

In [Figure 4-10](#), “DEFER;” has been entered next to INQUIRY on the top line.

```
PAGE:          TRANCODE: II      INQUIRY: DEFER;;

IXX0140 INQUIRY IS DEFERRED AS ID '0002'.
```

Figure 4-10 DEFER Command

VISION:Inquiry has responded with:

IXX0140 INQUIRY IS DEFERRED AS ID '0002'

The output from this inquiry has been stored under the ID number 2. Remember this number as you will need it later. ID number 0001 is reserved for the inquiry being executed. The first one deferred is labeled number 2, the next one number 3, and so on.

### CONTINUE DEFERRED INQUIRY

In IMS, when you are ready to view the rest of the output, enter

CONTINUE DEFERRED INQUIRY 2 ;;

In CICS, type 3 in the TRANSACTION field and the deferred inquiry number on the third line to continue a deferred inquiry. Erase any entry in the PAGE field. Press Enter.

VISION:Inquiry responds with the next page of the output, (see [Figure 4-11](#)) and deletes the stored deferred inquiry.

EMP.NAME	ED.DEGREE	SAL.YTD
VICKY WARD	HS	20,000.00
DAVID YORK		31,000.00
		37,000.00
	BA	43,000.00
RUSSELL M SIMMONS		48,000.00
	BA	60,000.00
	MA	
MARCIE MORINO	BA	31,000.00
KAREN REDFERN		22,000.00
	HS	26,000.00
RONALD T JACKSON		32,000.00
		39,000.00
		46,000.00
	BA	52,000.00
STEPHEN MCGEE	HS	23,000.00
AGNES COVINGTON		20,000.00
	HS	23,000.00
MARTHA WALLINGHAM	BS	33,000.00
IXX9121 END OF INQUIRY.		(230,7 USER DB CALLS,ROOTS)

Figure 4-11 Continue a Deferred Inquiry

The system begins where you left off when you deferred the inquiry, and displays the next page of the output.

### DELETE DEFERRED INQUIRY

If you do not need to see any more output from a deferred inquiry, indicate which inquiry is to be deleted by entering

```
DELETE DEFERRED INQUIRY 2 ;;
```

The following message is displayed by VISION:Inquiry when it has taken the appropriate action:

```
IXX0122 DEFERRED INQUIRY ID '2' HAS BEEN DELETED
```

## Error Handling by AQF

AQF checks each screen for errors when the PF (completed) key is pressed. If errors are present, a descriptive message preceded by an identification number displays at the bottom of the screen.

```
AQF-023 Invalid field number or literal
```

Correct the field and press the appropriate PF key again.

When an inquiry is submitted for execution, it is checked for several types of errors. For example:

- The inquiry must follow the rules related to VISION:Inquiry, databases, and VSAM files.
- All words in the inquiry (commands, field names, and so on) must be spelled correctly.
- All databases and fields that are referenced must actually exist and be within the range specified in your User Profile.

If errors are present during execution, a descriptive message displays. Messages from VISION:Inquiry, like the one below, display just below the inquiry:

IXX0860	Format sort limit has been exceeded.
identification number	text of message

IXX0860 identifies this error as processing error #860. The text tells you that the number of calls allowed for sorting has been exceeded. You might have to change your selection criteria and resubmit the inquiry.

There are two ways to do this:

- You can correct the generated inquiry on the output screen and press Enter. (This assumes you understand what the free-form syntax is doing.)
- You can press PF4 for IMS, or enter 4 in the Transaction field for CICS. This accesses the Reentry screen. Then, reenter AQF and correct your inquiry.

## Message Terminology

You can find the AQF and VISION:Inquiry error and informational messages in the *Advantage VISION:Inquiry Messages Guide*. Additional descriptive information is present for some messages. The terminology in the error messages is slightly different from that used in this guide:

- **Verb** in the messages is equivalent to command in this guide.
- **Object** refers to database names and field names.
- **Object variable field** is another term for temporary field.
- **Data name** is the same as field name or data field name.

Error messages can also be tailored to the installation. Check with your system administrator regarding any messages you do not understand.

## Operating System Messages

If a message from your operating system displays at the bottom of any screen, such as,

```
DFH064 NO SUCH TRANSACTION CODE
```

type in the correct information and press Enter.

The message might remain on the screen until a new one displays or until the screen is cleared.

- If you want to clear the message, check with your system administrator.
- If you clear the screen to remove the message, you must start up AQF again with the AQF transaction code and rebuild your inquiry.

## Entering a Second Inquiry

Following output, there are several ways of entering a second inquiry or returning to the same inquiry in AQF. Some ways are system-dependent. Check with your system administrator to determine your operating system type.

### Under IMS

- Restart AQF following the display of output by pressing PF4. The Reentry screen displays.
- or
- Press the Clear key, type /EXIT, press Enter, and exit AQF between inquiries. Type the AQF transaction code and press Enter. The Reentry screen displays.

### Under CICS

- Restart AQF following the display of output. Enter a 4 in the Transaction field at the top of your output screen, delete any entry in the PAGE field, and press Enter. The Reentry screen displays.
- or
- Press the Clear key and exit AQF between inquiries. Enter the AQF transaction code and press Enter. The Reentry screen displays.

Choose one of these ways to reenter AQF. You can then begin building an inquiry or you can opt to use the existing inquiry and make changes to it.

## AQF REENTRY Screen (Reentry Screen)

[Figure 4-12](#) shows the AQF REENTRY screen, hereafter referred to as the **Reentry screen**. This screen provides you with easy reentry into AQF. Whether you have exited AQF using the Clear key or finished viewing output from a previous inquiry, the Reentry screen displays each time you reaccess AQF.

Each of the AQF screens is listed on the Reentry screen. You can restart AQF from any available screen.

- If a screen is available, an X appears opposite the screen name. A screen may not be available if the previous field selection or inquiry did not require a particular screen. For example, if no fields were selected with Qs or Bs, the Qualification screen and the Temporary Field screen are not available for reentry.
- To restart AQF by selecting the Field Selection screen, press PF3 or enter an S (S for Start over) opposite the screen name on the Reentry screen, as shown in [Figure 4-12 on page 4-17](#). Press Enter. AQF returns you to the Field Selection screen. Your previous entries on the screen are displayed.

```

                                AQF REENTRY SCREEN                                AQFM10
                                VISION:Inquiry transaction code: II
                                VISION:Inquiry terminal/user ID: MXA

                                SELECT - Screen/Panel

                                X      INTRODUCTION (Start over)
                                X      DATABASE / FILE SELECTION
                                S      FIELD SELECTION
                                TEMPORARY FIELD DEFINITIONS
                                QUALIFICATION/CONDITIONAL SELECTION
                                X      DATA DISPLAY (Query finalization)
                                (List of) STORED QUERIES FOR DB
                                X      (List of) STORED QUERIES WITH COMMENTS FOR DB
                                SELECT : Type an "S" by the selection desired and press ENTER key
                                Or press the appropriate PF key for the screen desired

                                PF1=Help      PF4=Temp Flds  PF7=          PF10=Comments  ENTER=Next Scr
                                PF2=DB/File   PF5=Qualify   PF8=          PF11=Intro     PF12=
                                PF3=Fields    PF6=Data Disp PF9=List Query Clear,"/Exit"=Exit

```

Figure 4-12 Reentry Screen

## Clearing Unwanted Selections

To clear any unwanted or extraneous selections from the previous inquiry, press PF11 or enter S (S for Start over) opposite Introduction. AQF branches to the Introduction screen and blanks out all previous entries on the AQF screens.

## STORED QUERIES FOR DB Screen (Stored Queries Screen)

**Stored inquiries** are inquiries saved in the directory for later execution. These inquiries are viewed on the STORED QUERIES FOR DB screen, hereafter referred to as the **Stored Queries** screen, shown in [Figure 4-13](#).

To view the screen, press PF9 at the Field Selection screen or the Reentry screen. This screen lists the inquiries previously created and stored in the directory. Stored inquiries can be selected and executed.

Notice that this screen displays the query names in alphabetical order, their database or file names, the name of the last terminal that changed the stored inquiry (or the terminal that created the inquiry, if there was no change), date and time of the last change of the stored inquiry (or the date and time of creation, if there was no change).

STORED INQUIRIES FOR DB PLANT					AQFM07
Next query starts with:					
SEL CON	QUERY NAME	DB FILE	LTERM	CHNG DATE	TIME
	BONUS	PLANT	BATCH	04/18/2002	09:32
S	MON.SAL	PLANT	BATCH	04/18/2002	09:32
	PS2	PLANT	N060	04/13/2002	12:58
	WOMEN.DEGREES	PLANT	N060	04/18/2002	09:32

SEL: S=Select to execute, V=View description, D=Delete query, E=Edit query  
 PF1=Help PF4=Temp Flds PF7= PF10=Comments ENTER=Next Scr  
 PF2=DB/File PF5=Qualify PF8= PF11= PF12=  
 PF3=Fields PF6=Data Disp PF9= Clear, "/Exit"=Exit

Figure 4-13 Stored Queries Screen

Inquiries can be chosen for execution (select code S), viewing (select code V), deletion (select code D), or editing (select code E). Type a selection code (S, V, D, or E) in the SEL column, (S is shown in [Figure 4-13](#)) and press Enter.

[Chapter 9, "Using Directory Commands - Storing Inquiries"](#) and [Chapter 10, "Using Stored Inquiries and Functions"](#) discuss saving, executing, deleting, and editing stored inquiries.

## STORED QUERIES WITH COMMENTS FOR DB Screen (Stored Queries with Comments Screen)

The stored inquiries and their associated comments are viewed on the STORED QUERIES WITH COMMENTS FOR DB screen, hereafter referred to as the **Stored Queries with Comments** screen shown in [Figure 4-14](#). Note that the comments cannot be stored with queries using AQF and is only available with the native mode of the product. However, you can view the comments stored with the queries in the native mode through AQF using this screen.

To view this screen, press PF10 at the Stored Queries screen or the Reentry screen. This screen has the same information and functionality as the Stored Queries screen plus an additional line per query showing the comment stored with the query. In case of no comment, a blank line is displayed.

```

                                STORED INQUIRIES FOR DB PLANT                                AQFM07

Next query starts with:

SEL CON          QUERY NAME          DB FILE  LTERM  CHNG DATE  TIME
-----
          BONUS          BONUS SALARY INFORMATION          PLANT  BATCH  04/18/2002 09:32
          MON.SAL          MON.SAL          PLANT  BATCH  04/18/2002 09:32

          PS2          GENERAL EMPLOYEE INFORMATION          PLANT  N060  04/13/2002 12:58
          WOMEN.DEGREES          FEMALE EMPLOYEE DEGREE INFORMATION          PLANT  N060  04/18/2002 09:32

SEL: S=Select to execute, V=View description, D=Delete query, E=Edit query
PF1=Help      PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=          PF11=          PF12=
PF3=Fields    PF6=Data Disp PF9=List Query CLEAR, "/Exit"=Exit
    
```

Figure 4-14 Stored Queries with Comments for DB Screen

### Signing Off

When you have finished working with AQF and want to exit, no formal signoff procedure is necessary.

### Under CICS

To exit from AQF under CICS, press Clear to end the AQF session:

### Under IMS

To exit from AQF under IMS, press Clear, type /EXIT, and press Enter to end the AQF session.

Your system administrator can tell you which key to use as the Clear key.



## Simple Reports

---

Suppose you want to produce a report of all employees by name and sex. The first step in accessing data using AQF is to choose a database from the DB/File Selection screen. This is the first screen displays after you press Enter from the Introduction screen. See [Figure 5-1 on page 5-2](#).

The databases and files are listed on the DB/File Selection screen in alphabetical order horizontally across the screen. All the available databases and files are listed.

**Note:**

DB2 is a VISION:Inquiry option. If DB2 tables do not appear on your DB/File Selection screen, the DB2 option for VISION:Inquiry might not be installed on your system.

## Selecting a Database or File on the DB/File Selection Screen

**Example:** "List all employees by name and sex."

DATABASE / FILE SELECTION						AQFM02		
SELECT CODE	DB/FILE NAME	TYPE	SELECT CODE	DB/FILE NAME	TYPE	SELECT CODE	DB/FILE NAME	TYPE
	ACTYPE	DB2		DEPT	DB2		ED2SUB	DB2
	EMPL	DB2		EMPRAC	DB2		EMP2ED	DB2
	EMP2SAL	DB2	U	PLANT	IMS		PLANT2	DB2
	PL2EMP	DB2		PL2PROD	DB2		PRODUCTS	DB2
	PROJ	DB2		PROJAC	DB2		SALARIES	DB2
	SKILL	IMS		SKILLS	DB2		SKILL2	DB2
	SK2EMP	DB2		SK2PLANT	DB2		SUBJECTS	DB2
	VSPLANT	VSAMKSDS		VSSKILL	VSAMRRDS			

Next database starts with:

SELECT CODE: U = Use for query, V = View description, F = Find for query

PF1=Help      PF4=      PF7=      PF10=      ENTER=Next Scr  
 PF2=      PF5=      PF8=      PF11=      PF12=  
 PF3=Fields      PF6=      PF9=List Query Clear, "/Exit"=Exit

Figure 5-1 DB/File Selection Screen

### To Select a Database or File

1. Choose a database from the DB/File Selection screen. Type the select code U opposite the database PLANT.

You have now selected the PLANT database for use in your inquiry. U indicates to AQF that you want to 'Use' the contents of a database or file.

2. Press PF3 to complete the file selection and proceed to the Field Selection screen.

## Selecting Fields on the Field Selection Screen

The Field Selection screen presents the first page of the available fields for the selected database or file. The data fields for the database PLANT are displayed in alphabetical order horizontally across the top portion of the screen..

```

FIELD SELECTION FOR DB/FILE - PLANT      U      AQFM03
-CODES-                                -CODES-
SEL KEY  FIELD NAME                    SEL KEY  FIELD NAME
      ED.DEGREE                        ED.SCHOOL
      ED.YEAR                          D   EMP.NAME
      EMP.NO                            D   EMP.SEX
      PLANT.ID                          PLANT.NAME
      PLANT.PHONE                       PLANT.REGION
      PROD.AMT                          PROD.CODE
      PROD.DESC                         PROD.QTY
      SAL.DED                           SAL.DED.DEC
      SAL.DED.T                         SAL.YEAR

Next field starts with: SAL.YTD                For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
              B = Both Display and Qualify/Expression,  V = View description
KEY: Enter number For relating database fields when using find
PF1=Help      PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=          PF11=          PF12=
PF3=Completed PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 5-2 Field Selection Screen

### To Select Fields

1. Press Enter to view additional pages of fields.

Notice the four codes (D, Q, B, and V) available for selecting data fields in [Figure 5-2](#).

2. Type the select code D (D for Display) opposite the fields EMP.NAME and EMP.SEX.

You have now selected these two fields for display in your output. The selected field names will also appear as the column headings in your report.

3. Press PF6 to complete the data field selection and proceed to the Data Display screen.

## Formatting Output on the Data Display Screen

[Figure 5-3](#) shows the Data Display screen. The previously selected data fields are listed in alphabetical order, vertically down the screen. This is the default printing order.

```

                                DATA DISPLAY
LIST      DB/FILE                CTL  -SUMMARIES-  SORT      AQFM06
ORDER     NAME                  BRK  CNT TOT AVG  ORDER DESC?

          U PLANT    EMP.NAME
          U PLANT    EMP.SEX

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 5-3 Data Display Screen

In [Figure 5-3](#), the database name, PLANT, is opposite each of its fields, EMP.NAME and EMP.SEX. The DB/File name is preceded by the select code U.

### To Generate and Execute the Inquiry

1. Press PF6 to generate the inquiry.
2. Press Enter to execute the inquiry.

## Horizontal Reports

In [Figure 5-4](#), which shows the results of the inquiry, the fields EMP.NAME and EMP.SEX are output horizontally across the page. Each field name displays at the top of a column.

EMP.NAME	EMP.SEX
WILLIAM AMES	M
PHYLLIS LOCKMEYER	F
MARY ANN THOMAS	F
WILMA FORD	F
CHARLES SALTER	M
PETER ZATKIN	M
SUSAN WARE	F
JOHN HENRY CRANE	M
FREDERICH GRAY	M
MITCHELL J HOOPS	M
JANE LOWELL	F
PATRICIA BLAKELY	F
SHARON DALEY	F
DONALD M KING	M
JOAN EVANS	F
JONATHAN OAKS	M
MADELYN BATES	F
VICKY WARD	F

Figure 5-4 Output of Inquiry of PLANT

This report format, which identifies all employees in the database PLANT by name and sex, is referred to as a horizontal report.

The next example accesses eight fields and produces a vertical report format.

## Vertical Report Example 1

**Example:** “List the names, sex, plant name, school, education level, and employee number of each employee at each of the plants.”

```

FIELD SELECTION FOR DB/FILE - PLANT      U              AQFM03
-CODES-
SEL KEY  FIELD NAME                      -CODES-
SEL KEY  FIELD NAME                      SEL KEY  FIELD NAME

D      ED.DEGREE                          D      ED.SCHOOL
D      ED.YEAR                            D      EMP.NAME
D      EMP.NO                             D      EMP.SEX
D      PLANT.ID                           D      PLANT.NAME
      PLANT.PHONE                         PLANT.REGION
      PROD.AMT                            PROD.CODE
      PROD.DESC                           PROD.QTY
      SAL.DED                              SAL.DED.DEC
      SAL.DED.T                            SAL.YEAR

Next field starts with: SAL.YTD              For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
              B = Both Display and Qualify/Expression,  V = View description
KEY:  Enter number For relating database fields when using find
PF1=Help      PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=          PF11=          PF12=
PF3=Completed PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit

```

Figure 5-5 Field Selection Screen

1. In the DB/File Selection screen, type the select code U opposite the database, PLANT.
2. Press PF3 to proceed to the Field Selection screen for PLANT. Type the select code D opposite the field names ED.DEGREE, ED.SCHOOL, ED.YEAR, EMP.NAME, EMP.NO, EMP.SEX, PLANT.ID, and PLANT.NAME, as shown in [Figure 5-5](#).
3. Press PF3 or PF6 to proceed to the Data Display screen.

## Display Order

Fields display in alphabetical order, hierarchical order, and the order in which the fields appear on the screen.

### Alphabetical Order

On the Data Display screen, shown in [Figure 5-6](#), the selected fields are displayed in alphabetical order.

### Hierarchical Order

For hierarchical databases, the default printing order is the hierarchical order of the database and cannot be changed for vertical display.

### Order of Appearance on Screen

For single segment databases and files (such as DB2 tables and VSAM files), the default printing order is the order in which the fields appear on the screen.

## Changing the Print Order

You can change the display or printing order by entering numbers in the LIST ORDER column.

LIST ORDER	DB/FILE NAME	DATA DISPLAY FIELD NAME	CTL BRK	-SUMMARIES- CNT TOT AVG	AQFM06 SORT ORDER DESC?
8	U PLANT	ED.DEGREE			
7	U PLANT	ED.SCHOOL			
5	U PLANT	ED.YEAR			
4	U PLANT	EMP.NAME			
3	U PLANT	EMP.NO			
6	U PLANT	EMP.SEX			
1	U PLANT	PLANT.ID			
2	U PLANT	PLANT.NAME			

Title1:  
Title2:  
Specify limit value if desired:  
If saving query, name to be used:  
Specify PC file name for FTS:  
PF1=Help PF4=Temp Flds PF7=PGBK Flds PF10=PC File ENTER=Next Scr  
PF2=DB/File PF5=Qualify PF8=PGFD Flds PF11=Save PF12=  
PF3=Fields PF6=Run PF9=List Query Clear, "/Exit"=Exit

Figure 5-6 Data Display Screen

1. Type the numbers in the LIST ORDER column for each of the field names, as shown in [Figure 5-6](#).
2. Press PF6 to generate the inquiry, and then press Enter to execute the inquiry.

When you press PF6, AQF generates an inquiry based on the selections and data you have entered on the previous AQF screens. It also displays the inquiry for you to preview it. Then, when you press Enter, the inquiry is processed, and the results display.

[Figure 5-7](#) is two AQF screens. Above the blue horizontal bar (the bar does not appear on your screen) is part of the generated inquiry screen. Below the blue bar are the results.

```
PAGE:          TRANCODE: II   INQUIRY: PLANT D PLANT.ID PLANT.NAME EMP.NO
EMP.NAME ED.YEAR EMP.SEX ED.SCHOOL ED.DEGREE ;;
```

```
PAGE:          TRANCODE: II   INQUIRY:

PLANT.ID       = 10100
PLANT.NAME     = DALLAS SALES
EMP.NO        = 10103
EMP.NAME       = WILLIAM AMES
EMP.SEX       = M
ED.YEAR       = 86
ED.SCHOOL     = TULANE
ED.DEGREE     = BA
EMP.NO        = 10104
EMP.NAME       = PHYLLIS LOCKMEYER
EMP.SEX       = F
ED.YEAR       = 87
ED.SCHOOL     = WISCONSIN
ED.DEGREE     = BA
EMP.NO        = 10105
EMP.NAME       = MARY ANN THOMAS
```

The diagram illustrates the vertical report structure. Brackets on the right side of the data lines group them into four categories:

- Plant number and name:** PLANT.ID = 10100 and PLANT.NAME = DALLAS SALES
- Employee record one:** EMP.NO = 10103, EMP.NAME = WILLIAM AMES, EMP.SEX = M, ED.YEAR = 86
- Employee record two:** ED.SCHOOL = TULANE, ED.DEGREE = BA, EMP.NO = 10104, EMP.NAME = PHYLLIS LOCKMEYER, EMP.SEX = F
- Employee record three:** ED.YEAR = 87, ED.SCHOOL = WISCONSIN, ED.DEGREE = BA, EMP.NO = 10105, EMP.NAME = MARY ANN THOMAS

Figure 5-7 Example of a Vertical Display

The name, sex, plant name, school, education level, and employee number of each employee at each of the plants are listed vertically. For illustrative purposes, the [Figure 5-7](#) has large brackets, arrows and labels (which do not appear on your terminal) to help show how a vertical report such as this is organized.

### Row Mode Report Formatting

When more fields are selected than can fit horizontally across the screen, the fields are displayed one after another down the page, producing a vertical report. Such a vertical report is also called **row mode report formatting**.

### Vertical Reports - IMS (DL/I)

With vertical reports, the field names of an IMS (DL/I) database are displayed in the hierarchical order of that database. Selecting a LIST ORDER on the Data Display screen will not change the order of display. Notice the difference between the generated inquiry and the output shown in [Figure 5-7](#).

## Vertical Reports - VSAM and DB2

For vertical reports of fields from VSAM files and DB2 tables, the field names are displayed in the list order selected on the Data Display screen.

## Horizontal Reports

With horizontal reports, the field names are output across the page in the order specified on the Data Display screen: PLANT.ID, PLANT.NAME, EMP.NO, EMP.NAME, and so on. The data for each selected field is displayed below the field name.

## Vertical Report Example 2

Following is another example of a vertical report:

**Example:** "List the names and sex of the employees at each of the plants."

```

FIELD SELECTION FOR DB/FILE - PLANT    U                AQFM03
-CODES-
SEL KEY  FIELD NAME                -CODES-
SEL KEY  FIELD NAME
      ED.DEGREE                    ED.SCHOOL
      ED.YEAR                       D   EMP.NAME
      EMP.NO                         D   EMP.SEX
      D   PLANT.ID                   PLANT.NAME
      PLANT.PHONE                   PLANT.REGION
      PROD.AMT                      PROD.CODE
      PROD.DESC                    PROD.QTY
      SAL.DED                      SAL.DED.DEC
      SAL.DED.T                    SAL.YEAR

Next field starts with: SAL.YTD                For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
             B = Both Display and Qualify/Expression,  V = View description
             KEY: Enter number For relating database fields when using find
PF1=Help    PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File PF5=Qualify   PF8=          PF11=          PF12=
PF3=Completed PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit

```

Figure 5-8 Field Selection Screen

1. In the Field Selection screen, shown in [Figure 5-8](#), enter the select code D (D for Display) opposite the data fields PLANT.ID, EMP.NAME, and EMP.SEX.

This generates a report listing the names and sex of the employees at each of the plants.

- Press PF3 or PF6 to proceed to the Data Display screen.

In [Figure 5-9](#), the selected data fields are listed in alphabetical order.

Default printing order is the order in which the fields appear on the screen. However, the printing order can be changed. If a field is not assigned a print order, it will print in the default order.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                BRK  CNT  TOT  AVG  ORDER  DESC?
  2      U  PLANT  EMP.NAME
  3      U  PLANT  EMP.SEX
  1      U  PLANT  PLANT.ID

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 5-9 Data Display Screen

- In [Figure 5-9](#), a list order is shown for each of the data fields. Type this list order on your terminal.
- Press PF6 to generate this inquiry, and then press Enter to execute the inquiry.

[Figure 5-10](#) displays the final output.

```

PAGE:          TRANCODE: II  INQUIRY:

PLANT.ID  EMP.NAME                EMP.SEX
10100     WILLIAM AMES                 M
          PHYLLIS LOCKMEYER   F
          MARY ANN THOMAS      F
20150     WILMA FORD                  F
          CHARLES SALTER       M
          PETER ZATKIN          M
          SUSAN WARE           F
30200     JOHN HENRY CRANE           M
          FREDRICH GRAY        M
          MITCHELL J HOOPS     M
          JANE LOWELL          F
          PATRICIA BLAKELEY    F
          SHARON DALEY         F
40300     DONALD M KING             M
    
```

Figure 5-10 Output of Two Segments of the Database

Not only does the number of each plant appear only once, but the data is grouped by plant. PLANT.ID is called the group field or control field.

## Accessing Segments of the Database

The inquiry that generated the report shown in [Figure 5-10 on page 5-10](#), “List the names and sex of the employees at each of the plants,” is shown here in VISION:Inquiry free-form:

```
PLANT D  PLANT.ID  EMP.NAME EMP.SEX ;
```

This is the inquiry you built using AQF, that accesses the structured database, PLANT.

PLANT D	PLANT.ID	EMP.NAME EMP.SEX ;
Database	Level 1 segment	Level 2 segment

The PLANT database has a hierarchical structure. The segment levels used in the inquiry are indicated above. AQF uses the higher level segments to produce group field breaks.

[Figure 5-10 on page 5-10](#) is identified as ‘Output of Two Segments of the Database’. The higher level segment, PLANT.ID, prints only once when you access segments, such as EMP.NAME and EMP.SEX, at different levels. This produces the group field breaks, as shown in [Figure 5-10](#).

In the next example, two different segments from two different levels within the database are accessed. These are the root segment, PLANT (level 1) and the dependent segments, EMPLOYEE (level 2) and EDUCATION (level 3).

**Example:** "Identify each employee by name and sex and list each employee's educational background and plant location."

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                    BRK  CNT  TOT  AVG  ORDER  DESC?
  4      U  PLANT    ED.DEGREE
  2      U  PLANT    EMP.NAME
  3      U  PLANT    EMP.SEX
  1      U  PLANT    PLANT.ID

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 5-11 Data Display Screen

1. Select the file and fields as in the previous example. Enter the select code D opposite the data field ED.DEGREE, on the Field Selection screen.
2. Press PF3 or PF6 to proceed to the Data Display screen. Change the print order using the LIST ORDER column as shown in [Figure 5-11](#). PLANT.ID will appear in the first column, followed by EMP.NAME, EMP.SEX, and ED.DEGREE.
3. Press PF6 to generate the inquiry, and then press Enter to execute the inquiry.

[Figure 5-12](#) lists the names, sex, and educational degrees of the employees at each of the plants.

PLANT.ID	EMP.NAME	EMP.SEX	ED.DEGREE
10100	WILLIAM AMES	M	BA
	PHYLLIS LOCKMEYER	F	BA
	MARY ANN THOMAS	F	HS
20150	WILMA FORD	F	HS
	CHARLES SALTER	M	BA
	PETER ZATKIN	M	BA
			MA
	SUSAN WARE	F	BS
30200	JOHN HENRY CRANE	M	HS
	FREDRICH GRAY	M	BA
			MA
	MITCHELL J HOOPS	M	BS
			MA
	JANE LOWELL	F	HS

Figure 5-12 Data Display of Two Segments of the Database

Not only does the number of each plant (PLANT.ID) appear only once, but the fields EMP.NAME and EMP.SEX are grouped by plant number. PLANT.ID is called the group field or control field.

**Notes:**

- If a subfield is used as a group field, the entire field is used instead of the subfield. A subfield is a field which has been defined with TYPE=Y in the FIELD statement. However, you can assign the subfield to a temporary field (see [Chapter 7, "Assignment Statement and Arithmetic Processing"](#)) and use the temporary field as a group field. See your system administrator and the *VISION:Inquiry Technical Reference Guide* for more information.
- VSAM non-hierarchical files and DB2 tables are treated as single-segment databases when processed by VISION:Inquiry. Therefore, there are no group or control fields for VSAM non-hierarchical files or DB2 tables.

## Using Control Fields

**Note:** The discussion of control fields applies only to IMS (DL/I) and VSAM hierarchical databases which have a hierarchical structure.

If you access multiple segments, VISION:Inquiry creates groups within groups based on the structure of your database. The three levels of the database used to produce the output shown in [Figure 5-12 on page 5-13](#) are indicated below.

PLANT.ID	EMP.NAME EMP.SEX	ED.DEGREE ;
Level 1	Level 2	Level 3

Level 3, ED.DEGREE, is grouped within level 2, EMP.NAME and EMP.SEX. Level 2 is grouped within level 1, PLANT.ID. The printing of the field names of level 1 is automatically suppressed as is the repetitive information from level 2.

ED.DEGREE is a subgroup of EMP.NAME. If more than one degree is present, the related name is printed only once. The group field or control field suppresses extraneous printing and displays the subgroups this way for readability.

See [Figure 5-13](#) for the structure of the PLANT database.

Note that VSAM non-hierarchical files and DB2 tables are treated as a single segment database when processed by VISION:Inquiry. Therefore, there are no group or control fields for VSAM non-hierarchical files or DB2 tables.

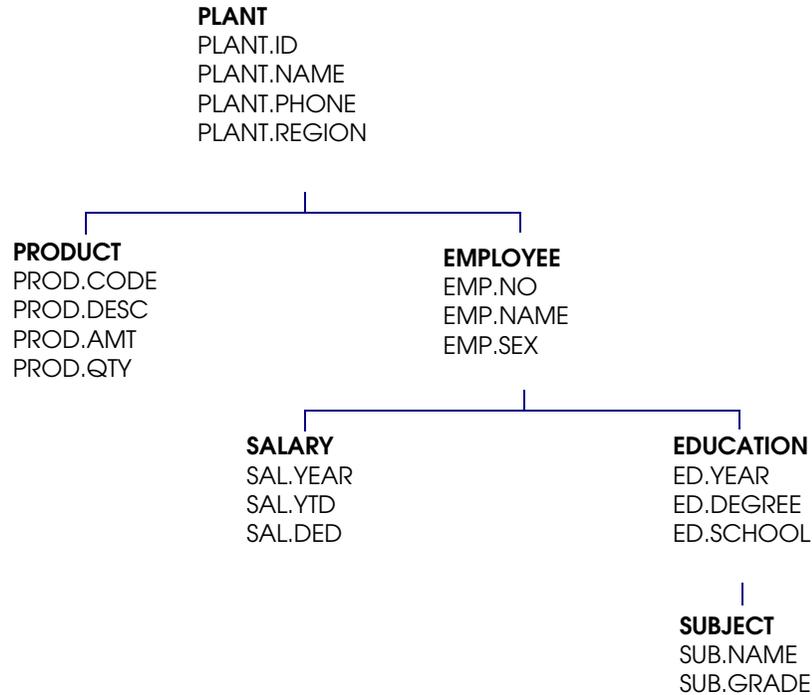


Figure 5-13 The PLANT Database

[Figure 5-13](#) is a diagram of the PLANT database. The examples in [Figure 5-1 on page 5-2](#) through [Figure 5-12 on page 5-13](#) access only one leg of the database, the leg that includes the name, EMPLOYEE. However, if you require data from two legs of the database (for example, EMPLOYEE and PRODUCT), the output is slightly different than that given in [Figure 5-12](#).

The fields in the left (PRODUCT) leg of the database shown in [Figure 5-13](#) take precedence over the fields in the right (EMPLOYEE) leg.

The next example, a report identifying the employees working at each plant and the products produced, contains fields from the two legs, EMPLOYEE and PRODUCT.

**Example:** "Identify the employees working at each plant and the products produced."

1. Select the file PLANT on the DB/File Selection screen.
2. Press PF3.
3. Select the fields PLANT.ID, PROD.CODE, and EMP.NAME by entering a D for each on the Field Selection screen.
4. Press PF3 to proceed to the Data Display screen (see [Figure 5-14](#)).

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                    BRK  CNT  TOT  AVG  ORDER  DESC?
  3      U PLANT      EMP.NAME
  1      U PLANT      PLANT.ID
  2      U PLANT      PROD.CODE

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File   ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 5-14 Data Display Screen

In [Figure 5-14](#), a LIST ORDER has been specified for the fields PLANT.ID, PROD.CODE, and EMP.NAME.

[Figure 5-15 on page 5-17](#) displays the output from this example. The fields in the left leg, PLANT.ID and PROD.CODE, are displayed first in the order in which they are listed in the hierarchical database. The fields in the right leg, EMP.NAME, are displayed next in the order in which they are listed.

The first PLANT.ID (a sales office) has no associated products to display. Therefore, only the EMP.NAMES from that plant appear on the report. However, PLANT 20150 is the Remote Control Division. The toys produced there are listed by PROD.CODE. Finally, the EMP.NAMES associated with each plant are displayed, with the first EMP.NAME being output on the same line as the last PROD.CODE.

PLANT.ID	PROD.CODE	EMP.NAME
10100		WILLIAM AMES PHYLLIS LOCKMEYER MARY ANN THOMAS
20150	PO RO SC SJ SR TR	WILMA FORD CHARLES SALTER PETER ZATKIN SUSAN WARE
30200		JOHN HENRY CRANE FREDRICH GRAY MITCHELL J HOOPS JANE LOWELL PATRICIA BLAKELY
40300	AS	SHARON DALEY

Figure 5-15 Output of Inquiry Accessing Two Legs of a Database

Note the horizontal display. The field names are output across the page — PLANT.ID, PROD.CODE, and EMP.NAME. The data for each selected field is displayed under the field name.

## Conditional Selection

The next inquiry prepares a report of the name, plant number, and salaries for female employees. Male employees are excluded from the report. Therefore, you provide AQF with selection criteria before the output is displayed. Selection criteria may be referred to as conditions.

Conditions are entered on the Qualification screen. Use conditional selection to choose only specific data for processing. By adding conditions to the inquiry, only the information that meets the conditions displays.

### Using Conditional Selection

Each occurrence of the specified field (EMP.SEX) is tested against the condition (FEMALE). The data is processed only if the field contains the specified value, in this case, only if EMP.SEX equals 'F' (female).

**Example:** "List the female employees, their salaries, and their plant locations."

1. Type the select code U opposite PLANT on the DB/File Selection screen.
2. Press PF3 to proceed to the Field Selection screen, shown in [Figure 5-16](#). Type the select code D opposite the fields EMP.NAME and PLANT.ID. Type the select code Q opposite the field EMP.SEX.

The select code Q instructs AQF to test the data in the field. This code specifies conditional selection of data. EMP.SEX will not appear on the report.

```

FIELD SELECTION FOR DB/FILE - PLANT      U      AQFM03
-CODES-
SEL KEY  FIELD NAME                    -CODES-
SEL KEY  FIELD NAME                    SEL KEY  FIELD NAME
      ED.DEGREE                        ED.SCHOOL
      ED.YEAR                          D      EMP.NAME
      EMP.NO                            Q      EMP.SEX
D      PLANT.ID                        PLANT.NAME
      PLANT.PHONE                      PLANT.REGION
      PROD.AMT                         PROD.CODE
      PROD.DESC                       PROD.QTY
      SAL.DED                          SAL.DED.DEC
      SAL.DED.T                        SAL.YEAR

Next field starts with: SAL.YTD                For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
           B = Both Display and Qualify/Expression,  V = View description
KEY:      Enter number For relating database fields when using find
PF1=Help  PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File  PF5=Qualify  PF8=          PF11=          PF12=
PF3=Completed  PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 5-16 Field Selection Screen

3. Press Enter to scroll through the field names. Select SAL.YTD with the select code D. SAL.YTD, EMP.NAME, and PLANT.ID will appear as column headings on your report.
4. Press PF5 to display the Qualification screen, shown in [Figure 5-17](#).

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT    U    AQFM05
Next DB/File to process : U

@01 EMP.SEX

EDIT CON FIELD OP LITERAL VALUE / FIELD NUMBER
      @01  =  'F'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 5-17 Qualification Screen

### @ Symbol and # Symbol

EMP.SEX is assigned the field number 01. It is the first field selected for conditional selection. The number, preceded by an @ symbol, is used as a shorthand for identifying the field EMP.SEX during conditional selection. An alphanumeric field is identified by an @ symbol. Numeric fields are preceded by a # symbol.

### Entering the Condition

The condition requesting data on females only is expressed on the Qualification screen shown in [Figure 5-17](#). The condition uses the field identifier @, field number 01, relational operator =, and character constant 'F' (for females).

Notice the order and location of the condition, female employees.

FIELD	OP	LITERAL VALUE / FIELD NUMBER
@01	=	'F'
Field number	Relational operator	Character constant

The field number (@01) is the field EMP.SEX, selected from the Field Selection screen. The field name may not be entered on this screen. Use only the field identifier and number when conditionally selecting fields. Press Tab to move to the OP column.

## Relational Operators

The OP (=) is the relational operator, equal to. The relational operators for this screen are:

Operator	Meaning
LT or <	Less than
LE or <=	Less than or equal to
EQ or =	Equal to
GE or >=	Greater than or equal to
GT or >	Greater than
NE or $\neq$	Not equal to
LIKE	Partial matching for character fields only

When entering an operator, use either the symbol or the abbreviation.

- Press Tab to move to the LITERAL VALUE/FIELD NUMBER column.

The character constant value ('F') is the test value for the character field EMP.SEX. 'F' stands for female. It is enclosed in single quotation marks to distinguish it as a character constant.

A character constant used on the Qualification screen and assigned to the characters fields may be 50 characters long. A character constant, extended on the right with blanks, is left-aligned when it is output assigned to the character field EMP.SEX. The only exception is for the LIKE operator, where the character field is not extended with blanks.

Embedded single quotation marks are keyed in as two single quotation marks.

Valid Examples of Character Constants are as follows:

'MANAGEMENT'  
'M.I.T.'  
'FILE CLERK'  
'X139'  
' LEADING SPACES'  
'TRAILING SPACES '  
'WOMEN''S RIGHTS'

The % and \_ characters have a special meaning in the search string when used with the LIKE operator for partial matching. The % character indicates any string of zero or more characters. The \_ character indicates any single character. There may be a case when the "" and "" characters are part of the search string. For this case, there will be an escape character that designates a real "" or "" character when immediately following the escape character. The escape character is specified in the Escape field of the Qualification screen. Embedded escape characters as part of the search string are keyed in as two escape characters (for example, ++). If the character string used as an operand of the LIKE operator does not contain the % and \_ characters, the LIKE operator is treated as the '=' operator. The escape character is ignored if the LIKE operator is not used in the Qualification screen. Some examples of the character constants used with the LINK operator are as follows:

'SMITH%'	Character strings start with the word SMITH
'%CLERK'	Character strings end with the word CLERK
'%FILE%'	Character strings containing the word FILE
'%FILE_CLERK%'	Character strings containing the word FILE and CLERK separated with one character
'%FILE+_CLERK%'	Character strings containing FILE_CLERK. In this example + is defined as an escape character

- Press PF6 to proceed to the Data Display screen, shown in [Figure 5-18](#).

The three data fields selected with a D on the Field Selection screen, EMP.NAME, PLANT.ID, and SAL.YTD, are present on the Data Display screen. EMP.SEX is not available for display. It was selected on the Field Selection screen with a Q.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                    BRK  CNT  TOT  AVG  ORDER  DESC?
   1      U PLANT   EMP.NAME
          U PLANT   PLANT.ID
          U PLANT   SAL.YTD

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File   ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 5-18 Data Display Screen

**Note:** Fields not numbered are ordered after the fields that are numbered.

- Type a 1 in the LIST ORDER column opposite the field PLANT.ID. PLANT.ID is the first column of the output, as shown in [Figure 5-18](#). The other fields list according to the order of their appearance on this screen.

PLANT.ID is a group field. The group field or control field suppresses extraneous printing for readability. If EMP.NAME is selected with a 1 in the LIST ORDER column and PLANT.ID is selected with a 2, the repetitive printing of the PLANT.ID would still be suppressed.

- Press PF6 to generate the inquiry and then press Enter to execute the inquiry.

Figure 5-19 on page 5-23 shows the output.

PLANT.ID	EMP.NAME	SAL.YTD
10100	PHYLLIS LOCKMEYER	48,000.00
	MARY ANN THOMAS	59,000.00
20150	WILMA FORD	15,600.00
	SUSAN WARE	15,600.00
		18,800.00
		32,000.00
30200	JANE LOWELL	41,000.00
		22,000.00
		26,000.00
	PATRICIA BLAKELY	30,000.00
	SHARON DALEY	17,000.00
40300	JOAN EVANS	64,000.00
		73,200.00
50300	MADELYN BATES	32,000.00
	VICKY WARD	20,000.00

Figure 5-19 Output from Inquiry with Conditional Selection

Only the names of the female employees have been displayed along with the salaries they received and their plant location. Without the conditional selection, all occurrences of PLANT.ID, EMP.NAME, and SAL.YTD would have been reported.

## LIKE Operator in Conditional Selection

The LIKE operator can be used for partial matching of the character fields.

**Example:** “List all the employees who work in plants whose plant IDs start with ‘40’.”

1. Type the select code U opposite PLANT on the DB/File Selection screen.
2. Press PF3 to proceed to the Field Selection screen.
3. Type the select code D opposite the field name EMP.NAME.
4. Type the select code B opposite the field PLANT.ID.



## Compound Conditional Selection

You can use more than one condition. All conditions must be met before the data is displayed.

To generate a report of all women employees who have received Bachelor of Science degrees, two fields from the PLANT database must be qualified: EMP.SEX and ED.DEGREE.

- EMP.SEX must be equated to female 'F'.
- ED.DEGREE must be equated to Bachelor of Science degree 'BS'.

Two fields are needed for display: EMP.NAME and PLANT.ID.

**Example:** "List all women holding a BS degree and their plant location."

1. On the Field Selection screen, enter the select code D opposite the field names, PLANT.ID and EMP.NAME.
2. Enter the select code Q opposite the field names ED.DEGREE and EMP.SEX. The field selection of your inquiry is complete.
3. Press PF5 to display the Qualification screen.

[Figure 5-22](#) indicates the necessary entries on the Qualification screen for the compound conditions of ED.DEGREE and EMP.SEX.

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT      U   AQFM05
Next DB/File to process : U

@01 ED.DEGREE                                @02 EMP.SEX

EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
      &    @01   =   'BS'
      &    @02   =   'F'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear,"/Exit"=Exit

```

Figure 5-22 Qualification Screen

In [Figure 5-22](#), the field names display in alphabetical order horizontally across the top portion of the Qualification screen. Field numbers, 01 and 02, are assigned according to alphabetical order.

Alphabetically, ED.DEGREE precedes EMP.SEX. Therefore, ED.DEGREE has been assigned the field number 01 and EMP.SEX has been assigned the field number 02.

4. Type @01 in the FIELD column.
5. Press Tab to move to the OP column, and type the relational operator, =, (equal to).
6. Press Tab to move to the LITERAL VALUE/FIELD column. Equate ED.DEGREE to Bachelor of Science by typing the character constant 'BS' in this column. 'BS' must be enclosed in single quotation marks.
7. Press Tab to move to the CON column on the second line. The first condition is connected to the second condition by AND. Enter the symbol, &, in the CON column. This symbol is the logical operator, AND. It informs AQF that both conditions must be satisfied before the data is selected for display.

## Logical Operators

Logical operators precede the second and subsequent conditions. Symbols indicating AND are entered in the CON column. The AND operators for the Qualification screen are:

Operator	Meaning
&, A, *	AND

## Evaluation of Compound Conditions

Compound conditions are evaluated from top to bottom on the Qualification screen. Conditions connected by AND must both be true before data is displayed.

To continue the inquiry, "List all women holding a BS degree and their plant location":

8. Type @02 in the FIELD NUMBER column opposite the AND operator.
9. Press Tab to move to the OP column and type the relational operator, =, (equal to).
10. Press Tab to move to the LITERAL VALUE/FIELD NUMBER column. Equate EMP.SEX to female by typing the character constant 'F' in this column. Enclose the constant in single quotation marks, as shown in [Figure 5-22 on page 5-25](#).

The compound condition is complete.

11. Press PF6 to proceed to the Data Display screen.

```

                                DATA DISPLAY
LIST      DB/FILE                CTL  -SUMMARIES-  SORT  AQFM06
ORDER     NAME                   BRK  CNT TOT AVG  ORDER DESC?
  2      U PLANT    EMP.NAME
  1      U PLANT    PLANT.ID

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear,"/Exit"=Exit

```

Figure 5-23 Data Display Screen

In [Figure 5-23](#), notice that only the two fields selected with a D on the Field Selection screen are listed.



## OR Operator

To produce a report of people who meet any one of several conditions, use OR as the logical operator to link the conditions together. Only one of the conditions needs to be true.

Suppose you want employee names from the database who are high school graduates, or whose earnings are less than or equal to a stated amount.

**Example:** “List the employees who have a high school education or who earn less than or equal to \$42,000 a year. Also list their plant locations, educational degrees, and salaries.”

1. Select the database, PLANT, with the select code U on the DB/File Selection screen.
2. Press PF3 to proceed to the Field Selection screen.
3. To display the fields PLANT.ID, EMP.NAME, ED.DEGREE, and SAL.YTD from the database PLANT, enter the select code D opposite the field names PLANT.ID and EMP.NAME on the Field Selection screen.
4. Enter the select code B opposite the fields ED.DEGREE and SAL.YTD, on the Field Selection screen. The select code B means you want to display these fields as well as use the fields in a condition.
5. Press PF5 to proceed to the Qualification screen.

[Figure 5-25 on page 5-30](#) indicates the necessary entries on the Qualification screen for the compound condition of either ED.DEGREE equal to 'HS' or SAL.YTD less than or equal to \$42,000.

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT      U      AQFM05
Next DB/File To Process : U

@01 ED.DEGREE                                     #02 SAL.YTD

EDIT CON FIELD OP LITERAL VALUE / FIELD NUMBER
      @01  =  'HS'
      +   #02 <= 42000

ESCAPE CHARACTER:
EDIT: I = Insert a new Line before this one, D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 5-25 Qualification Screen

6. The field number (@01) identifies ED.DEGREE, selected from the Field Selection screen. Type this field number and identifier in the FIELD column.
7. Press Tab to move to the OP column, and type the relational operator = (equal to).
8. Press Tab to move to the LITERAL VALUE/FIELD NUMBER column. Type the character constant, 'HS', to equate ED.DEGREE to high school diploma. Use single quotes.
9. Press Tab to move to the CON column on the second line. The second condition must be connected to the first using the logical operator OR. Enter the + symbol as the OR operator.

The logical operators indicating OR are:

Operator	Meaning
O,  , +, !	OR

The OR symbol, |, may appear as an exclamation point, !, in the generated free-form inquiry.

10. Press Tab to move to the FIELD column. The field number (#02) is the field SAL.YTD, selected from the Field Selection screen. Type this field number and identifier in the FIELD column opposite the OR operator.
11. Press Tab to move to the OP column. Type the relational operator, <=, (less than or equal to) for the second condition.
12. Press Tab to move to the LITERAL VALUE/FIELD NUMBER column. Equate SAL.YTD to \$42,000 by typing the numeric constant 42000 in this column.

## Numeric Constants

A numeric constant, also called a **literal**, represents explicit numeric data assigned to numeric fields.

- A numeric constant consists of one to 14 digits to the left of the decimal point, and up to four fractional digits to the right of the decimal point.
- In AQF, if you begin a numeric constant with a decimal point, AQF adds a zero in front of the decimal point for you. The digits must follow each other without intervening spaces or characters.
- Numeric values are right-aligned in the field in which they are output.

### Numeric Constants

Valid Examples	Invalid Examples	Explanation of Invalid Examples
789651	\$18,000	Begins with an alphanumeric \$ and has an embedded comma.
1.69	1 5000	Has an embedded space.
0.001	1E56	Has an embedded character.
3		

Numeric constants (literals) involved in addition and subtraction operations may have only two fractional digits. Numbers with more digits are truncated.

### Numeric Constants with Fractional Digits

Valid Examples	Invalid Examples
0.21	0.2161
831.88	831.886

Continuing with the example inquiry, now that you have entered the numeric constant, 42000, the compound condition is complete.

13. Press PF6 to proceed to the Data Display screen, which is shown in [Figure 5-26](#).

The four fields selected on the Field Selection screen are available for display. ED.DEGREE and SAL.YTD were selected with a B on the Field Selection screen.

This allows these fields to be used in a condition on the Qualification screen and to be available for display on the Data Display screen.

```

                                DATA DISPLAY                                AQFM06
LIST   DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER  NAME                                BRK  CNT TOT AVG  ORDER  DESC?
  3    U PLANT  ED.DEGREE
  2    U PLANT  EMP.NAME
  1    U PLANT  PLANT.ID
  4    U PLANT  SAL.YTD

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 5-26 Data Display Screen

In [Figure 5-26](#), the default printing order has been overridden by typing the appropriate number in the LIST ORDER column. PLANT.ID is the first column printed, followed by EMP.NAME, ED.DEGREE, and SAL.YTD.

14. Press PF6 to generate the inquiry and press Enter to execute the inquiry and receive the output.

[Figure 5-27](#) lists all the employees who have a high school education or who earn less than or equal to \$42,000 a year. The report also includes their educational degrees, salaries, and the plants at which they work.

PLANT.ID	EMP.NAME	ED.DEGREE	SAL.YTD
10100	MARY ANN THOMAS	HS	15,600.00
20150	WILMA FORD		15,600.00
	CHARLES SALTER	HS	18,800.00
			24,000.00
			30,000.00
	SUSAN WARE	BA	39,000.00
			32,000.00
		BS	41,000.00
30200	JOHN HENRY CRANE		13,400.00
			19,600.00
		HS	22,000.00
	JANE LOWELL		22,000.00
		HS	26,000.00
	PATRICIA BLAKELY	BS	30,000.00
	SHARON DALEY	HS	17,000.00
50300	JONATHAN OAKS	BS	36,000.00
	MADELYN BATES	BA	32,000.00
	VICKY WARD	HS	20,000.00
60200	DAVID YORK		31,000.00

Figure 5-27 Output Using Relational Operators and the Logical Operator OR

In the ED.DEGREE column, there are some BA and BS degrees listed as well as high school diplomas. The people with college education have been displayed because they fulfill the second half of the conditional selection phrase; they earn \$42,000 a year or less.

## Complex Compound Conditions

The next example evaluates salaries of all the women from the database whose educational degrees equaled Master of Science (MS) or who worked at plant 20150. To display the correct report, build two compound conditions and connect them with the logical operator, OR.

**Example:** “Identify all the women whose educational degrees equal MS or who work at plant 20150. Also list their salaries.”

1. Select the database PLANT as in the previous example.
2. Select EMP.NAME and SAL.YTD with a select code D. Select EMP.SEX and PLANT.ID with a select code Q. Select ED.DEGREE with a select code B.
3. Press PF5 to proceed to the Qualification screen.

The first condition, female, will be used twice: once in the first condition to select women who have obtained Master of Science degrees, and again in the second condition to select women who work at plant 20150.

[Figure 5-28](#) shows the complex compound condition entered on the Qualification screen. The phrase, @02 = 'F', to select women employees, has been entered twice.

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT U      AQFM05
Next DB/File To Process : U

@01 ED.DEGREE                      @02 EMP.SEX
@03 PLANT.ID

EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
      &    @01   =  'MS'
      |    @02   =  'F'
      &    @02   =  'F'
      &    @03   =  '20150'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 5-28 Qualification Screen

To create the complex compound condition shown in [Figure 5-28](#):

4. Equate ED.DEGREE (@01) to Master of Science degree. Use the character constant 'MS', and use the logical operator & (AND) in the CON column to connect the first two conditions.
5. Equate EMP.SEX (@02) to the character constant 'F', as shown.

**Note:**When using compound conditions, remember that ANDs are evaluated before ORs.

6. Notice in the figure that the first compound condition has been connected to the second compound condition by | (OR). Type | in the CON column at the beginning of the third line.
7. Press Tab to move to the FIELD NUMBER column. Equate EMP.SEX (@02) to the character constant 'F'.
8. Press Tab to move to the CON column on the fourth line. The second half of the second compound condition must be connected to the first half using the logical operator AND. Type & in this column.

9. Equate PLANT.ID(@03) to the constant, '20150'. See the Conditional Selection section on page [5-20](#), where single quotation marks must be used because the constant is assigned to the character field PLANT.ID(@03). Your complex compound condition is complete.
10. Press PF6 to proceed to the Data Display screen.
11. Type 2 opposite ED.DEGREE in the LIST ORDER column, as shown in [Figure 5-29](#). Type 1 opposite EMP.NAME. It is the first column to be printed. Type 3 opposite SAL.YTD. This is the last column printed.  
You have changed the printing order for the three fields using LIST ORDER. The printing order is now EMP.NAME, ED.DEGREE, and SAL.YTD.

DATA DISPLAY				AQFM06	
LIST	DB/FILE	FIELD NAME	CTL	-SUMMARIES-	SORT
ORDER	NAME		BRK	CNT	TOT AVG ORDER DESC?
2	U PLANT	ED.DEGREE			
1	U PLANT	EMP.NAME			
3	U PLANT	SAL.YTD			

Title1:  
Title2:  
Specify limit value if desired:  
If saving query, name to be used:  
Specify PC file name for FTS:

PF1=Help      PF4=Temp Flds    PF7=PGBK Flds    PF10=PC File    ENTER=Next Scr  
PF2=DB/File    PF5=Qualify      PF8=PGFD Flds    PF11=Save      PF12=  
PF3=Fields     PF6=Run          PF9=List Query    Clear, "/Exit"=Exit

Figure 5-29 Data Display Screen

12. Press PF6 to generate the inquiry and then press Enter to execute the inquiry.

```

PAGE:          TRANCODE: II  INQUIRY:

EMP.NAME      ED.DEGREE      SAL.YTD
WILMA FORD    HS              15,600.00
SUSAN WARE    32,000.00
              BS              41,000.00
JOAN EVANS    64,000.00
              MS              73,200.00
*
*
*
*
*
*
*
*
IXX9121  END OF INQUIRY.          (83,7 USER DB CALLS,ROOTS)
    
```

Figure 5-30 Using a Compound Conditional Selection Phrase

[Figure 5-30](#) displays the output from the compound conditional statement representing the request, “Identify all women who have earned Master of Science (MS) degrees *or* who worked at plant 20150. Also list their salaries.”

### Compound Conditional and the Logical Operator OR

AQF evaluates conditions connected by AND before it evaluates conditions connected by OR. If the conditional selection of women is not repeated on the Qualification screen, a different report is obtained. Instead of receiving a report of all women who have earned Master of Science (MS) degrees *or* who worked at plant 20150, you will receive a report of women who have earned Master of Science (MS) degrees *plus all* employees who work at plant 20150.

**Example:** “Show all women who have earned Master of Science (MS) degrees plus all employees who work at plant 20150.”

1. Follow the steps from the previous example to reach to the Qualifications screen:
  - On the DB/File Selection screen, select the database PLANT.
  - On the Field Selection screen, select EMP.NAME and SAL.YTD with a select code D. Select EMP.SEX and PLANT.ID with a select code Q. Select ED.DEGREE with a select code B.
  - Press PF5 to proceed to the Qualification screen.

The compound condition for the required report is shown in [Figure 5-31](#).

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT U   AQFM05
Next DB/File To Process : U

@01 ED.DEGREE                               @02 EMP.SEX
@03 PLANT.ID

EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
      &    @01   =  'MS'
      |    @02   =  'F'
      |    @03   =  '20150'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual  ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual  PF12=
PF3=Fields    PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit

```

Figure 5-31 Compound Conditional and the Logical Operator OR

To create the complex compound condition shown in [Figure 5-31](#):

2. Equate ED.DEGREE to Master of Science degree. Use the character constant, 'MS'.
3. Press Tab to move to the CON column on the second line. The second condition must be connected to the first condition using the logical operator, AND. Type & in this column.
4. Press Tab to move to the FIELD column. Equate EMP.SEX to the character constant, 'F'.
5. Type | (OR) in the CON column at the beginning of the third line.
6. Press Tab to move to the FIELD column. Equate PLANT.ID to the numeric constant, 20150.  
The complex compound condition, which is asking for a report of those women holding Master of Science degrees or people working at plant 20150, is complete.
7. Press PF6 to reach the Data Display screen.
8. Reorder the printing order for the three available fields, as shown in [Figure 5-32](#). Type 1 opposite EMP.NAME, 2 opposite ED.DEGREE, and 3 opposite SAL.YTD.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER    NAME      FIELD NAME                    BRK  CNT TOT AVG  ORDER DESC?
  2      U PLANT    ED.DEGREE
  1      U PLANT    EMP.NAME
  3      U PLANT    SAL.YTD

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear,"/Exit"=Exit
    
```

Figure 5-32 Data Display Screen

9. Press PF6 to generate the inquiry and then press Enter to execute the inquiry.

```

PAGE:          TRANCODE: II      INQUIRY:

EMP.NAME      ED.DEGREE      SAL.YTD
WILMA FORD          HS          18,800.00
CHARLES SALTER          BA          39,000.00
PETER ZATKIN          MA          56,000.00
SUSAN WARE          BS          41,000.00
JOAN EVANS          MS          73,200.00
*
IXX9121  END OF INQUIRY.          (96,7 USER DB CALLS,ROOTS)
    
```

Figure 5-33 Omitting the Repeated Conditional Selection Phrase

[Figure 5-33](#) shows a report of men and women employees. Some have college degrees and some have high school diplomas. The complex compound condition is evaluated differently than it was in the previous example. The OR connector allows either half of the complex condition to be true. Therefore, the names of all employees working at plant 20150 (not just females, as in [Figure 5-30 on page 5-36](#)) are displayed.

## Sorting Data

To display data in a sequence different from the sequence in which it is stored in the database, use the SORT command. SORT tells AQP which fields you want sorted and how you want them sequenced.

SORT sequences fields based on one or more group fields or control fields.

- The first field you specify is called the primary sort field.
- The next field specified is called the secondary sort field.

SORT sequences the data first in the order of the primary field and then in the order of the secondary field.

### Using the SORT Command

The following example prepares a report of employees, their plant number, and salaries. The data for the report is sorted by salaries in ascending order.

**Example:** “List all employees. Show their plant identification and their salaries earned. Arrange the listing in ascending order by salary.”

1. On the DB/File Selection screen, select the database PLANT with a select code U.
2. Press PF3 to proceed to the Field Selection screen. Select the fields PLANT.ID, EMP.NAME, and SAL.YTD, with a select code D.
3. Press PF6 to display the Data Display screen, shown in [Figure 5-34](#).
4. Type 1 opposite the field SAL.YTD in the SORT ORDER column to designate this field as the primary field for sorting.

DATA DISPLAY				AQFM06		
LIST	DB/FILE			CTL	-SUMMARIES-	SORT
ORDER	NAME	FIELD NAME		BRK	CNT TOT AVG	ORDER DESC?
2	U PLANT	EMP.NAME				
1	U PLANT	PLANT.ID				
3	U PLANT	SAL.YTD				1

Title1:  
 Title2:  
 Specify limit value if desired:  
 If saving query, name to be used:  
 Specify PC file name for FTS:

PF1=Help      PF4=Temp Flds    PF7=PGBK Flds    PF10=PC File    ENTER=Next Scr  
 PF2=DB/File   PF5=Qualify      PF8=PGFD Flds   PF11=Save      PF12=  
 PF3=Fields    PF6=Run          PF9=List Query   Clear, "/Exit"=Exit

Figure 5-34 Data Display Screen

- Each field can be sorted in ascending or descending order. Ascending order is the default order.
  - You can use SORT with any field name in the database, except a subfield.
  - If a subfield is used with SORT, the entire field is used instead of the subfield. A subfield is a field which has been defined with TYPE=Y in the FIELD statement. However, you can assign the subfield to a temporary field (discussed in [Chapter 7, “Assignment Statement and Arithmetic Processing”](#)) and use the temporary field as a group field. See your system administrator or the *Advantage VISION: Inquiry for IMS and TSO Technical Reference Guide* for more information.
  - The LIST ORDER and SORT ORDER columns accept only numeric characters, such as 1, 2, and so on.
5. Press PF6 to generate the inquiry and then press Enter to execute the inquiry.

[Figure 5-35](#) displays the sorted output.

PLANT.ID	EMP.NAME	SAL.YTD
30200	JOHN HENRY CRANE	13,400.00
10100	MARY ANN THOMAS	15,600.00
20150	WILMA FORD	15,600.00
30200	SHARON DALEY	17,000.00
20150	WILMA FORD	18,800.00
70500	STEPHEN MCGEE	19,000.00
30200	JOHN HENRY CRANE	19,600.00
50300	VICKY WARD	20,000.00
70500	AGNES COVINGTON	20,000.00
30200	JOHN HENRY CRANE	22,000.00
	JANE LOWELL	22,000.00
60200	KAREN REDFERN	22,000.00
70500	STEPHEN MCGEE	23,000.00
	AGNES COVINGTON	23,000.00
20150	CHARLES SALTER	24,000.00

Figure 5-35 Sorting on SAL.YTD

In [Figure 5-35](#), SAL.YTD is sorted in ascending order with the salary of \$13,400 being displayed first, followed by \$15,600, \$17,000, and so on.

- **Ascending** order means that numeric data goes from a lower to a higher value (0-9) as it performs the sequencing; alpha characters start with A and go to Z.
- **Descending** order means that numeric data goes from a higher to a lower value (9 - 0) as it performs the sequencing; alpha characters begin with Z and go to A. Numeric characters are higher than alpha characters in sequence.

If the entry in the SORT column of the Data Display screen is removed, the output is displayed as shown in [Figure 5-36](#).

**Example:** “List all employees. Show their plant locations and salaries earned.”

PLANT.ID	EMP.NAME	SAL.YTD
10100	WILLIAM AMES	52,000.00
	PHYLLIS LOCKMEYER	48,000.00
	MARY ANN THOMAS	15,600.00
20150	WILMA FORD	15,600.00
	CHARLES SALTER	18,800.00
	PETER ZATKIN	24,000.00
	SUSAN WARE	30,000.00
		39,000.00
		44,000.00
		50,000.00
		56,000.00
		32,000.00
		41,000.00

Figure 5-36 Output Without SORT

As [Figure 5-36](#) illustrates, no SORT action was applied to any field within the inquiry statement. The EMP.NAME and SAL.YTD fields are displayed in the unsorted order in which they are stored. The PLANT.ID field is listed in ascending order because that is the way it is stored in the database.

When you compare the output of [Figure 5-35 on page 5-40](#) to that of [Figure 5-36](#), you will see that SORT allows you to display the data in a sequence different from the way it is stored in the database.

## Using Multiple SORT Commands

You can use the SORT command for any field or combination of fields in the database.

When two or more sorts are written in a single inquiry statement, the primary field is sorted first, the secondary field is sorted within the already sorted primary field, and so on.

Multiple sorts will sort groups within groups until all the groups have been sequenced.

A multiple sort is used to produce a list of the employees at each plant and the salaries they earned. The list is to be sorted by plant and by salary within each plant.

**Example:** "List the employees, their salaries, and plant locations. Sort the information by plant and by salary within each plant."

1. On the Field Selection screen, select the fields PLANT.ID, EMP.NAME, and SAL.YTD, with a select code D. (You are still using the database PLANT.)
2. Press PF6 to proceed to the Data Display screen. In the LIST ORDER column, type 2 opposite the field EMP.NAME, and 1 opposite the field PLANT.ID.
3. Press Tab to move to the SORT ORDER column. Type 1 opposite the field PLANT.ID.
4. In the LIST ORDER column, type 3 opposite SAL.YTD.
5. Press Tab to move to the SORT ORDER column, and type 2 opposite SAL.YTD.

Figure 5-37 shows these entries on the Data Display screen.

DATA DISPLAY				AQFM06		
LIST ORDER	DB/FILE NAME	FIELD NAME	CTL BRK	-SUMMARIES- CNT TOT AVG	SORT ORDER	DESC?
2	U PLANT	EMP.NAME				
1	U PLANT	PLANT.ID			1	
3	U PLANT	SAL.YTD			2	

Title1:  
 Title2:  
 Specify limit value if desired:  
 If saving query, name to be used:  
 Specify PC file name for FTS:

PF1=Help      PF4=Temp Flds    PF7=PGBK Flds    PF10=PC File    ENTER=Next Scr  
 PF2=DB/File    PF5=Qualify      PF8=PGFD Flds    PF11=Save      PF12=  
 PF3=Fields     PF6=Run           PF9=List Query    Clear, "/Exit"=Exit

Figure 5-37 Data Display

PLANT.ID is the primary sort and SAL.YTD is the secondary sort. Each entry of SAL.YTD is sorted within each plant. PLANT.ID and SAL.YTD are sorted in ascending order (the default).

6. Press PF6 to generate the inquiry and then press Enter to receive the output.

[Figure 5-38](#) displays the output from [Figure 5-37 on page 5-42](#).

PLANT.ID	EMP.NAME	SAL.YTD
10100	MARY ANN THOMAS	15,600.00
	PHYLLIS LOCKMEYER	48,000.00
	WILLIAM AMES	52,000.00
	PHYLLIS LOCKMEYER	59,000.00
	WILLIAM AMES	64,000.00
20150	WILMA FORD	15,600.00
		18,800.00
	CHARLES SALTER	24,000.00
		30,000.00
	SUSAN WARE	32,000.00
	CHARLES SALTER	39,000.00
	SUSAN WARE	41,000.00
	PETER ZATKIN	44,000.00
		50,000.00
		56,000.00

Figure 5-38 Sorting on Multiple Fields

As [Figure 5-38](#) shows, the data is first sorted by plant. Within each plant, it is further sorted by salary. The first SORT field (PLANT.ID) is the primary SORT field and the second SORT field (SAL.YTD) is the secondary SORT field.

### Hierarchy of SORT Action

The hierarchy of SORT action is determined by the number assigned in the SORT ORDER column.

### Grouping and Printing with SORT

When sorting is specified, the data is not grouped by levels as it is without sorting. Printing of a field value is suppressed if the same value occurs for that field on the preceding line. Repetitive printing of the fields EMP.NAME and PLANT.ID is suppressed, according to the primary sort, PLANT.ID.

## Reversing the Order of the Fields to be Sorted

In the following example, the order of the fields to be sorted has been reversed. The report is sorted by salary and then by plant within salary.

**Example:** “List each employee by salary year to date and plant location. Sort the data by salary and by plant within each salary.”

1. Select the database and fields as in the previous example.
2. Press PF3 to proceed to the Data Display screen, shown in [Figure 5-39](#).

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                BRK  CNT  TOT  AVG  ORDER  DESC?
  2      U  PLANT    EMP.NAME
  1      U  PLANT    PLANT.ID
  3      U  PLANT    SAL.YTD
                                2
                                1

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File   ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save      PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 5-39 Data Display Screen

3. In the LIST ORDER column, type 2 opposite the field EMP.NAME, and 1 opposite the field PLANT.ID.
4. Press Tab to move to the SORT ORDER column. Type 2 opposite the field PLANT.ID. This is the secondary sort.
5. Type 3 opposite SAL.YTD in the LIST ORDER column.
6. Press Tab to move to the SORT ORDER column. Type 1 opposite the field SAL.YTD. This is the primary sort.
7. Press PF6 to generate this inquiry and then press Enter to display the output.

Note in [Figure 5-40](#) the difference that the change of SORT order has made, compared to the previous example in [Figure 5-38 on page 5-43](#).

```
PAGE:          TRANCODE: II      INQUIRY:

PLANT.ID  EMP.NAME          SAL.YTD
30200     JOHN HENRY CRANE  13,400.00
10100     MARY ANN THOMAS   15,600.00
20150     WILMA FORD        15,600.00
30200     SHARON DALEY      17,000.00
20150     WILMA FORD        18,800.00
70500     STEPHEN MCGEE     19,000.00
30200     JOHN HENRY CRANE  19,600.00
50300     VICKY WARD        20,000.00
70500     AGNES COVINGTON   20,000.00
30200     JOHN HENRY CRANE  22,000.00
          JANE LOWELL       22,000.00
60200     KAREN REDFERN     22,000.00
70500     STEPHEN MCGEE     23,000.00
          AGNES COVINGTON   23,000.00
20150     CHARLES SALTER    24,000.00
```

Figure 5-40 Reversing the Order of SORT Options

As [Figure 5-40](#) shows, the data is first sorted by salary. For each salary it is further sorted by plant. The primary SORT orders the data by salary. The only actual sorting of PLANT.ID occurs at the second, third, and eighth through the fourteenth lines. This happens because the salaries are the same (\$15,600, \$20,000, \$22,000, and \$23,000 respectively) and are sorted by PLANT.ID.

The non-printing (or suppression) of PLANT.ID at the 11th detail line occurred because the two employees (John Henry Crane and Jane Lowell) both work at plant 30200. Suppression checking is stopped for a line as soon as a field value is different than the one in the preceding line, even if there are more fields to the right of that field that are the same.

## Sorting Blank Fields

In sorting, blank fields are less than alpha characters and alpha characters are less than digits. This means that if you ask AQF to sort M, (blank), and 5 in ascending order, the following would be the order of display:

*(blank), M, and 5*

The next inquiry illustrates part of this point. This example prepares a list of the employees in Plant 20150, their educational degree, and the subjects studied. The list is sorted in ascending alphabetical order by those subjects.

**Example:** “List the name of each employee in Plant 20150 with his or her educational degree and the subjects studied. Arrange the list in ascending alphabetical order by those subjects.”

1. Select the fields EMP.NAME, ED.DEGREE, and SUB.NAME, with the select code D, on the Field Selection screen.
2. Select the field PLANT.ID with the select code B on the Field Selection screen.
3. Press PF5 to proceed to the Qualification screen. Equate PLANT.ID to the numeric constant 20150.
4. Press PF6 to proceed to the Data Display screen, shown in [Figure 5-41](#).
5. Select the list order for the four fields, as shown in [Figure 5-41](#). PLANT.ID is to be the first column of the report, followed by EMP.NAME, ED.DEGREE, and SUB.NAME.
6. Press Tab to move to the SORT ORDER column. Type 1 opposite the field SUB.NAME. SUB.NAME is the primary sort.

LIST ORDER	DB/FILE NAME	DATA DISPLAY FIELD NAME	CTL BRK	-SUMMARIES- CNT	TOT	AVG	AQFM06 SORT ORDER	DESC?
3	U PLANT	ED.DEGREE						
2	U PLANT	EMP.NAME						
1	U PLANT	PLANT.ID						
4	U PLANT	SUB.NAME					1	

Title1:  
Title2:  
Specify limit value if desired:  
If saving query, name to be used:  
Specify PC file name for FTS:  
PF1=Help      PF4=Temp Flds      PF7=PGBK Flds      PF10=PC File      ENTER=Next Scr  
PF2=DB/File      PF5=Qualify      PF8=PGFD Flds      PF11=Save      PF12=  
PF3=Fields      PF6=Run      PF9=List Query      Clear, "/Exit"=Exit

Figure 5-41 Data Display Screen

7. Press PF6 to generate the inquiry and then press Enter to display the output.

```

PAGE:          TRANCODE: II      INQUIRY:

PLANT.ID      EMP.NAME          ED.DEGREE     SUB.NAME
20150         WILMA FORD           HS
              PETER ZATKIN         BA            ACCOUNTING
              CHARLES SALTER       BA            EDUCATION
              SUSAN WARE         BS            ENGR
              PETER ZATKIN  MA            FINANCE
*
*
*
*
*
*
*
*
*
*
IXX9121      END OF INQUIRY.          (24,1 USER DB CALLS,ROOTS)
  
```

Figure 5-42 Sorting Blanks

The SORT order in [Figure 5-42](#) was applied to the field SUB.NAME. Since Wilma Ford is a high school graduate, there is no data in the SUB.NAME field for her. Therefore, the SUB.NAME field is blank and listed first in the output.

ACCOUNTING, EDUCATION, ENGR, and FINANCE were then sorted. Peter Zatkin has two degrees; he is listed twice, once for accounting and again for finance.

## Sorting in Descending Order

You can specify SORT with either ascending or descending order. Ascending is the default order. In the next example, descending order is specified.

This example prepares a list of the employees, their plant IDs, and their salaries, and sorts the salaries in descending order.

**Example:** “List each employee, his or her plant identification, and salary. Arrange that list in descending order by salary.”

1. Select PLANT with the select code U on the DB/File Selection screen. Press PF3.
2. Select the fields EMP.NAME, PLANT.ID, and SAL.YTD, with the select code D on the Field Selection screen.
3. Press PF6 to proceed to the Data Display screen (see [Figure 5-43](#)).

```

                                DATA DISPLAY                                AQFM06
LIST   DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER  NAME                                BRK  CNT  TOT  AVG  ORDER  DESC?
  2    U PLANT  EMP.NAME
  1    U PLANT  PLANT.ID
  3    U PLANT  SAL.YTD                                1    Y

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 5-43 Data Display Screen

4. In the LIST ORDER column, type 2 opposite the field EMP.NAME, 1 opposite the field PLANT.ID, and 3 opposite SAL.YTD.
5. Press Tab to move to the SORT ORDER column, and type 1 opposite the field SAL.YTD. This is the primary sort.
6. Press Tab to move to the next column, DESC?, and type Y.

The letter D can also be entered in the DESC? column for sorting in descending order.

7. Press PF6 to generate this inquiry and then press Enter to display the output.

[Figure 5-44](#) shows the output.

PLANT.ID	EMP.NAME	SAL.YTD
30200	MITCHELL J HOOPS	98,000.00
		92,000.00
		76,000.00
40300	DONALD M KING	75,000.00
	JOAN EVANS	73,200.00
	DONALD M KING	66,000.00
10100	WILLIAM AMES	64,000.00
40300	JOAN EVANS	64,000.00
60200	RUSSELL M SIMMONS	60,000.00
10100	PHYLLIS LOCKMEYER	59,000.00
30200	FREDERICH GRAY	59,000.00
40300	DONALD M KING	58,000.00
20150	PETER ZATKIN	56,000.00
10100	WILLIAM AMES	52,000.00
70500	RONALD T JACKSON	52,000.00

Figure 5-44 Output in Descending Order

Note that SAL.YTD is sorted from the highest value (\$98,000) to the lowest (\$52,000). This is descending order.

## Ascending and Descending Sorts in the Same Query

Both ascending and descending sorts can be used in the same query. The next inquiry prepares a list of the employees, their employee numbers, their plant IDs, and their salaries if their salaries are greater than or equal to \$30,000. The salaries are sorted in ascending order, and the plant IDs in descending order.

**Example:** “List all the employees whose salaries are equal to or greater than \$30,000 per year. Include plant ID, employee name, employee number, and current salary. Arrange the list in descending order by plant identification and ascending order by salary.”

1. Select PLANT with the select code U on the DB/File Selection screen.
2. Press PF3 to proceed to the Field Selection screen. Select the fields EMP.NAME, EMP.NO, and PLANT.ID, with the select code D. Select the field SAL.YTD, with the select code B.
3. On the Qualification screen, qualify SAL.YTD as greater than or equal to \$30,000. Only the names of those employees who meet this condition are displayed in the output.
4. Press PF6 to proceed to the Data Display screen, which is shown in [Figure 5-45 on page 5-50](#).

DATA DISPLAY			AQFM06	
LIST ORDER	DB/FILE NAME	FIELD NAME	CTL -SUMMARIES- BRK CNT TOT AVG	SORT ORDER DESC?
3	U PLANT	EMP.NAME		
2	U PLANT	EMP.NO		
1	U PLANT	PLANT.ID		1 Y
4	U PLANT	SAL.YTD		2 N

Title1:  
Title2:  
Specify limit value if desired:  
If saving query, name to be used:  
Specify PC file name for FTS:

PF1=Help      PF4=Temp Flds    PF7=PGBK Flds    PF10=PC File    ENTER=Next Scr  
PF2=DB/File    PF5=Qualify      PF8=PGFD Flds    PF11=Save      PF12=  
PF3=Fields     PF6=Run           PF9=List Query Clear, "/Exit"=Exit

Figure 5-45 Data Display Screen

5. In the LIST ORDER column, type 3 opposite EMP.NAME, 2 opposite EMP.NO, and 1 opposite PLANT.ID.
6. Press Tab to move to the SORT ORDER column. Type 1 opposite PLANT.ID. PLANT.ID is the primary sort.
7. Press Tab to move to the DESC? column. Type Y. PLANT.ID will be sorted in descending order.
8. In the LIST ORDER column, type 4 opposite the field SAL.YTD.
9. Press Tab to move to the SORT ORDER column. Type 2 opposite SAL.YTD. It is the secondary sort.
10. Press Tab to move to the DESC? column. Type N, A, or leave blank to specify ascending order, which is the default. SAL.YTD will be sorted in ascending order.
11. Press PF6 to generate the inquiry and then press Enter to execute the inquiry.

Figure 5-46 shows the output.

PLANT.ID	EMP.NO	EMP.NAME	SAL.YTD
70500	70511	RONALD T JACKSON	32,000.00
	70529	MARTHA WALLINGHAM	33,000.00
	70511	RONALD T JACKSON	39,000.00
			46,000.00
			52,000.00
60200	60205	DAVID YORK	31,000.00
	60251	MARCIE MORINO	31,000.00
	60205	DAVID YORK	37,000.00
			43,000.00
	60209	RUSSELL M SIMMONS	48,000.00
			60,000.00
50300	50322	MADELYN BATES	32,000.00
	50304	JONATHAN OAKS	36,000.00
			46,000.00
40300	40304	DONALD M KING	58,000.00

Figure 5-46 Using Descending and Ascending Sort in Same Inquiry

PLANT.ID is the primary sort field. Since Y was entered in the DESC? column, the plants are listed in descending order, beginning with 70500, followed by 60200, and so on. SAL.YTD is the secondary sort field. The salaries are sorted in ascending order, from lowest to highest, within each plant.

## Using Multiple SORT DESC Commands

You can use as many sorts as you need within a single inquiry. The previous inquiry could be modified. Both PLANT.ID and SAL.YTD could be sorted in descending order, as in the next example.

**Example:** "List all the employees whose salaries are \$30,000 a year or more. Include plant ID, employee name, employee number, and current salary on the list. Arrange the list in descending order by plant location and salaries."

1. Select the same database and fields as in the previous example.
2. Press PF5 to proceed to the Qualification screen. Qualify SAL.YTD as greater than or equal to \$30,000.
3. Press PF6 to proceed to the Data Display screen, which is shown in [Figure 5-47](#).
4. In the LIST ORDER column, type 3 opposite EMP.NAME, 2 opposite EMP.NO, and 1 opposite PLANT.ID.
5. Press Tab to move to the SORT ORDER column. Type 1 opposite PLANT.ID. PLANT.ID is the primary sort.
6. Press Tab to move to the next column, DESC?. Type Y. PLANT.ID will be sorted in descending order.

DATA DISPLAY					AQFM06	
LIST ORDER	DB/FILE NAME	FIELD NAME	CTL BRK	-SUMMARIES- CNT TOT AVG	SORT ORDER	DESC?
3	U PLANT	EMP.NAME				
2	U PLANT	EMP.NO				
1	U PLANT	PLANT.ID			1	Y
4	U PLANT	SAL.YTD			2	Y

Title1:  
Title2:  
Specify limit value if desired:  
If saving query, name to be used:  
Specify PC file name for FTS:  
PF1=Help      PF4=Temp Flds    PF7=PGBK Flds    PF10=PC File    ENTER=Next Scr  
PF2=DB/File    PF5=Qualify      PF8=PGFD Flds    PF11=Save      PF12=  
PF3=Fields     PF6=Run          PF9=List Query Clear, "/Exit"=Exit

Figure 5-47 Data Display Screen

7. Type 4 opposite the field SAL.YTD, in the LIST ORDER column.
8. Press Tab to move to the SORT ORDER column. Type 2 opposite SAL.YTD. It is the secondary sort.
9. Press Tab to move to the DESC? column. Type Y. SAL.YTD will be sorted in descending order.
10. Press PF6 to generate the inquiry and then press Enter to execute the inquiry.

[Figure 5-48](#) illustrates that output.

PLANT.ID	EMP.NO	EMP.NAME	SAL.YTD
70500	70511	RONALD T JACKSON	52,000.00
			46,000.00
			39,000.00
	70529	MARTHA WALLINGHAM	33,000.00
	70511	RONALD T JACKSON	32,000.00
60200	60209	RUSSELL M SIMMONS	60,000.00
			48,000.00
	60205	DAVID YORK	43,000.00
			37,000.00
			31,000.00
	60251	MARCIE MORINO	31,000.00
50300	50304	JONATHAN OAKS	46,000.00
			36,000.00
	50322	MADELYN BATES	32,000.00
40300	40304	DONALD M KING	75,000.00

Figure 5-48 Using Multiple Descending Sorts

**Note:** There may be some restrictions placed on using SORT at your installation. Please contact your system administrator for more information.

In [Figure 5-48](#), both PLANT.ID and SAL.YTD have been sorted in descending order. As in the previous example, the primary SORT action was applied to the PLANT.ID field. Because descending sort was called for, the plants are again listed in descending order, beginning with 70500.

In this example, however, the descending sort action was also specified for the secondary sort, which was applied to the SAL.YTD field. The salaries were again grouped according to the plants and then sorted in descending order beginning with the highest and descending to the lowest.

## Adding Title to the Output

On the Data Display screen you can specify one or two title lines to display at the top of each page of your output. Title lines can be up to 60 characters.

In the example shown in [Figure 5-47 on page 5-52](#), you can add title lines in the Title1 and Title2 fields to your report as shown in [Figure 5-49](#). These title lines will be displayed along with report as shown in [Figure 5-50](#).

LIST ORDER	DB/FILE NAME	FIELD NAME	DATA DISPLAY	CTL BRK	-SUMMARIES- CNT	TOT	AVG	AQFM06 SORT ORDER	DESC?
3	U PLANT	EMP.NAME							
2	U PLANT	EMP.NO							
1	U PLANT	PLANT.ID						1	Y
4	U PLANT	SAL.YTD						2	Y

Title1: REPORT OF EMPLOYEES WITH YEARLY SALARIES OF \$30,000 OR MORE  
 Title2: SORTED IN DESCENDING ORDER BY PLANT LOCATION AND SALARIES  
 Specify limit value if desired:  
 If saving query, name to be used:  
 Specify PC file name for FTS:  
 PF1=Help PF4=Temp Flds PF7=PGBK Flds PF10=PC File ENTER=Next Scr  
 PF2=DB/File PF5=Qualify PF8=PGFD Flds PF11=Save PF12=Submit  
 PF3=Fields PF6=Run PF9=List Query CLEAR,"/EXIT"=Exit

Figure 5-49 Data Display Screen Using Title Lines

PAGE: TRANCODE: II INQUIRY:

REPORT OF EMPLOYEES WITH YEARLY SALARIES OF \$30,000 OR MORE  
 SORTED IN DESCENDING ORDER BY PLANT LOCATION AND SALARIES

PLANT.ID	EMP.NO	EMP.NAME	SAL.YTD
70500	70511	RONALD T JACKSON	52,000.00
			46,000.00
			39,000.00
	70529	MARTHA WALLINGHAM	33,000.00
	70511	RONALD T JACKSON	32,000.00
60200	60209	RUSSELL M SIMMONS	60,000.00
			48,000.00
	60205	DAVID YORK	43,000.00
			37,000.00
			31,000.00
	60251	MARCIE MORINO	31,000.00
50300	50304	JONATHAN OAKS	46,000.00
			36,000.00

Figure 5-50 Output Report Using Title Lines

## Limiting the Output

On the Data Display screen, you can specify a limit to your output. If you are unsure of the results of a lengthy inquiry, you do not need to run the inquiry against the entire database. You can enter a number on the Data Display screen to run a sample and limit the amount of output.

To limit the number of items displayed from the database, enter a limit value after the 'Specify limit value if desired' on the Data Display screen.

Following is an example that limits output.

You want to produce a sampling of employees who have received a Bachelor of Arts degree. You intend to limit the output to three employees. The output will contain the fields EMP.NAME and ED.DEGREE. EMP.NAME is the first column printed, and ED.DEGREE is the second column.

**Example:** "Produce a sample listing of three employees whose degree equals BA. List those employees by name and degree."

1. Select PLANT with the select code U on the DB/File Selection screen.
2. Press PF3 to proceed to the Field Selection screen. Select the field EMP.NAME, with a D on the Field Selection screen. Select the field ED.DEGREE, with a B.
3. Press PF5 to proceed to the Qualification screen. Equate ED.DEGREE to Bachelor of Arts degree ('BA'). Type @01 for ED.DEGREE in the FIELD column.
4. Press Tab to move to the OP column. Type the equal operator, EQ.
5. Press Tab to move to the LITERAL VALUE/FIELD NUMBER column. Type the character constant, 'BA' (enclose it in single quotation marks).
6. Press PF6 to proceed to the Data Display screen. In the LIST ORDER column, type 1 opposite EMP.NAME, and 2 opposite ED.DEGREE, as shown in [Figure 5-51 on page 5-56](#).



**Notes:**

- For non-IMS (DL/I) databases, LIMIT applies to the output of data, not to its selection. Only the number of records of output data to be displayed is limited.
- For IMS (DL/I) databases, LIMIT applies to the highest level segment referenced in the inquiry. If LIMIT is used in an inquiry that references more than one segment at the same hierarchical level, LIMIT is applied to the leftmost segment of the database.

In [Figure 5-52](#), EMP.NAME is the highest segment referenced.

If the sample report does not meet your needs, you have the opportunity to rework your inquiry, run it again using a limit, and look at the second sample report.

## LIMIT Command Applied to the Leftmost Segment

In the next example, the inquiry prepares a report of employees, their educational levels, and the product codes associated with each employee. You want to limit the initial output to six entries.

**Example:** “Produce a complete listing of the product codes of the toys produced and the employees and their educational backgrounds. However, to be sure that the inquiry statement is accurate, take a sampling of six product codes before running the complete job.”

1. Select PLANT with the select code U on the DB/File Selection screen.
2. Press PF3 to continue to the Field Selection screen. Select the fields ED.DEGREE, EMP.NAME, and PROD.CODE, with a D.
3. Press PF6 to proceed to the Data Display screen, which is shown in [Figure 5-53](#).

DATA DISPLAY				AQFM06		
LIST ORDER	DB/FILE NAME	FIELD NAME	CTL BRK	-SUMMARIES- CNT	TOT AVG	SORT ORDER DESC?
3	U PLANT	ED.DEGREE				
2	U PLANT	EMP.NAME				
1	U PLANT	PROD.CODE				

Title1:  
Title2:  
Specify limit value if desired: 6  
If saving query, name to be used:  
Specify PC file name for FTS:

PF1=Help	PF4=Temp Flds	PF7=PGBK Flds	PF10=PC File	ENTER=Next Scr
PF2=DB/File	PF5=Qualify	PF8=PGFD Flds	PF11=Save	PF12=
PF3=Fields	PF6=Run	PF9=List Query	Clear,"/Exit"=Exit	

Figure 5-53 Data Display Screen

4. Type 3 opposite ED.DEGREE, 2 opposite EMP.NAME, and 1 opposite PROD.CODE in the LIST ORDER column as shown in [Figure 5-53](#). The PROD.CODE is the first column to be printed, followed by EMP.NAME and then ED.DEGREE.
5. Press Tab to move to the phrase, “Specify limit value if desired:” and type 6 following the colon, as shown in [Figure 5-53](#).
6. Press PF6 to view the generated inquiry and press Enter to execute the inquiry.

Figure 5-54 shows the output.

PROD.CODE	EMP.NAME	ED.DEGREE
	WILLIAM AMES	BA
	PHYLLIS LOCKMEYER	BA
	MARY ANN THOMAS	HS
PO		
RO		
SC		
SJ		
SR		
TR	WILMA FORD	HS
	CHARLES SALTER	BA
	PETER ZATKIN	BA
		MA
	SUSAN WARE	BS
	JOHN HENRY CRANE	HS
	FREDERICH GRAY	BA
		MA
	MITCHELL J HOOPS	BS
		MA

Figure 5-54 LIMIT Applied to the Leftmost Segment

**Note:** Note that for DB2 tables and VSAM non-hierarchical files the LIMIT command limits the number of records displayed.

Notice that LIMIT was applied to the PROD.CODE only, limiting that output to six codes: PO, RO, SC, SJ, SR, and TR. This was the sample asked for in the inquiry statement.

All the EMP.NAMEs and ED.DEGREEs are displayed because they are treated like lower level segments and are unaffected by the LIMIT.

## LIMIT Command Applied to the Highest Level Segment

In the next example, LIMIT is applied to the highest level segment (PLANT.ID) to show you that the lower level segments are unaffected by the LIMIT action.

**Example:** “List those employees, their plant identification, and salaries if they worked during 1991. Run a sampling of three first.”

1. Select the fields EMP.NAME, PLANT.ID, and SAL.YTD, with the select code D on the Field Selection screen. Select SAL.YEAR with the select code Q.
2. Press PF5. On the Qualification screen (not shown), SAL.YEAR contains 2-digit values of 93, 94, and 95. Enter 95, and use the field number #01 in your expression.
3. Press PF6 to proceed to the Data Display screen, shown in [Figure 5-55](#).

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME                                BRK  CNT TOT AVG  ORDER DESC?
  2      U PLANT      EMP.NAME
  1      U PLANT      PLANT.ID
  3      U PLANT      SAL.YTD

Title1:
Title2:
Specify limit value if desired: 3
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File   ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit

```

Figure 5-55 Data Display Screen

4. In the LIST ORDER column, type 2 opposite EMP.NAME, 1 opposite PLANT.ID, and 3 opposite SAL.YTD.
5. Press Tab to move to the phrase, “Specify limit value if desired:” and type 3 following the colon, as shown in [Figure 5-55](#).
6. Press PF6 to generate the inquiry and then press Enter to execute the inquiry.

[Figure 5-56](#) is the output using LIMIT on the highest level segment.

PLANT.ID	EMP.NAME	SAL.YTD
10100	WILLIAM AMES	64,000.00
	PHYLLIS LOCKMEYER	59,000.00
	MARY ANN THOMAS	15,600.00
20150	WILMA FORD	18,800.00
	CHARLES SALTER	39,000.00
	PETER ZATKIN	56,000.00
	SUSAN WARE	41,000.00
30200	JOHN HENRY CRANE	22,000.00
	FREDERICH GRAY	59,000.00
	MITCHELL J HOOPS	98,000.00
	JANE LOWELL	26,000.00
	PATRICIA BLAKELY	30,000.00
	SHARON DALEY	17,000.00
IXX9121	END OF INQUIRY.	(74,4 USER DB CALLS,ROOTS)

Figure 5-56 LIMIT Applied to Highest Level Segment

LIMIT was applied to the PLANT.ID field because it is the highest level segment in the inquiry statement. Therefore, three PLANT.IDs were output. In addition, all of the employees who worked in these plants during 1995 were displayed with their salaries because the LIMIT action did not affect the lower level segments.

## Batch Submission in CICS

Under CICS, you can execute inquiries in batch while you are building inquiries online.

**Note:** This section applies to CICS users only.

Create your inquiry using AQF. The following example is a report of employees, their employee numbers, plant locations, and educational degrees.

[Figure 5-57](#) displays the fields from a VSAM file, VSPLANT. Choose a list order as shown. Press PF12 to submit this inquiry for batch processing.

LIST ORDER	DB/FILE NAME	DATA DISPLAY FIELD NAME	CTL BRK	-SUMMARIES- CNT	-SORT TOT AVG	IDBEM06 ORDER DESC?
3	U VSPLANT	VSED.DEGREE				
1	U VSPLANT	VSEMP.NAME				
2	U VSPLANT	VSEMP.NO				
4	U VSPLANT	VSPLANT.ID				

Title1:  
Title2:  
Specify limit value if desired:  
If saving query, name to be used:  
Specify PC file name for FTS:

PF1=Help	PF4=Temp Flds	PF7=PGBK Flds	PF10=PC File	ENTER=Next Scr
PF2=DB/File	PF5=Qualify	PF8=PGFD Flds	PF11=Save	PF12=Submit
PF3=Fields	PF6=Run	PF9=List Query	CLEAR=Exit	

Figure 5-57 Data Display Screen

The Batch screen displays in [Figure 5-58](#).

```

                                BATCH JOB SUBMISSION                                IDBEM13
Enter either the Job Control Statements or the JCL parameters in the
fields provided below.

//*
//*
//*
//*
//*
//*

Job Name: _____ Accounting Info: _____
User Name: _____ Print Routing: _____
Procedure Name: _____ Terminal Name: MXA

PF1=Help      PF4=Temp Flds  PF7=          PF10=        ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=          PF11=        PF12=Submit
PF3=Fields    PF6=Data Disp PF9=List Query CLEAR=Exit

```

Figure 5-58 Batch Screen

There are two ways to build the batch JCL statements through the Batch screen.

## Building the JCL Yourself

You can use the first six lines (lines that start with `//*`) to enter the JCL statements.

In this case, AQF does not do any syntax checking and submits the JCL as is. The “Terminal Name” field (described later in this section) is also used in this case to build the `/IAM LTERM` statement required by the native batch mode.

Note that you need to change the `//*` characters on each line or it will be considered as a comment line. This case is used when the first line is not a blank line and does not start with `//*` characters.

## Using the Defined JCL

If the first input line is blank or starts with `/**` characters, AQF will build the JCL statements using the information defined by the system administrator at installation time, and the information entered on the Batch screen for the fields described below.

Job Name	Identifies the name of the job to be run in batch. Must be a 1 to 8 byte alphanumeric value; the first character must be alphabetic, for example, VSAMDEG3.
Accounting Info	Specifies an account number and other accounting information. This field must be a 1 to 39 byte alphanumeric value, for example, 66.1.
User Name	Identifies the owner of the job. May be from 1 to 20 alphanumeric characters, for example, Martha Watson.
Print Routing	Specifies the destination of the printed output. This field must be a 1 to 8 byte alphanumeric value, for example R184.
Procedure Name	Specifies the name of a procedure which will select the proper database and/or files in the batch process. Must be a 1 to 8 byte alphanumeric value, for example, IQVSAM.  (The procedure should be available from your system administrator before submitting the job to the batch region for processing.)
Terminal Name	Specifies the name of a terminal which will be used for security checking in the batch processing and should be defined to VISION:Inquiry by the system administrator.  Terminal Name must be a 1 to 8 byte alphanumeric value, for example, N041. The default is the same name that you are using in the online environment.  The terminal name is used to build the <code>/IAM LTERM</code> statement required by the native batch mode.

Press Enter or PF12 to submit this inquiry for batch processing. You may continue processing inquiries on line or you may check your queue to see the status of your job.

# Summarizing Data

---

You can summarize your data by specifying totals, counts, and averages on the Data Display screen.

You can also use the Data Display screen to format your output by selecting the display order (LIST ORDER), control breaks (CTL BRK), summaries (SUMMARIES), and sort order (SORT ORDER) entries on this screen.

Later on in this chapter subtotalling and control breaks are discussed with each of the summary options.

## Specifying Totals

You use the Data Display screen to obtain totals of numeric data. To obtain totals, type a number between one and nine in the TOT column opposite a field. The number entered reflects the order of totaling. Type 1 for the first field to be totaled; 2 for the second field, and so on.

## Specifying a Grand Total

To obtain only grand totals of a field, type 1 or the letter 'G' (for Grand Totals) in the TOT column opposite the field(s) to be summarized. See [Figure 6-1 on page 6-2](#).

**Note:** Use G (for Grand Totals) for grand summaries only. It can be used in place of the number 1 to produce grand summaries. However, it cannot be used in place of any other number nor can it be used in conjunction with CTL BRK to produce totals.

### To produce totals using AQF:

1. Define the database, PLANT, on the DB/File Selection screen.
2. Select the data field, SAL.YTD, on the Field Selection screen.
3. Specify the TOTAL option (SUMMARIES TOT column) on the Data Display screen. (The TOTAL option in AQF is the same as the TOTAL command in native VISION:Inquiry.)
4. Execute the inquiry by pressing PF6.

In [Figure 6-1](#) show G (for Grand Totals) in the SUMMARIES TOT column on the Data Display screen. AQF totals SAL.YTD following the output of the field, SAL.YTD.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME                                BRK  CNT TOT AVG  ORDER DESC?
          U PLANT    SAL.YTD                                G

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 6-1 Specifying a Grand Total - Data Display Screen

**Note:** Grand summaries are produced for each summary field. If you request subtotals of a field, you will also get grand summaries printed on a separate page.

The **select code G** is used to produce grand totals of numeric fields, such as salaries. Enter G in the SUMMARIES TOT column. Press PF6 to generate your inquiry and then press Enter to receive the report ([Figure 6-2 on page 6-3](#)).

The TOTAL option (SUMMARIES TOT column) accumulates grand totals. TOTAL adds all the values of a data field, SAL.YTD, together and displays the grand total. TOTAL can be used separately or combined with other summaries options. This is discussed later in this chapter.



```

      QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT      U      AQFM05
Next DB/File To Process : U

@01 PLANT.ID

      EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
           @01  =  '50300'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 6-3 Conditional Selection with TOTAL - Qualification Screen

6. On the Qualification screen, equate PLANT.ID to the plant id number, 50300: Type the assigned number for PLANT.ID, preceded by a @ symbol, in the Field column. Use either the = or EQ operator. Type '50300' in the LITERAL VALUE column, as shown in [Figure 6-4 on page 6-5](#).
7. Press PF6 to proceed to the Data Display screen.

8. On the Data Display screen:  
Press the Tab key to move to the SUMMARIES TOT column.
9. Type G opposite the field, SAL.YTD. A grand total of all salaries at plant 50300 is the result of this inquiry.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME                                BRK  CNT TOT AVG  ORDER DESC?
          U PLANT    SAL.YTD                                G

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 6-4 Conditional Selection with TOTAL - Data Display Screen

10. Press PF6 to generate the inquiry, and press Enter to execute the inquiry.  
[Figure 6-5](#) shows the output.

```

PAGE:          TRANCODE: II  INQUIRY:

TOTALS          SAL.YTD
                134,000.00
*
*
*
*
*
*
*
*
*
*
IXX9121 END OF INQUIRY                (6,1 USER DB CALLS,ROOTS)
    
```

Figure 6-5 Conditional Selection with TOTAL - Output

The condition was used to limit the salary amount being totaled to a specific plant.

If you compare the total salaries in Plant 50300 to those of the whole company, as displayed in [Figure 6-5](#), you get a picture of the relationship of Plant 50300 to the organization as a whole.

SALARIES AT ALL PLANTS		SALARIES AT PLANT 50300	
TOTALS	SAL.YTD 2,167,200.00	TOTALS	SAL.YTD 134,000.00

Six percent of all the salaries earned are earned at Plant 50300.

### Using TOTAL with Numeric Fields Only

Use TOTAL with numeric fields only. The following inquiry (see [Figure 6-6](#)) attempts to TOTAL a non-numeric field, EMP.NAME, for all employees.

**Example:** "What happens when you try to total a non-numeric field?"

1. Select PLANT with the select code U on the DB/File Selection screen.
2. Press PF3 to proceed to the Field Selection screen.
3. Type D opposite the fields, EMP.NAME and EMP.SEX, on the Field Selection screen.
4. Press PF6 to proceed to the Data Display screen.
5. Type G opposite the field, EMP.NAME in the SUMMARIES TOT column.
6. Press PF6 to execute the inquiry.

```

                                DATA DISPLAY                                AQFM06
LIST   DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER  NAME                                BRK  CNT TOT AVG  ORDER DESC?
      U PLANT  EMP.NAME                                G
      U PLANT  EMP.SEX

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds PF11=Save     PF12=
PF3=Fields   PF6=Run       PF9=List Query Clear, "/Exit"=Exit
AQF-047  AVERAGE and TOTAL may only be used with numeric fields.
    
```

Figure 6-6 Attempting to Total a Non-Numeric Field - Data Display Screen

As shown above, the error message

AQF-047 AVERAGE and TOTAL may only be used with numeric fields

is generated because EMP.NAME is an alphanumeric field, not a numeric field.

## Counting Occurrences

The COUNT command (SUMMARIES CNT column) calculates a grand count of occurrences of one or more specified fields. Any field (alpha or numeric) can be acted upon by COUNT.

To count the occurrences of a field, enter a number between one and nine in the SUMMARIES CNT column of the Data Display screen. You can use G to produce a grand count.

**Example:** “What is the total number of female employees?”

1. Select the PLANT database with a U.
2. Press PF3 to proceed to the Field Selection screen.
3. On the Field Selection screen, select the field, EMP.NAME, with a D.
4. Select the field, EMP.SEX, with a Q.
5. Press PF5 to proceed to the Qualification screen.
6. On the Qualification screen, equate EMP.SEX to the character constant, 'F', for female. Type @01 in the FIELD column.
7. Press the Tab key to move to the OP column.
8. Type the EQ operator.
9. Press the Tab key to move to the LITERAL VALUE column, and type 'F' .
10. Press PF6 to proceed to the Data Display screen, which is shown in [Figure 6-7 on page 6-8](#).
11. Press the Tab key to move to the SUMMARIES column.

**Note:** You could also enter a 1 in the SUMMARIES CNT column to produce a grand count.

12. Type G in the SUMMARIES CNT column opposite the alphanumeric field, EMP.NAME, as shown in [Figure 6-7](#).
  - EMP.NAME is the first and only field to be counted.
  - A grand count of the female employees is generated by this inquiry.
  - The count is displayed on the page following the output of the field, EMP.NAME



## Averaging Data

The AVERAGE option (SUMMARIES AVG column) calculates a grand average of the contents of the specified field. This is done by adding the contents of all occurrences of the field to be averaged and dividing by the number of occurrences. AVERAGE can be used with any numeric field.

**Example:** "What is the average salary of the male employees who have college degrees?"

1. Select the database, PLANT, with the select code U on the DB/File Selection screen.
2. Press PF3 to proceed to the Field Selection screen.
3. Type the select code Q opposite the fields, EMP.SEX and ED.DEGREE, on the Field Selection screen.
4. Type the select code D opposite the field, SAL.YTD. Press PF5 to proceed to the Qualification screen.
5. As shown in [Figure 6-9](#), in the Qualification screen, equate EMP.SEX to males using the character constant, 'M' and ED.DEGREE to not equal to 'HS'.
6. Connect the two conditions using the logical operator, AND.

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT    U    AQFM05
Next DB/File To Process : U

@01 ED.DEGREE                                @02 EMP.SEX

EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
      &    @01   NE  'HS'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual  ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual  PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit

```

Figure 6-9 Averaging Data - Qualification Screen

7. Press PF6 to proceed to the Data Display screen, which is shown in [Figure 6-10 on page 6-10](#).



The compound condition entered on the Qualification screen was used to limit the salaries being included in the average to only those men who hold college degrees. From the database those degrees include Bachelor of Arts (BA), Bachelor of Science (BS), Master of Arts (MA), Master of Science (MS), and Doctor of Philosophy (PD).

## Combining TOTAL, COUNT, and AVERAGE

Multiple grand summaries can be used within a single inquiry. A report is required listing the names of all the female employees and the salary each earned.

Three totals are required:

- A count of all those employees selected.
- A grand total of their salaries.
- A grand average of their salaries.

**Example:** "Produce a listing of female employees and their salaries. Average and total those salaries and then count the women."

1. Select the PLANT database with the select code U on the DB/File Selection screen.
2. Press PF3. On the Field Selection screen, type the select code Q opposite EMP.SEX.
3. Type the select code D opposite EMP.NAME and SAL.YTD.
4. Press PF5 to proceed to the Qualification screen.

```
          QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT    U    AQFM05
Next DB/File To Process : U

@01 EMP.SEX

          EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
                @01  =  'F'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
```

Figure 6-12 Combining Total, Count, and Average - Qualification Screen

5. Complete the Qualification screen, as shown in [Figure 6-12](#).
6. Press PF6 to proceed to the Data Display screen, which is shown in [Figure 6-13 on page 6-13](#).
  - The printing order for the report is EMP.NAME and SAL.YTD.
  - No entry in the LIST ORDER column is necessary for either field.
  - Detail lines as well as grand summaries are required for the report.
  - A select code D in any of the SUMMARIES columns requests detail lines. One D per field name generates detail lines.
  - Detail lines are suppressed if D is not entered in a summaries column.

LIST	DB/FILE	DATA DISPLAY			CTL	-SUMMARIES-	SORT	AQFM06
ORDER	NAME	FIELD NAME		BRK	CNT	TOT	AVG	ORDER DESC?
	U PLANT	EMP.NAME			D			
	U PLANT	SAL.YTD				D	G	

Title1:  
Title2:  
Specify limit value if desired:  
If saving query, name to be used:  
Specify PC file name for FTS:  
PF1=Help      PF4=Temp Flds      PF7=PGBK Flds      PF10=PC File      ENTER=Next Scr  
PF2=DB/File    PF5=Qualify      PF8=PGFD Flds      PF11=Save      PF12=  
PF3=Fields     PF6=Run            PF9=List Query Clear, "/Exit"=Exit

Figure 6-13 Combining Total, Count, and Average - Data Display Screen

7. In the Data Display screen, type D in the SUMMARIES CNT column opposite the field, EMP.NAME. This produces a detail listing of the field, EMP.NAME, and a grand count of EMP.NAME.
8. Type D in the SUMMARIES TOT column and G in the SUMMARIES AVG column opposite the field, SAL.YTD.
  - The salaries of each employee are printed as well as grand TOTAL and AVERAGE summaries for the field, SAL.YTD.
  - The G was entered to produce only grand summaries. The number 1 could also have been used to produce grand summaries.
9. Press PF6 to generate the inquiry and press Enter to execute your inquiry. [Figure 6-14 on page 6-14](#) shows the output.

PAGE:	TRANCODE: II	INQUIRY:
EMP.NAME		SAL.YTD
PHYLLIS LOCKMEYER		48,000.00
		59,000.00
MARY ANN THOMAS		15,600.00
WILMA FORD		15,600.00
		18,800.00
SUSAN WARE		32,000.00
		41,000.00
JANE LOWELL		22,000.00
		26,000.00
PATRICIA BLAKELY		30,000.00
SHARON DALEY		17,000.00
JOAN EVANS		64,000.00
		73,200.00
MADELYN BATES		32,000.00
VICKY WARD		20,000.00

---

PAGE:	TRANCODE: II	INQUIRY:
COUNTS	EMP.NAME	
	14	
TOTALS	SAL.YTD	
	669,200.00	
AVERAGES	SAL.YTD	
	31,866.66	
*		
*		
IXX9121	END OF INQUIRY	(76,7 USER DB CALLS,ROOTS)

Figure 6-14 Combining Total, Count, and Average - Output

**Note:** Note that there are 14 employees with a total of 21 salaries. The AVERAGE (31,866.66) reflects the TOTAL (669,200.00) divided by 21.

The inquiry contains multiple options — AVERAGE, TOTAL, and COUNT. A single conditional selection phrase is used to retrieve those employees who are women. This selected data is then processed by each of the specified options.

### Order of Output is COUNT, TOTAL, AVERAGE

Notice that the order of output is different from the order of selection of the SUMMARIES. Regardless of which selection is made first, the order of output is COUNT, TOTAL, AVERAGE.

## Using the TOTAL with Two Fields

The next AQF example inquiry demonstrates a single TOTAL option acting upon two selected fields.

The report will consist of the employee name, salary, and salary deduction for each employee. Each of the summary options will be used to total the salary and salary deductions:

- The TOTAL option will be used to total the two items — salary and salary deductions.
- The AVERAGE option will produce a grand average of all the salary deductions.
- The COUNT option will count the number of employees.

The report elements are:

<b>DB/File</b>	<b>Screens Used</b>
PLANT database	DB/File Selection
<b>Fields</b>	
employee name salary salary deductions	Field Selection
<b>Qualification</b>	
plant number is 20150	Qualification
<b>Summaries</b>	
Total: salary and salary deductions Average: salary deductions Count: employee name	Data Display

**Example:** “For Plant 20150, create a report showing employee name, salary, and salary deduction for each employee. Determine the totals of salary and salary deductions.”

1. Select the PLANT database with the select code U.
2. Press PF3 to proceed to the Field Selection screen.
3. On the Field Selection screen, type Q opposite the field, PLANT.ID. Type D opposite the fields, EMP.NAME, SAL.DED, and SAL.YTD.
4. Press PF5 to proceed to the Qualification screen.

```
QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT    U    AQFM05
Next DB/File To Process : U

@01 PLANT.ID

      EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
              @01   =  '20150'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
```

Figure 6-15 Using the TOTAL with Two Fields - Qualification Screen

5. Equate PLANT.ID to 20150, as indicated in [Figure 6-15](#).
6. Press PF6 to proceed the Data Display screen.
7. On the Data Display screen, reorder the printing order, as shown in [Figure 6-16 on page 6-17](#). The report’s printing order is EMP.NAME, SAL.YTD, and SAL.DED.
8. Type 1 opposite EMP.NAME.
9. Press the Tab key to move to the SUMMARIES columns. Type D in the SUMMARIES CNT column opposite EMP.NAME.

This produces a list and count of the field, EMP.NAME.

DATA DISPLAY						AQFM06			
LIST	DB/FILE		FIELD NAME	CTL	-SUMMARIES-			SORT	
ORDER	NAME			BRK	CNT	TOT	AVG	ORDER	DESC?
1	U PLANT		EMP.NAME						
3	U PLANT		SAL.DED		D	G			
2	U PLANT		SAL.YTD		D				

Title1:  
Title2:  
Specify limit value if desired:  
If saving query, name to be used:  
Specify PC file name for FTS:  
PF1=Help PF4=Temp Flds PF7=PGBK Flds PF10=PC File ENTER=Next Scr  
PF2=DB/File PF5=Qualify PF8=PGFD Flds PF11=Save PF12=  
PF3=Fields PF6=Run PF9=List Query Clear, "/Exit"=Exit

Figure 6-16 Using the TOTAL with Two Fields - Data Display Screen

10. As shown in [Figure 6-16](#), type 3 opposite SAL.DED.
11. Press the Tab key to move to the SUMMARIES TOT column.
12. Type D in the SUMMARIES TOT column and G in the SUMMARIES AVG column opposite the field, SAL.DED to generate a list of grand totals and grand averages of all the salary deductions.
13. Type 2 opposite SAL.YTD. Press the Tab key to move to the SUMMARIES columns.
14. Type D in the SUMMARIES TOT column opposite SAL.YTD. Grand TOTAL summaries follow the listing of the field, SAL.YTD.
15. Notice that Ds have been entered to produce a list of the fields. G has been entered to produce only a grand average of SAL.DED.
16. Press PF6 to generate your inquiry and press Enter to execute the inquiry.

Figure 6-17 shows the generated inquiry and output in three partial screens. Above the first horizontal bar is the inquiry; the first screen of output is next, followed by the second screen of output.

In the generated inquiry, note that one TOTAL is produced for the two fields, SAL.YTD and SAL.DED. The TOTAL option has acted upon SAL.YTD and SAL.DED to produce a grand total for each.

PAGE:            TRANCODE:  II            INQUIRY:			
PLANT D EMP.NAME SAL.YTD SAL.DED COUNT EMP.NAME TOTAL SAL.YTD SAL.DED			
AVERAGE SAL.DED IF PLANT.ID = `20150';;			
-----			
PAGE:            TRANCODE:  II            INQUIRY:			
EMP.NAME		SAL.YTD	SAL.DED
WILMA FORD		15,600.00	1,260.00
		18,800.00	1,980.00
CHARLES SALTER		24,000.00	2,020.00
		30,000.00	3,140.00
		39,000.00	6,000.00
PETER ZATKIN		44,000.00	6,800.00
		50,000.00	7,800.00
		56,000.00	9,580.00
SUSAN WARE		32,000.00	5,200.00
		41,000.00	7,000.00
*			
*			
-----			
PAGE:            TRANCODE:  II            INQUIRY:			
COUNTS	EMP.NAME		
	4		
TOTALS	SAL.YTD	SAL.DED	
	350,400.00	50,780.00	
AVERAGES	SAL.DED		
	5,078.00		
*			
*			
*			
*			
*			
*			
IXX9121	END OF INQUIRY		(20,1 USER DB CALLS,ROOTS)

Figure 6-17 Using a TOTAL Command with Two Fields - Output

## Subtotaling - Using a Group Field or Control Break

A **subtotal** is a total of only part of the data. To arrive at a subtotal, the data is broken into groups, such as by plant or sex, and each of the groups is totaled separately.

The field that controls the group is called a **group field** or **control break**. When the group field's value changes, the subtotal is displayed.

The subtotal allows for summarizing one or more fields by groups rather than generating a grand total. The first of these fields becomes the group field. When its value changes, the subtotal is printed. The remaining field names identify what is to be subtotaled.

**Note:** The number entered in SUMMARIES should be the same as the number under CTL BRK for the control break field. Grand summaries will also be calculated and printed.

### Using CTL BRK and SUMMARIES columns

To request subtotals on the Data Display screen using the CTL BRK and SUMMARIES columns, follow these steps:

1. Enter a number between one and nine in the CTL BRK column and the same number in the SUMMARIES TOT column on the Data Display screen.
2. Assign 1 to the field which is to act as the primary group field.
3. Assign 2 to the field to be the secondary group field.
4. Assign 3 to the next group.  
Continue in this manner.
5. Assign 1 to those fields which are to be subtotaled when the primary group field changes.
6. Assign 2 to those fields which are to be subtotaled when the secondary group field changes.
7. Assign 3 to those fields which are to be subtotaled when the next group changes.

Continue in this manner.

You can use CTL BRK with any of the SUMMARY options: TOTAL, AVERAGE, and COUNT.

## Subtotaling with a TOTAL

In the following example report, subtotals of the salaries earned at each of the plants must be generated.

**Example:** "What is the total amount of salaries paid at each plant?"

1. Select the PLANT database, as in the previous example.
2. Press PF3 to proceed to the Field Selection screen. Type D opposite the fields, PLANT.ID and SAL.YTD.
3. Press PF6 to proceed to the Data Display screen. [Figure 6-18](#) indicates the necessary entries for this inquiry.
4. Press the Tab key to move to the CTL BRK column. Type 1 opposite PLANT.ID.

PLANT.ID is the primary group field. When its value changes, subtotals are printed.

```

                                DATA DISPLAY                                AQFM06
LIST   DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER  NAME      FIELD NAME                  BRK  CNT TOT AVG  ORDER DESC?
      U PLANT    PLANT.ID                      1
      U PLANT    SAL.YTD                        1

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File   ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 6-18 Subtotaling with a TOTAL - Data Display Screen

5. Press the Tab key to move to the SUMMARIES TOT column and type 1 in this column opposite SAL.YTD. SAL.YTD is the field to be subtotaled.

Notice that the same numbers have been entered in the CTL BRK column as in the SUMMARIES column.

[Figure 6-19](#) shows the report generated by subtotaling with TOTAL.

```
PAGE:          TRANCODE: II      INQUIRY:

PLANT.ID
10100
** PLANT.ID = 10100
TOTALS          SAL.YTD
                238,600.00

20150
** PLANT.ID = 20150
TOTALS          SAL.YTD
                350,400.00

30200
** PLANT.ID = 30200
TOTALS          SAL.YTD
                523,000.00

40300
** PLANT.ID = 40300
TOTALS          SAL.YTD
                336,200.00

50300
** PLANT.ID = 50300
TOTALS          SAL.YTD
```

Figure 6-19 Subtotaling with a TOTAL - Output

**Notes:**

- The two asterisks in front of each PLANT.ID. These asterisks identify the output as a subtotal.
- The group field name, PLANT.ID, is also printed, identifying the figure beneath it as belonging to one specific plant.
- A grand summary of SAL.YTD is also printed.
- The control field and the field to be subtotaled are on the same leg of the database. The results would be unpredictable if more than one leg of the database was accessed.

## Subtotaling Several Fields

You can subtotal several fields in one inquiry.

## Subtotaling on Averages

The following example produces a report which details the average salary and salary deduction for the employees who hold at least a Master of Arts degree at each plant. The report also includes the sex of each employee and subtotals the salaries earned by men and women.

**Example:** "At each plant, what is the average salary and salary deduction for the employees who hold at least 'MA' degrees?"

1. Type U opposite PLANT on the DB/File Selection screen. Press PF3.
2. On the Field Selection screen, select the field ED.DEGREE with the select code Q.
3. Select EMP.NAME, EMP.SEX, PLANT.ID, SAL.DED, and SAL.YTD with the select code D. Press PF5.
4. On the Qualification screen, equate ED.DEGREE to greater than or equal to Master of Arts, 'MA'.
5. Press PF6 to proceed the Data Display screen, which is shown in [Figure 6-20](#).

LIST ORDER	DB/FILE NAME	DATA DISPLAY FIELD NAME	CTL BRK	-SUMMARIES- CNT	TOT	AVG	AQFM06 SORT ORDER	DESC?
U	PLANT	EMP.NAME						
U	PLANT	EMP.SEX						
U	PLANT	PLANT.ID	1					
U	PLANT	SAL.DED				D		
U	PLANT	SAL.YTD	2	2		D		

Title1:  
Title2:  
Specify limit value if desired:  
If saving query, name to be used:  
Specify PC file name for FTS:  
PF1=Help      PF4=Temp Flds      PF7=PGBK Flds      PF10=PC File      ENTER=Next Scr  
PF2=DB/File      PF5=Qualify      PF8=PGFD Flds      PF11=Save      PF12=  
PF3=Fields      PF6=Run      PF9=List Query Clear, "/Exit"=Exit

Figure 6-20 Subtotaling on Averages - Data Display Screen

6. PLANT.ID is the primary group control break field. Press the Tab key to move to the CTL BRK column and type 1. This designates PLANT.ID as the primary group field (control break).
7. SAL.YTD is the secondary group control break field. Press the Tab key to move to the CTL BRK column and type 2. This designates SAL.YTD as the

secondary group field (control break).

8. Type D opposite the field SAL.DED in the SUMMARIES AVG column. Type D in the SUMMARIES AVG column opposite the field, SAL.YTD. These two fields will be averaged when PLANT.ID changes.
9. Type 2 in the TOT column opposite SAL.YTD. This field will be subtotaled when SAL.YTD changes.
10. Press PF6 to generate the inquiry and press Enter to execute your inquiry. [Figure 6-21](#) shows the output.

EMP.NAME	EMP.SEX	PLANT.ID	SAL.DED	SAL.YTD
PETER ZATKIN	M	20150	6,800.00	44,000.00
** SAL.YTD =				44,000.00
TOTALS				SAL.YTD
				44,000.00
AVERAGES				SAL.DED
				6,800.00
				SAL.YTD
				44,000.00
** SAL.YTD =			7,800.00	50,000.00
TOTALS				SAL.YTD
				50,000.00
AVERAGES				SAL.DED
				7,800.00
				SAL.YTD
				50,000.00
** SAL.YTD =			9,580.00	56,000.00
TOTALS				SAL.YTD
				56,000.00

Figure 6-21 Subtotaling on Averages - Output

In [Figure 6-21](#), PLANT.ID is used as the group field and an average is calculated for both SAL.YTD and SAL.DED.

Peter Zatkin's salaries are added together and then averaged; the same thing happens with his salary deductions. The averaged subtotals are output under the two asterisks of the group field name, SAL.YTD.

SAL.YTD is printed beneath the data fields. It is preceded by two asterisks. The other field to be subtotaled, SAL.DED, is displayed beneath SAL.YTD. This is the subtotal print format.

PLANT.ID is the other control break. Salaries are subtotaled when PLANT.ID changes. The averages of the salaries and salary deductions are printed beneath the subtotal of the salaries.

## Taking a Subtotal of TOTAL, COUNT, and AVERAGE

You can specify all three subtotals in the same inquiry.

Suppose you are asked to give statistical summary information on products in Plants 40300 or 20150. You need all three types of subtotals as well as grand summaries. To produce this report, you will include these actions:

- List the plant number and the product descriptions.
- Subtotal the products' cost.
- Sub-count the number of products and their product codes.
- Produce an average cost of the products.

**Example:** "Give statistical summary information on products in Plants 40300 and 20150."

1. Select PLANT with the select code U on the DB/File Selection screen.
2. Press PF3 to proceed to the Field Selection screen.
3. Select the field, PLANT.ID, with the select code B.
4. Select the fields PROD.AMT, PROD.CODE, PROD.DESC, and PROD.QTY, with the select code D.
5. Press PF5 to proceed to the Qualification screen, which is shown in [Figure 6-22 on page 6-25](#).

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT    U    AQFM05
Next DB/File To Process : U

@01 PLANT.ID

EDIT CON FIELD OP LITERAL VALUE / FIELD NUMBER
      @01  =  '20150'
      O  @01  EQ '40300'

ESCAPE CHARACTER:
EDIT: I = Insert a new Line before this one, D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit

```

Figure 6-22 Taking a Subtotal of TOTAL, COUNT, and AVERAGE - Qualification Screen

6. On the Qualification screen, equate PLANT.ID to plant number 20150 or plant number 40300, as shown in [Figure 6-22](#). The OR operator is seen as the letter O in the figure.
7. Press PF6 to proceed to the Data Display screen, which is shown in [Figure 6-23 on page 6-26](#).

PLANT.ID, PROD.AMT, PROD.CODE, PROD.DESC, and PROD.QTY are the available fields. LIST ORDER, CTL BRK, CNT, TOT, and AVG are the five options applied to these fields.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME                                BRK  CNT  TOT  AVG  ORDER  DESC?
1  U  PLANT  PLANT.ID                            1
      U  PLANT  PROD.AMT                                D  G
      U  PLANT  PROD.CODE                            D
2  U  PLANT  PROD.DESC
      U  PLANT  PROD.QTY                            D

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 6-23 Taking a Subtotal of TOTAL, COUNT, and AVERAGE - Data Display Screen

8. Type 1 in the LIST ORDER column for PLANT.ID and 2 for PROD.DESC, as shown in [Figure 6-23](#).
  - Each occurrence of PROD.DESC is printed in the column following PLANT.ID.
  - PROD.AMT, PROD.CODE, and PROD.QTY are printed in alphabetical order following PROD.DESC.
9. Type 1 in the CTL BRK column opposite PLANT.ID.
  - PLANT.ID is the group (control break) field. It will print first as a data field and second as the group field.
  - The other fields will appear beneath PLANT.ID according to the order COUNT, TOTAL, AVERAGE.
10. Type D in the SUMMARIES TOT column and G in the SUMMARIES AVG column opposite PROD.AMT to designate this field as a field to be subtotaled and averaged.
11. Type D opposite PROD.CODE in the SUMMARIES CNT column of the SUMMARIES area. Type D opposite PROD.QTY in the SUMMARIES CNT column of the SUMMARIES area. These fields will also be subtotaled when PLANT.ID changes.
12. Type 1 opposite PLANT.ID in the SORT ORDER column. Press the Tab key to move to the next column. Type Y opposite PLANT.ID in the DESC column.
13. Grand summaries are printed when all occurrences of PLANT.ID have been printed.

14. Press PF6 to generate the inquiry and press Enter to execute your inquiry. [Figure 6-24](#) shows the output.

PLANT.ID	PROD.DESC	PROD.AMT	PROD.CODE	PROD.QTY
40300	AFRICAN SAFARI	98.00	AS	48
	CHEF'S DELIGHT	79.00	CD	105
	HOSPITAL WARD	99.00	HW	76
	TIME-LOCK SAFE	65.00	TS	34
** PLANT.ID = 40300				
COUNTS	PROD.CODE	PROD.QTY		
	4	4		
TOTALS	PROD.AMT			
	341.00			
20150	POST OFFICE	29.95	PO	30
	ROBOTS	18.95	RO	450
	SLOT CARS	38.00	SC	300
	SKI JUMP	58.00	SJ	78
	SKATING RINK	28.95	SR	94
	TOBOGGAN RUN	45.00	TR	180

Figure 6-24 Taking a Subtotal of TOTAL, COUNT, and AVERAGE in one Inquiry Statement - First Page of Output

Notice that the fields PLANT.ID, PROD.DESC, PROD.AMT, PROD.CODE, and PROD.QTY are printed. Then the group field name, which in this case is PLANT.ID, is printed. It is identified by two asterisks. Finally the subtotals are shown. The subtotals are displayed in the order COUNT, TOTAL, and AVERAGE.

Grand summaries are not shown. These are printed separately on the third page.

## Combining Subtotals with the Grand Summaries

The next example combines subtotals with the grand summaries in an inquiry.

- The output displays the contents of the data fields first.
- The subtotals of COUNT and TOTAL are printed.
- Grand summaries are printed on a separate page.

This inquiry produces statistical information of salaries and degrees for employees with college degrees in Plant 30200. To accomplish this, you will:

1. List the plant number, the employee names, employee numbers, and college degrees.
2. Subtotal the employees' salaries.
3. Count the number of college degrees.
4. Produce grand totals of salaries and college degrees.

**Example:** "Statistical information is needed about salaries and degrees for employees with college degrees in Plant 30200."

1. Select the PLANT database from the DB/File Selection screen.
2. Press PF3 to proceed to the Field Selection screen.
3. Select EMP.NAME, EMP.NO, and SAL.YTD with the select code D. Select ED.DEGREE and PLANT.ID with the select code B.
4. Press PF5 to proceed to the Qualification screen.
5. On the Qualification screen, equate PLANT.ID to plant number 30200 and ED.DEGREE to not equal to 'HS', as shown in [Figure 6-25](#).

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT      U      AQFM05
Next DB/File To Process : U

@01 ED.DEGREE                               @02 PLANT.ID

EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
      @02  EQ  '30200'
      A   @01  NE  'HS'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 6-25 Qualification Screen - Combining Subtotals with the Grand Summaries

6. Press PF6 to proceed to the Data Display screen.

7. As shown in [Figure 6-26](#), the Data Display screen, ED.DEGREE, EMP.NAME, EMP.NO, PLANT.ID, and SAL.YTD are the fields available for output. Apply LIST ORDER, CTL BRK, CNT, and TOT to these fields.

LIST ORDER	DB/FILE NAME	DATA DISPLAY			AQFM06	
		FIELD NAME	CTL BRK	-SUMMARIES- CNT	TOT	SORT ORDER DESC?
4	U PLANT	ED.DEGREE		D		
3	U PLANT	EMP.NAME	1			
2	U PLANT	EMP.NO				
1	U PLANT	PLANT.ID				
	U PLANT	SAL.YTD			D	

Title1:  
Title2:  
Specify limit value if desired:  
If saving query, name to be used:  
Specify PC file name for FTS:  
PF1=Help      PF4=Temp Flds      PF7=PGBK Flds      PF10=PC File      ENTER=Next Scr  
PF2=DB/File      PF5=Qualify      PF8=PGFD Flds      PF11=Save      PF12=  
PF3=Fields      PF6=Run      PF9=List Query      Clear, "/Exit"=Exit

Figure 6-26 Combining Subtotals with the Grand Summaries - Data Display Screen -

8. In the LIST ORDER column, type 4 opposite ED.DEGREE.
9. Press the Tab key to move to the SUMMARIES CNT column.
10. Type D opposite ED.DEGREE in the SUMMARIES CNT column.
11. In the LIST ORDER column, type 3 opposite EMP.NAME.
12. Press the Tab key to move to the CTL BRK column, and type 1 in the CTL BRK column opposite the field, EMP.NAME.

This designates the field as a group (control break) field. It will print as a data field and as the control break field. The other fields, ED.DEGREE and SAL.YTD, will appear beneath EMP.NAME.

13. Type 2 in the LIST ORDER column for EMP.NO.
14. Type 1 in the LIST ORDER column for PLANT.ID.

You do not need to type 5 opposite SAL.YTD because, by default, this field will be displayed as the last field in the report.

15. Press the Tab key to move to the next line. Press the Tab key to move to the TOT column.

16. Type D in the SUMMARIES TOT column opposite SAL.YTD. This field will be subtotaled when EMP.NAME changes.

Grand summaries are printed when all occurrences of EMP.NAME have been printed.

17. Press PF6 to generate the inquiry and press Enter to execute your inquiry. [Figure 6-27](#) and [Figure 6-28 on page 6-31](#) show the output.

PAGE:	TRANCODE: II	INQUIRY:		
PLANT.ID	EMP.NO	EMP.NAME	ED.DEGREE	SAL.YTD
30200	30202	FREDERICH GRAY		48,000.00
			BA	59,000.00
			MA	
** EMP.NAME = FREDERICH GRAY				
COUNTS	ED.DEGREE			
	2			
TOTALS	SAL.YTD			
	107,000.00			
	30205	MITCHELL J HOOPS		76,000.00
			BS	92,000.00
			MA	98,000.00
** EMP.NAME = MITCHELL J HOOPS				
COUNTS	ED.DEGREE			
	2			

Figure 6-27 Combining Subtotals with Grand Summaries - First Page of Output

In [Figure 6-27 on page 6-30](#) and [Figure 6-28](#), two subtotals and two grand summaries were used in one inquiry statement. The grand summaries and subtotals are COUNT and TOTAL.

PAGE:           TRANCODE: II   INQUIRY:				
PLANT.ID	EMP.NO	EMP.NAME	ED.DEGREE	SAL.YTD
** EMP.NAME = MITCHELL J HOOPS				
TOTALS		SAL.YTD		
		266,000.00		
	30211	PATRICIA BLAKELY	BS	30,000.00
** EMP.NAME = PATRICIA BLAKELY				
COUNTS	ED.DEGREE			
	1			
TOTALS		SAL.YTD		
		30,000.00		
* *				
PAGE:           TRANCODE: II   INQUIRY:				
COUNTS	ED.DEGREE			
	5			
TOTALS		SAL.YTD		
		403,000.00		
* * * * * * * *				
IXX9121 END OF INQUIRY			(35,1 DB CALLS,ROOTS)	

Figure 6-28 Combining Subtotals with Grand Summaries - Last Two Pages of Output

The subtotals are displayed exactly as before. Note that the grand summaries are output to a separate page.



# Assignment Statement and Arithmetic Processing

---

A temporary field is a field that exists for the duration of the inquiry you are executing.

- An entry on the Temporary Field screen sets up a temporary field so it can be assigned a value.
- The value being assigned may be the contents of another field of the database, a literal, or the result of an arithmetic calculation.
- Select a name for each temporary field you create.
- The name may have up to 12 characters.
- Temporary fields exist during the creation and execution of the inquiry.

**Notes:**

- VISION:Inquiry automatically adds a % to indicate that a field is a temporary field name.
- When you enter a temporary field name, you do not prefix the name with a %; the % is automatically appended to the front of the name for you.
- Temporary field names are referenced without the % in conversational text. The % precedes the field name in VISION:Inquiry generated code and on the AQF screens.

## Creating Temporary Fields in the Temporary Field Screen

The following example, shown in [Figure 7-1](#), illustrates how temporary fields may be used while creating a report of current salaries and bonuses. Temporary fields are created to hold the values of the current salary, the bonus rate, and the salary plus bonus.

**Example:** "Prepare a report illustrating the three types of assignment values."

1. Select the PLANT database from the DB/File Selection screen.
  2. Press PF3 to proceed to the Field Selection screen.
  3. Select SAL.YTD with the select code B (B for Both display and qualify).
  4. Press PF4 to proceed to the Temporary Field screen
- In [Figure 7-1](#), three different temporary fields have been created. They are SALARY, RATE, and BONUS.

```

TEMPORARY FIELD DEFINITIONS FROM DB/FILE - PLANT U      AQFM04
Next DB/File To Process : U

#01 SAL.YTD

CD    TEMPORARY          #/@ FIELD or   OP   #/@ FIELD or   OP   #/@ FIELD or
      NAME              LITERAL          LITERAL          LITERAL
D    SALARY             = #01
D    RATE               = 300
D    BONUS              = #01          + 300
      =
      =
      =
      =
CD: D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=   PF7=PGBK FlDs PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5= Qualify PF8=PGFD FlDs PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 7-1 Creating Temporary Fields - Temporary Field Screen

5. To create SALARY, type D in the CD column. The D in the CD column indicates that this temporary field is to be displayed as part of the output.

Type SALARY in the TEMPORARY NAME column.

6. Press the Tab key to move to the next column. Type #01 for SAL.YTD.
7. To create RATE, type D in the CD column. Type RATE in the TEMPORARY NAME column.

**Note:** Negative numbers use leading minus (-) signs.

8. Press the Tab key to move to the next column. Type the literal, 300. Limit literals you use on this screen to a maximum of 18 characters.
9. To create BONUS, type D in the CD column. Type BONUS in the TEMPORARY NAME column.
10. Press the Tab key to move to the next column. Type #01.
11. Press the Tab key to move to the OP column. Type the addition operator, +, in this column.
12. Press the Tab key to move to the next column. Type 300. BONUS is now equal to SAL.YTD plus 300.
  - When creating temporary fields, do not use any of the names which have already been defined in your directory (such as a field name or a database name).
  - If you misspell one of the temporary field names, blank out the entry in the CD column and overwrite the name. When the screen is refreshed by pressing Enter, the field is corrected and the data in the CD column is redisplayed.
  - If you do not blank out the entry in the CD column when correcting an existing field, a new temporary field is added and the existing field is unchanged.
  - If you want to delete a temporary field, blank out the entry in the CD column (and optionally, the temporary name). When the screen is refreshed by pressing Enter, the field will have been deleted.
13. Press PF6 to proceed to the Data Display screen.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL -SUMMARIES-  SORT
ORDER     NAME                                BRK CNT TOT AVG  ORDER DESC?

        U PLANT  SAL.YTD
        U PLANT  %SALARY
        U PLANT  %RATE
        U PLANT  %BONUS

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 7-2 Creating Temporary Fields - Data Display Screen

**Note:** On subsequent screens, the temporary fields are displayed in the order of their assignment on the Temporary Field screen. They are not alphabetized as are data fields.

In [Figure 7-2](#), the temporary fields, SALARY, RATE, and BONUS, are identified by a '%' sign. SAL.YTD is not preceded by a '%' sign because it is a field from the PLANT database.

The selected fields are to be printed in the order displayed. LIST ORDER has not been applied to these fields.

14. Press PF6 to generate the inquiry and press Enter to execute the inquiry. [Figure 7-3](#) displays the report.

PAGE:	TRANCODE: II	INQUIRY:		
SAL.YTD	SALARY	RATE	BONUS	
52,000.00	52,000.00	300	52,300.00	
64,000.00	64,000.00	300	64,300.00	
48,000.00	48,000.00	300	48,300.00	
59,000.00	59,000.00	300	59,300.00	
15,600.00	15,600.00	300	15,900.00	
15,600.00	15,600.00	300	15,900.00	
18,800.00	18,800.00	300	19,100.00	
24,000.00	24,000.00	300	24,300.00	
30,000.00	30,000.00	300	30,300.00	
39,000.00	39,000.00	300	39,300.00	
44,000.00	44,000.00	300	44,300.00	
50,000.00	50,000.00	300	50,300.00	
56,000.00	56,000.00	300	56,300.00	
32,000.00	32,000.00	300	32,300.00	
41,000.00	41,000.00	300	41,300.00	
13,400.00	13,400.00	300	13,700.00	
19,600.00	19,600.00	300	19,900.00	
22,000.00	22,000.00	300	22,300.00	
48,000.00	48,000.00	300	48,300.00	

Figure 7-3 Creating Temporary Fields - Output

[Figure 7-3](#) shows the output from the three created temporary fields.

Each temporary field represents a different kind of temporary field:

**Temporary field from a data field**

On the Temporary Field screen, SALARY was equated to SAL.YTD. Notice that the columns of output of SAL.YTD and SALARY are the same. Creating temporary fields from data fields does not affect the data fields.

**Temporary field from a constant**

The temporary field named RATE was assigned to the numeric constant 300. Since it is a constant, the value of RATE is the same each time it is displayed.

Constants appear left-justified in the field.

**Temporary field as a result of a calculation**

The temporary field named BONUS was assigned the results of an arithmetic calculation. A numeric constant is being added to the contents of a field (SAL.YTD).

Since SAL.YTD is numeric, the result is numeric and appears right-aligned in the column. This type of usage is explained in more detail later in this chapter.

## Arithmetic Calculations

There are two ways to perform arithmetic calculations using AQF:

- Use the built-in summary commands (TOTAL, AVERAGE, and COUNT), which are explained in [Chapter 6, "Summarizing Data"](#). These yield automatic summaries on the data displayed in a report. The steps involved in calculating these summaries are under the control of AQF.
- Create your own arithmetic calculations for execution on data in the database. This type of calculation can be performed in the Temporary Field screen.

An **arithmetic calculation** is one that contains arithmetic operators and the values that are to be manipulated. The values may be constants (which do not change) or data field names (which represent values that may change).

## Arithmetic Operators

The arithmetic operators are:

Operator	Meaning
*	Multiplication
/	Division
+	Addition
-	Subtraction

The + and - operators are also used as leading signs for numeric constants.

## Hierarchy of Operation

The operations within an arithmetic expression are executed according to a specific hierarchy, basically from left to right.

Multiplication and division are performed before addition and subtraction, unless parentheses are used. See [Arithmetic Processing Using Parentheses on page 7-10](#).

## Literals

The literals used in an arithmetic calculation may have two or four decimal places, depending on the arithmetic operations being performed:

- Addition and subtraction are limited to two decimal places.
- Multiplication and division may have up to four decimal places.

## Number of Decimal Places

The output field has two decimal places in addition and subtraction and four decimal places in multiplication and division.

## Creating a Temporary Field from an Arithmetic Calculation

In the next example, a temporary field receives the results of an arithmetic operation. The report calculates a bonus of 17.5% for each employee and includes the employee's name, salary, salary deductions, and bonus.

**Example:** "Calculate a bonus of 17.5% for each employee."

1. Select the PLANT database from the DB/File Selection screen.
2. Press PF3 to proceed to the Field Selection screen. Type D opposite each of the fields EMP.NAME and SAL.DED. Select SAL.YTD with the select code B.
3. Press PF4 to display the Temporary Field screen.

In this example, the contents of SAL.YTD are multiplied by 0.175 and the results are assigned to the temporary field named BONUS. Note this expression in the Temporary Field screen in [Figure 7-4](#).

SAL.YTD is the only field available. Multiply the value of SAL.YTD by 17.5% and assign it to the temporary field BONUS.

4. Type D in the CD column.
5. Press the Tab key to move to the TEMPORARY NAME column, and type BONUS.
6. Press the Tab key to move to the next column. Type the assigned number and field identifier for SAL.YTD.

```

          TEMPORARY FIELD DEFINITIONS FROM DB/FILE - PLANT U   AQFM04
Next DB/File To Process :

#01 SAL.YTD

      TEMPORARY      #/@ FIELD or   OP   #/@ FIELD or   OP   #/@ FIELD or
CD      NAME          LITERAL          LITERAL          LITERAL
D  BONUS      =   #01          * 0.175
      =
      =
      =
      =
      =
      =
CD: D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=          PF7=PGBK Fls   PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5= Qualify   PF8=PGFD Fls   PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 7-4 Creating a Temporary Field from an Arithmetic Calculation - Temporary Field Screen

7. Press the Tab key to move to the next column. Type the multiplication operator \* in the OP column.
8. Type the literal, 0.175, in the #/@ FIELD or LITERAL column.

The temporary field receiving the results of an arithmetic calculation is a numeric field and its contents are right-aligned in the column.

9. Press PF6 to proceed to the Data Display screen.

In [Figure 7-5](#), LIST ORDER has been applied to the available fields to reverse the printing order of two fields. No other commands have been applied to the fields on the Data Display screen.

```
                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                    BRK  CNT  TOT  AVG  ORDER  DESC?
  1      U  PLANT  EMP.NAME
  3      U  PLANT  SAL.DED
  2      U  PLANT  SAL.YTD
  4      U  PLANT  %BONUS

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File   ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds PF11=Save      PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
```

Figure 7-5 Creating a Temporary Field from an Arithmetic Calculation - Data Display Screen

10. Press PF6 to generate the inquiry and press Enter to execute the inquiry. [Figure 7-6 on page 7-9](#) displays the report.

In [Figure 7-6](#), the value of BONUS is calculated and displayed for each record in the database. Since multiplication is performed, BONUS is a numeric field, right-aligned, with four decimal places.

EMP.NAME	SAL.YTD	SAL.DED	BONUS
WILLIAM AMES	52,000.00	7,400.00	9,100.0000
	64,000.00	9,000.00	11,200.0000
PHYLLIS LOCKMEYER	48,000.00	6,400.00	8,400.0000
	59,000.00	8,200.00	10,325.0000
MARY ANN THOMAS	15,600.00	1,370.00	2,730.0000
WILMA FORD	15,600.00	1,260.00	2,730.0000
	18,800.00	1,980.00	3,290.0000
CHARLES SALTER	24,000.00	2,020.00	4,200.0000
	30,000.00	3,140.00	5,250.0000
	39,000.00	6,000.00	6,825.0000
PETER ZATKIN	44,000.00	6,800.00	7,700.0000
	50,000.00	7,800.00	8,750.0000
	56,000.00	9,580.00	9,800.0000
SUSAN WARE	32,000.00	5,200.00	5,600.0000
	41,000.00	7,000.00	7,175.0000

Figure 7-6 Creating a Temporary Field from an Arithmetic Calculation - Output

The result from the multiplication is stored in the temporary field BONUS (there is no change in the current values of SAL.YTD).

Although BONUS will not remain after the inquiry has been executed, you should choose temporary field names which indicate what the field represents, but which do not conflict with field names from the database.

## Arithmetic Processing Using Parentheses

You can assign the results of an arithmetic calculation to a temporary field by an assignment statement, and display the results, or use the results as the basis for selecting only certain records for processing.

### Complex Arithmetic Calculation and a Temporary Field in a Conditional Phrase

The next inquiry produces a report that answers the question: If net salaries were raised by 20%, which employees would still be receiving less than or equal to \$30,000? The inquiry calculates an increase of 20% for each employee. Other data produced by the report consists of the employee's name, current salary, salary deductions, and the new salary (current salary plus the increase).

This report necessitates two new elements — a more complex arithmetic calculation, and a conditional phrase that tests the value of a temporary field.

The new salary is calculated by subtracting the salary deductions from the current salary and then multiplying the result (net salary) by 120% (salary = 100% plus increase = 20%). The results from this compound calculation will be stored in the temporary field NEW.SAL.

Additionally, the temporary field NEW.SAL, is to be tested. Is NEW.SAL less than or equal to 30000? Only the names of those employees who meet the condition will be displayed.

**Example:** "If net salaries were raised by 20%, which employees would still be receiving less than or equal to \$30,000?"

1. Select PLANT from the DB/File Selection screen and continue to the Field Selection screen.
2. Type D opposite EMP.NAME, and type B opposite each of the fields SAL.DED and SAL.YTD.
3. Press PF4 to proceed to the Temporary Field screen.

[Figure 7-7](#) show the arithmetic calculation for NEW.SAL.

```

TEMPORARY FIELD DEFINITIONS FROM DB/FILE - PLANT U      AQFM04
Next DB/File To Process : U

#01 SAL.DED                #02 SAL.YTD

TEMPORARY      #/@ FIELD or  OP  #/@ FIELD or  OP  #/@ FIELD or
CD   NAME      LITERAL      LITERAL      LITERAL
B   NEW.SAL    =  (#02      -  #01)      * 1.20
=
=
=
=
=
=
CD:  D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=          PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5= Qualify   PF8=PGFD Flds PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 7-7 Complex Arithmetic Calculation and a Temporary Field in a Conditional Phrase - Temporary Field Screen

4. Type B in the CD column. NEW.SAL is to be displayed as well as qualified.
5. Type NEW.SAL in the TEMPORARY NAME column. NEW.SAL is equal to SAL.YTD minus SAL.DED, multiplied by 1.20.
6. Type an opening parenthesis and #02 for SAL.YTD.
7. Press the Tab key to move to the next column. Type - (the subtraction operator) in the OP column. Type #01 for SAL.DED. Enclose it in a closing parenthesis.

8. To multiply the result by 120%, type \* (the multiplication operator) in the next OP column. Type the literal, 1.20, in the #/@ FIELD column.

This expression calculates a 20% increase of the salary field. According to the hierarchy of operations explained earlier, the first step is to clear the parentheses and calculate the net salary. Then this value is multiplied by 1.20 to determine the amount of the new salary.

9. Press PF5 to proceed to the Qualification screen, shown in [Figure 7-8](#). On the Qualification screen, the temporary field NEW.SAL, appears with the selected data fields. It is identified as a temporary field by its preceding % sign.

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT   U   AQFM05
Next DB/File To Process : U

#01 SAL.DED                                #02 SAL.YTD
#03 %NEW.SAL

EDIT CON FIELD OP LITERAL VALUE / FIELD NUMBER
           #03 <= 30000

ESCAPE CHARACTER:
EDIT: I = Insert a new Line before this one, D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 7-8 Complex Arithmetic Calculation and a Temporary Field in a Conditional Phrase - Qualification Screen

10. Type the assigned number and field identifier for NEW.SAL in the FIELD column.
11. Use the less than or equal operator, <=, and type 30000 in the LITERAL VALUE/FIELD NUMBER column, as shown in [Figure 7-8](#).
12. Press PF6 to proceed to the Data Display screen.

In [Figure 7-9](#), notice the fields available on the Data Display screen.

EMP.NAME was selected with a D on the Field Selection screen, whereas the fields SAL.YTD and SAL.DED were both selected with Bs. NEW.SAL was selected with a B on the Temporary Field screen. Yet, they all appear on the Data Display screen for further processing before output.

DATA DISPLAY			AQFM06					
LIST	DB/FILE		CTL -SUMMARIES-			SORT		
ORDER	NAME	FIELD NAME	BRK	CNT	TOT	AVG	ORDER	DESC?
1	U PLANT	EMP.NAME						
3	U PLANT	SAL.DED						
2	U PLANT	SAL.YTD						
4	U PLANT	%NEW.SAL						

Title1:  
Title2:  
Specify limit value if desired:  
If saving query, name to be used:  
Specify PC file name for FTS:

PF1=Help      PF4=Temp Fllds    PF7=PGBK Fllds    PF10=PC File    ENTER=Next Scr  
PF2=DB/File    PF5=Qualify        PF8=PGFD Fllds    PF11=Save       PF12=  
PF3=Fields     PF6=Run            PF9=List Query    Clear,"/Exit"=Exit

Figure 7-9 Complex Arithmetic Calculation and a Temporary Field in a Conditional Phrase - Data Display Screen

Note that LIST ORDER has been applied to the available fields to revise the printing order.

13. Press PF6 to generate the inquiry and press Enter to execute the inquiry. [Figure 7-10](#) displays the output.

EMP.NAME	SAL.YTD	SAL.DED	NEW.SAL
MARY ANN THOMAS	15,600.00	1,370.00	17,076.0000
WILMA FORD	15,600.00	1,260.00	17,208.0000
CHARLES SALTER	18,800.00	1,980.00	20,184.0000
JOHN HENRY CRANE	24,000.00	2,020.00	26,376.0000
	13,400.00	1,380.00	14,424.0000
	19,600.00	1,960.00	21,168.0000
JANE LOWELL	22,000.00	2,600.00	23,280.0000
	22,000.00	4,600.00	20,880.0000
	26,000.00	5,800.00	24,240.0000
SHARON DALEY	17,000.00	1,560.00	18,528.0000
VICKY WARD	20,000.00	2,400.00	21,120.0000
KAREN REDFERN	22,000.00	2,400.00	23,520.0000
	26,000.00	3,960.00	26,448.0000
STEPHEN MCGEE	19,000.00	1,700.00	20,760.0000
	23,000.00	2,560.00	24,528.0000
AGNES COVINGTON	20,000.00	1,960.00	21,648.0000
	23,000.00	2,960.00	24,048.0000

Figure 7-10 Complex Arithmetic Calculation and a Temporary Field in a Conditional Phrase - Output

In [Figure 7-10](#), the column headed NEW.SAL displays the results of the arithmetic calculations which were entered on the Temporary Field screen. Since multiplication is performed upon a numeric field NEW.SAL, the output is right-aligned, with four decimal places.

The report presents only those employees who satisfy the condition, "NEW.SAL is less than or equal to \$30,000." The employee names, their current salaries, and deductions as well as their proposed salaries are displayed.

Had the parentheses not been included, the order of operations would be different and a different answer would have resulted. Salary deductions would be multiplied by 120% and then subtracted from the current salary. In this case, Mary Ann Thomas would have a new salary of \$13,956 rather than \$17,076.

## Using Negative Values

A 10% bonus is being considered for some employees. The question is posed: If their salaries were increased by 10% which employees would receive more than \$4,400?

This problem requires the use of an arithmetic calculation in the selective processing and results in a negative value for one of the output fields. A temporary field is necessary to store the results of the salary increase. The temporary field NEG.BAL will be created to hold the value of the salary deductions minus current salary.

The current salary of each employee is to be displayed in the report; therefore calculations should not be performed on the field holding the current salary. A temporary field TEMP.SAL is needed for the calculation. TEMP.SAL will be assigned the value of the current salary and then multiplied by 10%.

An additional condition is required to locate only those employees who would receive more than \$4,400 if their salaries were raised by 10%. TEMP.SAL will be tested.

**Example:** "A 10% bonus is being considered. Which employees would receive more than \$4,400?"

1. Select PLANT from the DB/File Selection screen and proceed to the Field Selection screen.
2. Type D opposite EMP.NAME. Type Bs opposite SAL.DED and SAL.YTD.
3. Press PF4 to proceed to the Temporary Field screen.

[Figure 7-11](#) demonstrates the arithmetic calculations for NEG.BAL and TEMP.SAL.

```

TEMPORARY FIELD DEFINITIONS FROM DB/FILE - PLANT U      AQFM04
Next DB/File To Process : U

#01 SAL.DED                      #02 SAL.YTD

CD   TEMPORARY          #/@ FIELD or  OP  #/@ FIELD or  OP  #/@ FIELD or
     NAME              LITERAL        LITERAL        LITERAL
D   NEG.BAL           = #01             - #02
Q   TEMP.SAL          = #02             * 0.10
    =
    =
    =
    =
    =
CD:  D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help   PF4=          PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File PF5= Qualify PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields  PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 7-11 Using Negative Values - Temporary Field Screen

4. To display NEG.BAL, type a D in the CD code field in front of NEG.BAL. To qualify TEMP.SAL, type Q in the CD code field of TEMP.SAL.
5. Type the assignments for NEG.BAL and TEMP.SAL as shown in [Figure 7-11](#).
  - The calculation of NEG.BAL yields a negative result. The result appears on the output beneath NEG.BAL. The negative sign (-) appears to the right of the number in the output.
  - The calculation of TEMP.SAL produces a 10% increase of the salary field. SAL.YTD is multiplied by 0.10 to determine the amount of the bonus.
6. Press PF5 to proceed to the Qualification screen.

[Figure 7-12](#) shows the expression which checks if TEMP.SAL is greater than 4400.

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT U   AQFM05
Next DB/File To Process : U

#01 SAL.DED                                     #02 SAL.YTD
#03 %TEMP.SAL

EDIT CON FIELD OP LITERAL VALUE / FIELD NUMBER
      #03  > 4400

ESCAPE CHARACTER:
EDIT: I = Insert a new Line before this one, D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp  PF9=List Query Clear,"/Exit"=Exit

```

Figure 7-12 Using Negative Values - Qualification Screen

7. Press PF6 to proceed to the Data Display screen.

In [Figure 7-13 on page 7-18](#), the temporary field NEG.BAL appears on the Data Display screen along with the fields chosen on the Field Selection screen. However, TEMP.SAL does not appear on the Data Display screen, since it had been assigned the select code Q (Q for Qualify).

LIST ORDER has been applied to the fields to change the printing order.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                BRK  CNT TOT AVG  ORDER DESC?
  1      U PLANT EMP.NAME
  3      U PLANT SAL.DED
  2      U PLANT SAL.YTD
  4      U PLANT %NEG.BAL

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds PF11=Save     PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 7-13 Using Negative Values - Data Display Screen

8. Press PF6 to generate the inquiry and press Enter to execute the inquiry.

[Figure 7-14](#) displays the report.

EMP. NAME	SAL. YTD	SAL. DED	NEG. BAL
WILLIAM AMES	52,000.00	7,400.00	44,600.00-
	64,000.00	9,000.00	55,000.00-
PHYLLIS LOCKMEYER	48,000.00	6,400.00	41,600.00-
	59,000.00	8,200.00	50,800.00-
PETER ZATKIN	50,000.00	7,800.00	42,200.00-
	56,000.00	9,580.00	46,420.00-
FREDERICH GRAY	48,000.00	9,580.00	38,420.00-
	59,000.00	13,600.00	45,400.00-
MITCHELL J HOOPS	76,000.00	13,600.00	62,400.00-
	92,000.00	19,000.00	73,000.00-
	98,000.00	19,998.00	78,002.00-
DONALD M KING	58,000.00	8,600.00	49,400.00-
	66,000.00	11,600.00	54,400.00-
	75,000.00	17,400.00	57,600.00-
JOAN EVANS	64,000.00	10,200.00	53,800.00-
	73,200.00	15,600.00	57,600.00-
JONATHAN OAKS	46,000.00	10,040.00	35,960.00-
RUSSELL M SIMMONS	48,000.00	7,780.00	40,220.00-
	60,000.00	10,140.00	49,860.00-

Figure 7-14 Using Negative Values - Output

In [Figure 7-14 on page 7-18](#), the names of those employees whose salaries would increase by more than \$4,400 are displayed. Also displayed are their gross salaries, current salary deductions, and their salary deductions minus current salaries.

The field TEMP.SAL (SAL.YTD \* 0.10) is calculated and tested against 4400. If the result is larger, the record is selected and displayed. The output does not show the results of the calculation.

## Using Temporary Fields in Arithmetic Calculations

The next example calculates and displays the yearly and monthly amounts paid out in bonuses for each employee. The bonuses are calculated at 14.45% of the employee's gross salary. Temporary fields are used to hold the results of two calculations. BONUS calculates the yearly bonus for each employee. MONTH.BONUS calculates the monthly bonus for each employee.

**Example:** "Calculate and display the yearly and monthly amounts paid out in bonuses for each employee. The bonuses are calculated at 14.45% of the employee's SAL.YTD."

1. Select the PLANT database with the select code U.
2. Press PF3 to go to the Field selection screen, and type D opposite EMP.NAME, and Q opposite SAL.YTD.
3. Press PF4 to proceed to the Temporary Field screen, shown in [Figure 7-15](#).

```

TEMPORARY FIELD DEFINITIONS FROM DB/FILE - PLANT      U      AQFM04
Next DB/File To Process : U

#01 SAL.YTD

TEMPORARY      #/@ FIELD or  OP  #/@ FIELD or  OP  #/@ FIELD or
CD   NAME      LITERAL      LITERAL      LITERAL
D   BONUS      = #01          * 0.1445
D   MONTH.BONUS = #01          * 0.1445      / 12
=
=
=
=
=
=
=
=
CD: D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=          PF7=PGBK Fls  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5= Qualify   PF8=PGFD Fls PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit

```

Figure 7-15 Using Temporary Fields in Arithmetic Calculations - Temporary Field Screen

[Figure 7-15](#) illustrates the assignment of BONUS and MONTH.BONUS on the Temporary Field screen.

Though the temporary field BONUS has been assigned the value of SAL.YTD \* 0.1445, it is not redundant to repeat this assignment for the temporary field MONTH.BONUS.

Temporary fields are not available for processing on the Temporary Field screen on which they are defined.

The temporary field BONUS cannot be used in an assignment or arithmetic operation on this screen. To calculate the monthly bonus, multiply SAL.YTD by 0.1445 and then divide the product by 12.

4. Press PF6 to proceed to the Data Display screen.  
In [Figure 7-16](#), the data field is followed by the temporary fields in the order they were assigned.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME                                BRK  CNT TOT AVG  ORDER DESC?
          U PLANT EMP.NAME
          U PLANT %BONUS
          U PLANT %MONTH.BONUS

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save    PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 7-16 Using Temporary Fields in Arithmetic Calculations- Data Display Screen

The display order of these three fields is the desired printing order. Neither LIST ORDER, nor any other command, has been applied to the fields on this Data Display screen.

- Press PF6 to generate the inquiry and press Enter to execute the inquiry. [Figure 7-17](#) displays the report.

EMP.NAME	BONUS	MONTH.BONUS
WILLIAM AMES	7,514.0000	626.1666
PHYLLIS LOCKMEYER	9,248.0000	770.6666
MARY ANN THOMAS	6,936.0000	578.0000
WILMA FORD	8,525.5000	710.4583
CHARLES SALTER	2,254.2000	187.8500
PETER ZATKIN	2,254.2000	187.8500
SUSAN WARE	2,716.6000	226.3833
	3,468.0000	289.0000
	4,335.0000	361.2500
	5,635.5000	469.6250
	6,358.0000	529.8333
	7,225.0000	602.0833
	8,092.0000	674.3333
	4,624.0000	385.3333
	5,924.5000	493.7083

Figure 7-17 Using Temporary Fields in Arithmetic Calculations - Output

[Figure 7-17](#) represents the first page of the output. The three fields, EMP.NAME, BONUS (a temporary field), and MONTH.BONUS (a temporary field), are the three columns of output. Each employee name is followed by the proposed yearly and monthly bonuses.

## Using Nested Parentheses

In the next example, management needs to see the present salaries and planned monthly raise for each employee in plants with plant IDs starting with 302. A 13.8% raise in net salary is being considered. The fiscal year has concluded so the year-to-date figures may be divided by 12.

**Example:** "A 13.8% raise in net salary is being considered. Management needs to see the present SAL.YTD and planned monthly raise for each employee in plants with plant IDs starting with 302."

- Select the PLANT database from the DB/File Selection screen.
- Press PF3 to go to the Field Selection screen, and type D opposite EMP.NAME, Q opposite SAL.DED, and B opposite both SAL.YTD and PLANT.ID.
- Press PF4 to proceed to the Temporary Field screen, shown in [Figure 7-18](#).

[Figure 7-18 on page 7-22](#) illustrates the use of nested parentheses. Nested parentheses are used to control the order in which the steps of the net raise calculation are executed.

The order of the raise is: first calculate the net salary, second multiply the net salary times 13.8%, and third divide that result by 12.

```

TEMPORARY FIELD DEFINITIONS FROM DB/FILE - PLANT U      AQFM04
Next DB/File To Process : U

@01  PLANT.ID                #02  SAL.DED
#03  SAL.YTD

CD   TEMPORARY      #/@ FIELD or   OP   #/@ FIELD or   OP   #/@ FIELD or
     NAME           LITERAL         LITERAL         LITERAL
D   MON.RAISE      =  ((#03         - #02)         * 0.138)
/                                     =  12
                                     =
                                     =
                                     =
                                     =
CD:  D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=          PF7=PGBK Flds  PF10=PGBK Qual  ENTER=Next Scr
PF2=DB/File   PF5= Qualify  PF8=PGFD Flds PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 7-18 Using Nested Parentheses - Temporary Field Screen

Any operations enclosed in parentheses are calculated first. If sets of parentheses are nested, the innermost set is evaluated first. Parentheses can also be used at any time for clarification.

Notice the location of opening and closing parentheses in [Figure 7-18](#). The innermost pair allows the salary deductions to be subtracted from the gross salary first. The second pair of parentheses permits the net salary to be multiplied by 13.8%.

Notice also that the division operation is entered in the CD column and the TEMPORARY NAME column is blank. This tells AQF that the calculation continues on the second line.

4. Press PF5 to proceed to the Qualification screen.

5. As shown in [Figure 7-19](#), use the LIKE operator for qualifying the plant IDs that start with 302. This will select only those employees who have worked at plant IDs starting with 302.

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT U   AQFM05
Next DB/File To Process : U

@01 PLANT.ID                               #02 SAL.DED
#03 SAL.YTD

EDIT CON FIELD OP LITERAL VALUE / FIELD NUMBER
      @01 LIKE '302'

ESCAPE CHARACTER:
EDIT: I = Insert a new Line before this one, D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit

```

Figure 7-19 Using Nested Parentheses - Qualification Screen

6. Press PF6 to proceed to the Data Display screen.

In [Figure 7-19](#), the data fields are displayed followed by the temporary field.

The display order is PLANT.ID, EMP.NAME, SAL.YTD, and MON.RAISE. LIST ORDER has been applied to these fields to achieve the desired printing order.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL -SUMMARIES- SORT
ORDER     NAME      FIELD NAME                    BRK CNT TOT AVG  ORDER DESC?
  2      U PLANT EMP.NAME
  1      U PLANT PLANT.ID
  3      U PLANT SAL.YTD
  4      U PLANT %MON.RAISE

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save    PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear,"/Exit"=Exit
    
```

Figure 7-20 Using Nested Parentheses - Data Display Screen

7. Press PF6 to generate the inquiry and press Enter to execute the inquiry.

[Figure 7-21](#) displays the report.

```

PAGE:          TRANCODE:  II   INQUIRY:

PLANT.ID  EMP.NAME                SAL.YTD                MON.RAISE
30200    JOHN HENRY CRANE                13,400.00              138.2300
                                     19,600.00              202.8600
                                     22,000.00              223.1000
                                     48,000.00              441.8300
                                     59,000.00              522.1000
                                     76,000.00              717.6000
                                     92,000.00              839.5000
                                     98,000.00              897.0230
                                     22,000.00              200.1000
                                     26,000.00              232.3000
                                     30,000.00              297.6200
                                     17,000.00              177.5600
*
*
IXX9121 END OF INQUIRY          (26,1 USER DB CALLS,ROOTS)
    
```

Figure 7-21 Using Nested Parentheses - Output

In [Figure 7-21](#), the names and plant locations of the employees who qualify for the raise are displayed.

Notice that the current salary is displayed with two digits after the decimal point, whereas MON.RAISE has four digits after the decimal point. The current salary reflects how the salary is kept in the database. MON.RAISE reflects the results of arithmetic operations—subtraction, multiplication, and division.

Numbers involved in multiplication and/or division may have up to four digits following the decimal point.



# Accessing Multiple Databases and Files

---

**Note:** DB2 is a VISION:Inquiry option. If DB2 tables do not appear on your DB/File Selection screen, the DB2 option for VISION:Inquiry might not be installed on your system.

## Accessing Two Databases

You can use fields from two databases in the same inquiry or access the same database twice. The select code F (F for Find) is used in conjunction with the select code U (U for Use) on the DB/File Selection screen to accomplish this.

To produce a listing of the job classifications and job codes at each of the plants requires data from two databases, PLANT and SKILL. Two selections on the DB/File Selection screen are made when accessing multiple databases/files.

**Example:** “Produce a listing of the job classifications and job codes in the toy company. Show the plants that have employees in each classification.”

1. On the DB/File Selection screen, type an F in the first SELECT CODE column opposite SKILL.
2. Press the Tab key to move to the next SELECT CODE column, and type a U opposite PLANT.

These choices are illustrated in [Figure 8-1](#).

DATABASE / FILE SELECTION									AQFM02
SELECT CODE	DB/FILE NAME	TYPE	SELECT CODE	DB/FILE NAME	TYPE	SELECT CODE	DB/FILE NAME	TYPE	
	ACTYPE	DB2		DEPT	DB2		ED2SUB	DB2	
	EMPL	DB2		EMPRAC	DB2		EMP2ED	DB2	
	EMP2SAL	DB2	U	PLANT	IMS		PLANT2	DB2	
	PL2EMP	DB2		PL2PROD	DB2		PRODUCTS	DB2	
	PROJ	DB2		PROJAC	DB2		SALARIES	DB2	
F	SKILL	IMS		SKILLS	DB2		SKILL2	DB2	
	SK2EMP	DB2		SK2PLANT	DB2		SUBJECTS	DB2	
	VSPLANT	VSAMKSDS		VSSKILL	VSAMRRDS				

Next database starts with:

SELECT CODE: U = Use for query, V = View description, F = Find for query

PF1=Help      PF4=              PF7=              PF10=              ENTER=Next Scr  
 PF2=              PF5=              PF8=              PF11=              PF12=  
 PF3= Fields    PF6=              PF9=List Query Clear, "/Exit"=Exit

Figure 8-1 Accessing Two Databases - DB/File Selection Screen

In [Figure 8-1](#), SKILL is selected with an F and PLANT is selected with a U. AQF treats SKILL as the FIND database. Information is located in this database and then combined with the information in the second or USE database during output.

3. Press PF3 to proceed to the Field Selection screen for the SKILL database. Select SKILL.CODE and SKILL.NAME with a Q for each in the SEL column.
4. Type a 1 in the KEY column opposite PLANT.ID.

[Figure 8-2](#) shows these choices.

```

FIELD SELECTION FOR DB/FILE - SKILL      F      AQFM03

-CODES-
SEL KEY  FIELD NAME
      EMP.NO
      PID
      SC
Q      SKILL.NAME

-CODES-
SEL KEY  FIELD NAME
      EN
      1 PLANT.ID
      Q  SKILL.CODE
      SN

Next field starts with:                    For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
              B = Both Display and Qualify/Expression,  V = View description
              KEY:  Enter number For relating database fields when using find
PF1=Help     PF4=Temp Flds  PF7=                PF10=                ENTER=Next Scr
PF2=DB/File  PF5=Qualify   PF8=                PF11=                PF12=
PF3=Completed PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-2 Field Selection Screen, SKILL Database

As shown in [Figure 8-2](#), the fields of the SKILL database relate to job classification (called skills), and the employee number and plant location of those who have specific job classifications.

**Notes:**

- An entry in the KEY column on the Field Selection screen tells AQF how to relate the two databases:
  - You can link databases together using common fields. Common fields are referred to as **match fields**. PLANT.ID is common to both databases and can be used as the match field. The 1 in the KEY column indicates that this is the first match field with which AQF can link the two databases.
  - Up to nine fields may be used to link databases. Key codes must be the same number in both databases. However, key codes may not be repeated on the same screen.
5. Press Enter to access the Field Selection screen for the PLANT database.
  6. In the CODES column, select the field PLANT.ID with the select code D, and the key code 1.

As shown in [Figure 8-3 on page 8-4](#), the key code 1 for PLANT.ID in the PLANT database matches the key code entered earlier for the SKILL database ([Figure 8-2](#)).

The key codes used to link the two databases must match. An error message is issued if the key codes do not agree.

```

FIELD SELECTION FOR DB/FILE - PLANT    U                AQFM03
-CODES-                                -CODES-
SEL KEY  FIELD NAME                    SEL KEY  FIELD NAME
      ED.DEGREE                          ED.SCHOOL
      ED.YEAR                             EMP.NAME
      EMP.NO                              EMP.SEX
D  1  PLANT.ID                          PLANT.NAME
      PLANT.PHONE                       PLANT.REGION
      PROD.AMT                          PROD.CODE
      PROD.DESC                         PROD.QTY
      SAL.DED                            SAL.DED.DEC
      SAL.DED.T                          SAL.YEAR

Next field starts with: SAL.YTD                For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
              B = Both Display and Qualify/Expression,  V = View description
KEY:  Enter number For relating database fields when using find
PF1=Help   PF4=Temp Flds  PF7=                PF10=        ENTER=Next Scr
PF2=DB/File PF5=Qualify   PF8=                PF11=        PF12=
PF3=Completed PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-3 Field Selection Screen, PLANT Database

Notice the fields of PLANT. They contain information relating to employees at each plant, including their salary and educational degrees.

The PLANT and SKILL databases have two fields in common, PLANT.ID and EMP.NO. AQF can match on either of these fields to merge the related information.

In these databases, the names of the matching fields are the same. This is not required; the names may be different, depending on how they are assigned in the databases. However, the contents must match in order to link the databases.

When AQF links the two databases together, it matches plant numbers and merges related information from the two databases. The plant number is called the match field.

7. Press PF4 to proceed to the Temporary Field screen. Temporary fields will be used to rename data fields for the output.

In the next two steps, rename two of the three fields from the SKILL database, as shown in [Figure 8-4](#).

8. Equate the data field, SKILL.CODE, to the temporary field, CODE.
  - Assign a code of D in the CD field to display the contents of this temporary field.
  - Use the field identifier and number assigned to SKILL.CODE in your assignment statement.
  
9. Equate SKILL.NAME to the temporary field, SKILL.
  - Assign a code of D in the CD field to display its contents.
  - Use the field identifier and number assigned to SKILL.NAME in your assignment statement.

On the output, SKILL.CODE will appear as CODE and SKILL.NAME as SKILL.

10. [Figure 8-4](#) shows your choices in the Temporary Field screen for the SKILL database.

```

                TEMPORARY FIELD DEFINITIONS FROM DB/FILE - SKILL      F      AQFM04
Next DB/File To Process : U

#01 SKILL.CODE                                @02 SKILL.NAME

TEMPORARY          #/@ FIELD or   OP   #/@ FIELD or   OP   #/@ FIELD or
CD      NAME              LITERAL          LITERAL          LITERAL
D      CODE      =   #01
D      SKILL     =   @02
      =
      =
      =
      =

CD:  D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help   PF4=          PF7=PGBK Flds  PF10=PGBK Qual  ENTER=Next Scr
PF2=DB/File PF5= Qualify  PF8=PGFD Flds  PF11=PGFD Qual  PF12=
PF3=Fields  PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-4 Accessing Two Databases - Temporary Field Screen

11. Press PF6 to proceed to the Data Display screen.

In [Figure 8-5 on page 8-6](#), the three fields for the report are available on the Data Display screen.

The fields from the FIND database are displayed first. The fields from the USE database, PLANT, are displayed after all the fields from the FIND database have been displayed.

```

                                DATA DISPLAY                                AQFM06
LIST   DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER  NAME      FIELD NAME                    BRK  CNT TOT AVG  ORDER DESC?
      F SKILL    %CODE
      F SKILL    %SKILL
      U PLANT    PLANT.ID

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-5 Accessing Two Databases - Data Display Screen

When using multiple databases, you will be reminded which fields were selected from what database and which fields were accessed using what command (that is, F for FIND database, or U for USE database).

- The fields from the FIND database are temporary fields. These fields are displayed in the order of assignment on the Temporary Field screen.
- The data fields are displayed in alphabetical order.

CODE is the first column to be printed. SKILL and PLANT.ID are the subsequent columns.

12. Press PF6 to generate the inquiry and press Enter to execute your inquiry.

[Figure 8-6](#) shows the generated report.

PAGE:	TRANCODE: II	INQUIRY:
CODE	SKILL	PLANT.ID
8	FILE CLERK	30200
15	SECRETARY	10100
		20150
		30200
		50300
		60200
		70500
25	ACCOUNTANT	20150
28	ENGINEER	20150
		70500
40	EXPEDITER	30200
		70500
44	COORDINATOR	50300
		60200
45	BOOKKEEPER	30200
46	SALESPERSON	10100
50	ADMINISTRATOR	20150
		30200
		50300

Figure 8-6 Accessing Two Databases - Output

The output shown in [Figure 8-6](#) displays data from both the SKILL and PLANT databases.

- The SKILL database is accessed first because it was selected with the select code F on the DB/File Selection screen.
- PLANT is the second database. It is accessed next, as it was selected with the select code U.

PLANT and SKILL are the same type of database but databases of any type may be linked using one F and one U select code.

The fields of the two databases were aligned by matching the PLANT.ID fields.

- The key code on the Field Selection screen indicates the field on which to match.
- The select codes indicate which fields are needed from the databases and how to manipulate and display the items listed.

This example displays one field from the PLANT database (PLANT.ID) and two fields from the SKILL database (SKILL and CODE).

## The Generated Inquiry

Before continuing, note the generated inquiry for this example, shown in [Figure 8-7](#), which appeared prior to the display of output in [Figure 8-6 on page 8-7](#).

```

PAGE:          TRANCODE: II          INQUIRY:
I SKILL %K.1 = PLANT.ID %CODE = SKILL.CODE %SKILL = SKILL.NAME ;
PLANT D %CODE  %SKILL PLANT.ID IF ( PLANT.ID = %K.1 ) ;;

PF4=Return To AQF          ENTER=Run Query
    
```

Figure 8-7 Generated Inquiry for [Figure 8-6 on page 8-7](#)

If you are using a CICS system, you may also type P/L in the PAGE field of the output screen. This entry forwards you to the last screen of your output. The last screen contains the generated free-form inquiry.

The generated free-form inquiry has two statements, a FIND (or Interrogative) statement and a DISPLAY statement. The FIND statement begins with an I, and the FIND database name, SKILL. The statement terminates with a single semicolon.

I SKILL	%K.1=PLANT.ID	%CODE =	SKILL.CODE	%SKILL =	SKILL.NAME ;
database	key code	temporary field	data field	temporary field	data field

Three temporary fields equated to data fields appear in this inquiry:

- %K.1 = PLANT.ID
- %CODE = SKILL.CODE
- %SKILL = SKILL.NAME

K.1 is the temporary field created by AQF in order to link the FIND and USE databases. In the foregoing example, PLANT.ID was selected with a 1 in the key code column on the Field Selection screen. This created the temporary field, K.1, the first key linking the two databases.

(When linking databases in this manner, a second field is selected with a 2 in the key code column. AQF creates another temporary field, K.2, and so on.)

The temporary fields, CODE and SKILL, were created on the Temporary Field screen. These are transferred to the display statement.

The DISPLAY statement begins with the USE database name, PLANT, and a D for display. This statement is terminated with two semicolons.

PLANT D	%CODE	%SKILL	PLANT.ID	IF ( PLANT.ID = %K.1 ) ; ;
database	temporary fields		data field	key code

The fields are listed in the order shown on the Data Display screen—CODE, SKILL, PLANT.ID (see [Figure 8-6 on page 8-7](#)).

K.1 is the temporary field created by the key code selection of PLANT.ID on the Field Selection screen. It is enclosed in parentheses and tested against the key code selection in the FIND statement. It is part of a system-created condition, “IF (PLANT.ID = %K.1).”

Entries made on the Qualification screen are user-defined conditions.

## Matching on Key Fields

In the previous example, the match field was PLANT.ID. In the next example, EMP.NO is used as the match field. EMP.NO is a key field of the database.

AQF performs matches by two methods:

- Matching on key fields allows AQF to go directly to the appropriate record in the second database.
- Matching on non-key fields requires AQF to search sequentially through all records to find the one with the matching value. This requires more computer time.

The next example produces a list of employees by job classification. Employee number, name, job title, and plant identification are required for display.

**Example:** “Produce a list of employees by job classification. Show their plant identification.”

1. As in the previous example, select PLANT and SKILL on the DB\File Selection screen.
2. Press PF3 to proceed to the Field Selection screen. Select EMP.NO with a D, and type 1 in the key column. Select SKILL.NAME with a Q.

EMP.NO is the field AQF will use to link the two databases.

These choices are shown in [Figure 8-8](#).

```

FIELD SELECTION FOR DB/FILE - SKILL      F      AQFM03
-CODES-                                -CODES-
SEL KEY  FIELD NAME                    SEL KEY  FIELD NAME
D   1  EMP.NO                          EN
      PID                              PLANT.ID
      SC                               SKILL.CODE
Q   SKILL.NAME                          SN

Next field starts with:                  For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
              B = Both Display and Qualify/Expression, V = View description
KEY:  Enter number For relating database fields when using find
PF1=Help   PF4=Temp Flds  PF7=          PF10=      ENTER=Next Scr
PF2=DB/File PF5=Qualify   PF8=          PF11=      PF12=
PF3=Completed PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-8 Matching on Key Fields - Field Selection Screen, SKILL Database

3. Press Enter to access the data fields of the PLANT database.
4. Select EMP.NAME and PLANT.ID the select code D. Type 1 as the key code for EMP.NO.

[Figure 8-9](#) shows the first page of the Field Selection screen for the PLANT database.

```

FIELD SELECTION FOR DB/FILE - PLANT      U      AQFM03

-CODES-
SEL KEY  FIELD NAME
      ED.DEGREE
      ED.YEAR
      1 EMP.NO
      D PLANT.ID
      PLANT.PHONE
      PROD.AMT
      PROD.DESC
      SAL.DED
      SAL.DED.T

-CODES-
SEL KEY  FIELD NAME
      D ED.SCHOOL
      EMP.NAME
      EMP.SEX
      PLANT.NAME
      PLANT.REGION
      PROD.CODE
      PROD.QTY
      SAL.DED.DEC
      SAL.YEAR

Next field starts with: SAL.YTD                      For DB/File: U

-CODES- SEL: D = Display,  Q = Qualify/Expression only,
          B = Both Display and Qualify/Expression, V = View description
          KEY: Enter number For relating database fields when using find
PF1=Help      PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=          PF11=          PF12=
PF3=Completed PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-9 Matching on Key Fields - Field Selection Screen, PLANT Database

**Note:** The select code and key code can be used separately.

[Figure 8-9](#) indicates the selection of EMP.NAME, EMP.NO, and PLANT.ID.

5. Press PF4 to proceed to the Temporary Field screen.
6. Equate the data field, SKILL.NAME, to the temporary field, SKILL.
  - Assign a code of D in the CD field to display the contents of this temporary field.
  - Use the field identifier and number assigned to SKILL.NAME in your assignment statement.

[Figure 8-10](#) indicates the creation of the temporary field, SKILL. It will replace SKILL.NAME on the output.

```

                TEMPORARY FIELD DEFINITIONS FROM DB/FILE - SKILL      F      AQFM04
Next DB/File To Process : U

@01 SKILL.NAME

                TEMPORARY      #/@ FIELD or   OP   #/@ FIELD or   OP   #/@ FIELD or
CD      NAME                    LITERAL          LITERAL          LITERAL
D  SKILL      =   @01
                =
                =
                =
                =
                =
CD:  D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=                PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5= Qualify        PF8=PGFD Flds PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp      PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-10 Matching on Key Fields - Temporary Field Screen

7. Press PF6 to proceed to the Data Display screen (see [Figure 8-11 on page 8-13](#)).

[Figure 8-11](#) shows the four fields from the PLANT and SKILL databases. The data fields from PLANT are displayed in alphabetical order.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                    BRK  CNT TOT AVG  ORDER DESC?
2         F SKILL    EMP.NO
4         F SKILL    %SKILL
3         U PLANT    EMP.NAME
1         U PLANT    PLANT.ID

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save    PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-11 Matching on Key Fields - Data Display Screen

8. Apply LIST ORDER to the four fields as shown to change the printing order.
9. Press PF6 to generate the inquiry and press Enter to execute your inquiry.

[Figure 8-12](#) displays the output.

```

PAGE:          TRANCODE: II          INQUIRY:

PLANT.ID  EMP.NO#F  EMP.NAME          SKILL
30200     30215     SHARON DALEY     FILE CLERK
10100     10105     MARY ANN THOMAS  SECRETARY
20150     21116     WILMA FORD
30200     30207     JANE LOWELL
50300     50323     VICKY WARD
60200     60258     KAREN REDFERN
70500     70522     AGNES COVINGTON
20150     21124     CHARLES SALTER   ACCOUNTANT
20150     21164     SUSAN WARE       ENGINEER
70500     70529     MARTHA WALLINGHAM
30200     30201     JOHN HENRY CRANE EXPEDITER
70500     70519     STEPHEN MCGEE
50300     50322     MADELYN BATES    COORDINATOR
60200     60251     MARCIE MORINO
30200     30211     PATRICIA BLAKELY BOOKKEEPER
    
```

Figure 8-12 Matching on Key Fields - Output from SKILL and PLANT Databases

AQF takes several steps to generate the report shown in [Figure 8-12](#). AQF locates the first value of SKILL.NAME (file clerk) and the first related value of EMP.NO (30215) in the SKILL database (identified here by the #F in the heading).

Then AQF proceeds to access EMP.NO in the PLANT database. Since EMP.NO is a key field, AQF can go directly to the record that has a key value of 30215. It accesses the related values of PLANT.ID and EMP.NAME and then displays the output.

Notice the column heading, EMP.NO#F. In this inquiry, we have displayed the contents of the matching field EMP.NO of the FIND database, SKILL. AQF has assigned a suffix, #F, to this matching field to distinguish it from the EMP.NO of the USE database, PLANT.

### Conditional Selection on FIND Database

A condition can be added to the FIND database to limit the data transferred to the USE database. The next example lists the employees who hold the job classification of secretary. The qualification of SKILL.NAME as 'SECRETARY' limits the output to only those employees whose job classification equals 'SECRETARY'.

**Example:** "List the employees who hold the job classification of secretary."

1. Select PLANT and SKILL as in the previous example.
2. Press PF3 to go to the Field Selection screen for the SKILL database.
3. Select EMP.NO with the key code 1, and SKILL.NAME with a Q, as shown in [Figure 8-13](#).

```

FIELD SELECTION FOR DB/FILE - SKILL      F      AQFM03
-CODES-                                -CODES-
SEL KEY  FIELD NAME                    SEL KEY  FIELD NAME
      1  EMP.NO                          EN
      PID                                PLANT.ID
      SC                                  SKILL.CODE
      Q  SKILL.NAME                       SN

Next field starts with:                  For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
              B = Both Display and Qualify/Expression,  V = View description
KEY:  Enter number For relating database fields when using find
PF1=Help  PF4=Temp Fls  PF7=                PF10=                ENTER=Next Scr
PF2=DB/File  PF5=Qualify  PF8=                PF11=                PF12=
PF3=Completed  PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-13 Conditional Selection on FIND Database - Field Selection Screen, SKILL Database

[Figure 8-13](#) indicates the selection of EMP.NO and SKILL.NAME. The two databases will be linked by EMP.NO.

4. Press Enter to access the data fields of PLANT.

As shown in [Figure 8-14](#), the second Field Selection screen is the data fields of the PLANT database.

5. Select EMP.NAME and EMP.NO with the select code D.
6. Select EMP.NO with the key code 1.
7. Select PLANT.ID with the select code D.

```

                                FIELD SELECTION FOR DB/FILE - PLANT      U           AQFM03

-CODES-                               -CODES-
SEL KEY  FIELD NAME                    SEL KEY  FIELD NAME

      ED.DEGREE
      ED.YEAR
D  1 EMP.NO
D      PLANT.ID
      PLANT.PHONE
      PROD.AMT
      PROD.DESC
      SAL.DED
      SAL.DED.T

                                ED.SCHOOL
                                D      EMP.NAME
                                EMP.SEX
                                PLANT.NAME
                                PLANT.REGION
                                PROD.CODE
                                PROD.QTY
                                SAL.DED.DEC
                                SAL.YEAR

Next field starts with: SAL.YTD                                For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
              B = Both Display and Qualify/Expression,  V = View description
              KEY:  Enter number For relating database fields when using find
PF1=Help      PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=          PF11=          PF12=
PF3=Completed PF6=Data Disp  PF9=List Query Clear,"/Exit"=Exit
    
```

Figure 8-14 Conditional Selection on FIND Database - Field Selection Screen, PLANT Database

8. Press PF3 or PF4 to proceed to the Temporary Field screen.
9. Assign SKILL.NAME to SKILL, as in the previous example.

[Figure 8-15](#) shows the assignment of the temporary field SKILL.

```

                TEMPORARY FIELD DEFINITIONS FROM DB/FILE - SKILL    F    AQFM04
Next DB/File To Process : U

@01 SKILL.NAME

                TEMPORARY      #/@ FIELD or   OP   #/@ FIELD or   OP   #/@ FIELD or
                NAME           LITERAL          LITERAL          LITERAL
D  SKILL      = @01
                =
                =
                =
                =
                =

CD: D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=   PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=  Qualify  PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-15 Conditional Selection on FIND Database - Temporary Field Screen

10. Press PF5 to proceed to the Qualification screen.
11. Equate SKILL.NAME to the job classification 'SECRETARY,' as shown in [Figure 8-16 on page 8-17](#).

'SECRETARY' is a character constant and must be enclosed within single quotation marks.

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - SKILL  F  AQFM05
Next DB/File To Process : U

@01 SKILL.NAME

EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
      @01  =  'SECRETARY'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit

```

Figure 8-16 Conditional Selection on FIND Database - Qualification Screen

**Note:** A conditional selection phrase using the FIND database can only test the available fields from that database. It cannot test a data field or temporary field from the USE database.

The temporary field, SKILL, is unavailable on this screen. Therefore, it cannot be used for this condition.

12. Press PF6 to proceed to the Data Display screen.

[Figure 8-17 on page 8-18](#) shows the fields available for output.

The temporary field SKILL is the only available field from the SKILL database. EMP.NO was used solely as a matching field.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                    BRK  CNT TOT AVG  ORDER DESC?
  4      F SKILL  %SKILL
  3      U PLANT EMP.NAME
  2      U PLANT EMP.NO
  1      U PLANT PLANT.ID

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-17 Conditional Selection on FIND Database - Data Display Screen

EMP.NAME, EMP.NO, and PLANT.ID are available from the PLANT database. EMP.NO was selected for output and as a matching field.

13. LIST ORDER is the only command applied to these fields. Apply list order as shown in [Figure 8-17](#).
14. Press PF6 to generate the inquiry and press Enter to execute your inquiry.

[Figure 8-18 on page 8-19](#) displays the output.

```
PAGE:          TRANCODE:  II      INQUIRY:

PLANT.ID  EMP.NO  EMP.NAME          SKILL
10100     10105  MARY ANN THOMAS  SECRETARY
20150     21116  WILMA FORD
30200     30207  JANE LOWELL
50300     50323  VICKY WARD
60200     60258  KAREN REDFERN
70500     70522  AGNES COVINGTON
*
*
*
*
*
*
*
IXX9121 END OF INQUIRY          (129,55 USER DB CALLS,ROOTS)
```

Figure 8-18 Conditional Selection on FIND Database - Output from SKILL and PLANT Files Containing a Condition

**Note:** The conditions applied to the FIND database must be satisfied before control passes to the USE database.

To produce the output shown in [Figure 8-18](#), AQF checks for the value of 'SECRETARY' in SKILL.NAME and finds the first employee listed under that job classification. At this point, EMP.NO is set to 10105.

EMP.NO is matched in PLANT and the related information is displayed. This continues until all of those records containing the classification 'SECRETARY' have been accessed and displayed.

## Using Conditional Selection on USE Database

In the next example, a condition is applied to the USE database. This further limits the data selected for output. To add this qualification to the previously executed inquiry, it is necessary to make some changes to the previous data field selection for the USE database. An additional field, SAL.YTD, is needed for display of the current salary as well as for qualification of the current salary as less than \$24,000.

**Example:** "List only secretaries who earned less than \$24,000."

1. Select the databases, PLANT and SKILL, as in the previous example.
2. Press PF3 to go to the Field Selection screen for SKILL. Select PLANT.ID with the select code D. Select EMP.NO with the key code 1. Select SKILL.NAME with the select code Q.
3. Press Enter. Select the PLANT fields EMP.NAME and EMP.NO with the select code D. Select EMP.NO with the key code 1 and select SAL.YTD with the select code B.
4. Press PF4 to proceed to the Temporary Field screen. Blank out any entry previously made in the CD column.
5. Blank out any temporary name previously entered on this screen. No temporary fields are needed for this example.
6. Press PF5 to proceed to the Qualification screen for the SKILL database, shown in [Figure 8-19](#). Equate SKILL.NAME to 'SECRETARY' as in the previous example.

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - SKILL  F  AQFM05
Next DB/File To Process : U

@01 SKILL.NAME

EDIT CON FIELD OP LITERAL VALUE / FIELD NUMBER
      @01  = 'SECRETARY'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-19 Conditional Selection on USE Database - Qualification Screen, SKILL Database

**Note:** Fields from the FIND database are always processed first.

[Figure 8-19](#) shows the qualification of SKILL.NAME. It is equated to the job classification, 'SECRETARY'.

7. Press Enter to proceed to the Qualification screen for the PLANT database, shown in [Figure 8-20 on page 8-21](#). Equate SAL.YTD to less than \$24,000.

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT    U    AQFM05
Next DB/File To Process : F

#02 SAL.YTD

EDIT CON FIELD OP LITERAL VALUE / FIELD NUMBER
          #02 < 24000

ESCAPE CHARACTER:
EDIT: I = Insert a new Line before this one, D = Delete this line

PF1=Help      PF4=Temp Fls  PF7=PGBK Fls  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Fls  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-20 Conditional Selection on USE Database - Qualification Screen, PLANT Database

This condition further limits the output to secretaries earning less than \$24,000. This example shows how fields from both databases can be used to subset the data.

8. Press PF6 to proceed to the Data Display screen.

[Figure 8-21 on page 8-22](#) shows the Data Display screen for this inquiry. One field from the FIND database and three fields from the USE database are present. LIST ORDER has been applied to these fields.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME                                FIELD NAME      BRK  CNT TOT AVG  ORDER DESC?

  1   F SKILL PLANT.ID
  3   U PLANT EMP.NAME
  2   U PLANT EMP.NO
  4   U PLANT SAL.YTD

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save    PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-21 Conditional Selection on USE Database - Data Display Screen

9. Press PF6 to generate the inquiry and press Enter to execute your inquiry.

[Figure 8-22](#) displays the output.

```

PAGE:          TRANCODE: II          INQUIRY:

PLANT.ID  EMP.NO  EMP.NAME                SAL.YTD
 10,100   10105  MARY ANN THOMAS        15,600.00
 20,150   21116  WILMA FORD              15,600.00
          30,200  30207  JANE LOWELL            18,800.00
          50,300  50323  VICKY WARD             22,000.00
          60,200  60258  KAREN REDFERN          20,000.00
          70,500  70522  AGNES COVINGTON        22,000.00
          23,000.00

*
*
*
*
*
*
IXX9121  END OF INQUIRY.                (157,55 USER DB CALLS,ROOTS)
    
```

Figure 8-22 Conditional Selection on USE Database - Output

In [Figure 8-22](#), only those secretaries who earn less than \$24,000 are shown. Conditions on each of the Qualification screens limit data from each of the databases.

## Using a Compound Complex Condition

The next example uses a compound complex condition to further limit output of the previous inquiry to secretaries from plant 10100 and any plant with a number greater than 60000.

**Example:** "Further limit the output from [Figure 8-22](#) to show only secretaries from Plants 10100, 60200, and 70500 who meet the previous criteria."

1. Select the databases as in the previous example.
2. Select PLANT.ID with the select code B and SKILL.NAME with the select code Q on the SKILL database. Select EMP.NO with the key code 1.
3. From the PLANT database, select EMP.NAME and EMP.NO with the select code D and EMP.NO with the key code 1. Select SAL.YTD with the select code B.
4. Press PF4 to proceed to the Temporary Field screen for the SKILL database. Equate SKILL.NAME to the temporary field, SKILL, and assign SKILL the select code D in the CD column.
5. Press PF5 to proceed to the Qualification screen for the SKILL database. Equate the field, SKILL.NAME, to the job classification 'SECRETARY', and PLANT.ID to plant number 10100 or to those plants numbered greater than 60000, as shown in [Figure 8-23](#).

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - SKILL  F  AQFM05
Next DB/File To Process : U

@01 PLANT.ID                                @02 SKILL.NAME

EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
      &    @02   =  'SECRETARY'
      &    #01   =  10100
      |    @02   =  'SECRETARY'
      &    #01   >  60000

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit

```

Figure 8-23 Compound Complex Condition - Qualification Screen, SKILL Database

6. Press Enter to proceed to the Qualification screen for the USE database. Equate SAL.YTD to less than \$24,000, as shown in [Figure 8-24 on page 8-24](#).

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT  U  AQFM05
Next DB/File To Process : F

#03 SAL.YTD

EDIT CON FIELD OP LITERAL VALUE / FIELD NUMBER
      #03 < 24000

ESCAPE CHARACTER:
EDIT: I = Insert a new Line before this one, D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-24 Compound Complex Condition - Qualification Screen, PLANT Database

7. Press PF6 to proceed to the Data Display screen.
8. As shown in [Figure 8-25](#), apply LIST ORDER to the five fields to produce the report shown in [Figure 8-26](#).

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                    BRK  CNT TOT AVG  ORDER DESC?
  1      F SKILL PLANT.ID
  4      F SKILL %SKILL
  3      U PLANT EMP.NAME
  2      U PLANT EMP.NO
  5      U PLANT SAL.YTD

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-25 Compound Complex Condition - Data Display Screen

9. Press PF6 to generate the inquiry and press Enter to execute your inquiry.

[Figure 8-26](#) displays the output.

```
PAGE:          TRANCODE: II      INQUIRY:

PLANT.ID  EMP.NO  EMP.NAME          SKILL          SAL.YTD
  10,100   10105  MARY ANN THOMAS  SECRETARY      15,600.00
  60,200   60258  KAREN REDFERN    22,000.00
  70,500   70522  AGNES COVINGTON  20,000.00
          23,000.00
*
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*
*
*
IXX9121 END OF INQUIRY          (91,34 USER DB CALLS,ROOTS)
```

Figure 8-26 Compound Complex Condition -Output

In [Figure 8-26](#), the secretaries from Plants 10100, 60200, and 70500 are the only ones who meet the present compound complex criteria. Their names are displayed on the report.

Though PLANT.ID occurs in both databases accessed by the FIND and USE selections, the conditional tests for the plants have been executed on the FIND database.

This is a more efficient and less time consuming method of conditional selection. The earlier the data selection takes place, the less amount of data that must be transferred by the FIND database to the USE database.

## Sorting Data Output

AQF accesses the data displayed in the FIND database first. It displays the data in the order in which it is stored in the FIND database.

The next example shows how the output is sorted when SKILL is used as the FIND database. The output is sorted differently than it would be if PLANT were used as the FIND database.

This example reports the plant number, job classification, and code number as well as the employee name and salary earned.

**Example:** “Display the list of employees and their plant locations in the order in which they are stored in the SKILL database. Show the SKILL.CODE, SKILL.NAME, and SAL.YTD.”

1. Select PLANT and SKILL databases on the DB/File Selection screen, as in the previous examples.
2. Select EMP.NO with the key code 1, PLANT.ID with the select code D, and SKILL.CODE and SKILL.NAME with the select code Q from the SKILL database.
3. Press Enter to access the data fields of the PLANT database. Select EMP.NAME with the select code D, EMP.NO with the key code 1, and SAL.YTD with the select code D.
4. Press PF4 to proceed to the Temporary Field screen for the SKILL database. Equate SKILL.NAME to the temporary field, SKILL. Equate SKILL.CODE to the temporary field, CODE. For these two temporary fields, enter a code of D in the CD column.
5. Press PF5 to access the Qualification screen. Delete any entries made on either of the Qualification screens for these two databases. Type a D in the EDIT column of each line and press Enter.
6. Press PF6 to proceed to the Data Display screen.

In [Figure 8-27](#), five fields are available for display. Three are from the FIND database, SKILL, and two are from the USE database, PLANT.

- The temporary fields of the FIND database precede the data fields of the USE database.
- The temporary field, SKILL, was defined first on the Temporary Field screen and therefore appears before the temporary field, CODE.
- Data fields from the USE database are in alphabetical order.

LIST	DB/FILE	DATA DISPLAY	CTL	-SUMMARIES-	SORT	AQFM06		
ORDER	NAME	FIELD NAME	BRK	CNT	TOT	AVG	ORDER	DESC?
1	F SKILL	PLANT.ID						
4	F SKILL	%SKILL						
3	F SKILL	%CODE						
2	U PLANT	EMP.NAME						
5	U PLANT	SAL.YTD						

Title1:  
Title2:  
Specify limit value if desired:  
If saving query, name to be used:  
Specify PC file name for FTS:  
PF1=Help      PF4=Temp Flds    PF7=PGBK Flds    PF10=PC File    ENTER=Next Scr  
PF2=DB/File    PF5=Qualify      PF8=PGFD Flds    PF11=Save      PF12=  
PF3=Fields     PF6=Run           PF9=List Query    Clear, "/Exit"=Exit

Figure 8-27 Sequencing Data Output - Data Display Screen

- Apply LIST ORDER as shown to the five fields to produce the report shown in [Figure 8-28](#).
- Press PF6 to generate the inquiry and press Enter to execute your inquiry.

PAGE:	TRANCODE	II	INQUIRY:		
	PLANT.ID	EMP.NAME	CODE	SKILL	SAL.YTD
	30,200	SHARON DALEY	8	FILE CLERK	17,000.00
	10,100	MARY ANN THOMAS	15	SECRETARY	15,600.00
	20,150	WILMA FORD			15,600.00
					18,800.00
	30,200	JANE LOWELL			22,000.00
					26,000.00
	50,300	VICKY WARD			20,000.00
	60,200	KAREN REDFERN			22,000.00
					26,000.00
	70,500	AGNES COVINGTON			20,000.00
					23,000.00
	20,150	CHARLES SALTER	25	ACCOUNTANT	24,000.00
					30,000.00
					39,000.00
	20,150	SUSAN WARE	28	ENGINEER	32,000.00

Figure 8-28 Data Sequenced by Order in Which it is Stored in the First Database Accessed

[Figure 8-28](#) displays the output in the order it is stored in the SKILL database.

## Changing the Sort Order

In the next example, SORT is used to change the order in which data is displayed.

**Example:** “Display the same data shown in Figure 8-28, except sort it by PLANT.ID.”

1. Select the databases and fields as in the previous inquiry, and assign the same temporary fields, CODE and SKILL.
2. Press PF6 to proceed to the Data Display screen. Assign PLANT.ID as the primary sort field by typing 1 in the SORT ORDER column, as shown in [Figure 8-29](#).

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                    BRK  CNT TOT AVG  ORDER DESC?
  1      F SKILL  PLANT.ID                                1
  4      F SKILL  %SKILL
  3      F SKILL  %CODE
  2      U PLANT  EMP.NAME
  5      U PLANT  SAL.YTD

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear, "/Exit"=Exit

```

Figure 8-29 Changing the Sort Order - Data Display Screen

PLANT.ID has been selected as the primary sort field. A 1 has been typed in the SORT ORDER column. The employee information is to be sorted according to the plant number. Each plant number will appear only once on the report regardless of how many employees work at the plant.

LIST ORDER has been applied to the five fields to produce the report shown in [Figure 8-30 on page 8-29](#).

3. Press PF6 to generate the inquiry and press Enter to execute the inquiry.

```

PAGE:          TRANCODE:  II          INQUIRY:

PLANT.ID  EMP.NAME                CODE  SKILL                SAL.YTD
  10,100  MARY ANN THOMAS             15  SECRETARY            15,600.00
          WILLIAM AMES         46  SALESPERSON          52,000.00
          PHYLLIS LOCKMEYER     46  SALESPERSON          64,000.00
          59,000.00
  20,150  WILMA FORD                  15  SECRETARY            48,000.00
          CHARLES SALTER        25  ACCOUNTANT           18,800.00
          24,000.00
          SUSAN WARE            28  ENGINEER             30,000.00
          39,000.00
          PETER ZATKIN          50  ADMINISTRATOR        32,000.00
          41,000.00
          44,000.00
          50,000.00
          56,000.00

```

Figure 8-30 Multiple Database Access with SORT

In [Figure 8-30](#), SORT ORDER has been applied to PLANT.ID. This command reorders the data by PLANT.ID rather than by SKILL.CODE. The data is now grouped by PLANT.ID.

Fields from both databases accessed can be sorted.

## Arithmetic Processing with Two Databases

Arithmetic operations can also be performed on fields of the FIND database. In [Chapter 6, "Summarizing Data"](#), arithmetic operations were performed only on fields from the PLANT database.

In this chapter, arithmetic processing is performed on fields from the PLANT and SKILL databases.

This example displays a list of employees showing their employee numbers, net salaries, and job codes. A temporary field, SALARY, will hold the net salary, that is, salary minus salary deductions.

1. Select the database PLANT with the select code F, and SKILL with the select code U.

```

FIELD SELECTION FOR DB/FILE - PLANT   F           AQFM03
-CODES-                               -CODES-
SEL KEY  FIELD NAME                    SEL KEY  FIELD NAME
      ED.DEGREE                          ED.SCHOOL
      ED.YEAR                             Q      EMP.NAME
      1 EMP.NO                             EMP.SEX
      PLANT.ID                             PLANT.NAME
      PLANT.PHONE                          PLANT.REGION
      PROD.AMT                             PROD.CODE
      PROD.DESC                             PROD.QTY
      Q SAL.DED                             SAL.DED.DEC
      SAL.DED.T                             SAL.YEAR

Next field starts with: SAL.YTD           For DB/File: F

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
              B = Both Display and Qualify/Expression,  V = View description
KEY:  Enter number For relating database fields when using find
PF1=Help   PF4=Temp Flds  PF7=                PF10=        ENTER=Next Scr
PF2=DB/File PF5=Qualify   PF8=                PF11=        PF12=
PF3=Completed PF6=Data Disp PF9=List Query Clear, "/"Exit"=Exit
    
```

Figure 8-31 Arithmetic Processing - Field Selection Screen, PLANT Database

2. On the Field Selection screen for the PLANT database, select the fields, as shown in [Figure 8-31](#). Scroll to select SAL.YTD with a Q.
3. Press Enter to access the data fields of SKILL. Select EMP.NO with the select code D and the key code 1. Select SKILL.NAME with the select code D.
4. Press PF4 to proceed to the Temporary Field screen.
5. As shown in [Figure 8-32 on page 8-31](#), equate EMP.NAME to the temporary field, EMPLOYEE.
6. Equate SAL.YTD less SAL.DED to the temporary field, SALARY. Enter a D in the CD column for these two temporary fields.

```

                TEMPORARY FIELD DEFINITIONS FROM DB/FILE - PLANT F      AQFM04
Next DB/File To Process : U

@01 EMP.NAME                                #02 SAL.DED
#03 SAL.YTD

        TEMPORARY      #/@ FIELD or   OP   #/@ FIELD or   OP   #/@ FIELD or
CD      NAME           LITERAL         LITERAL         LITERAL
D  EMPLOYEE   =   @01
D  SALARY     =   #03           - #02
        =
        =
        =
        =

CD:  D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=          PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5= Qualify  PF8=PGFD Flds PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-32 Arithmetic Processing - Temporary Field Screen

7. Press PF6 to proceed to the Data Display screen.

In [Figure 8-33](#), the temporary fields of PLANT precede the data fields of SKILL. The printing order has been changed using LIST ORDER.

```

                                DATA DISPLAY                                AQFM06
LIST   DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER  NAME                                BRK  CNT TOT AVG  ORDER DESC?
  2    F PLANT %EMPLOYEE
  4    F PLANT %SALARY
  1    U SKILL EMP.NO
  3    U SKILL SKILL.NAME

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File   ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run      PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-33 Arithmetic Processing - Data Display Screen

8. Press PF6 to generate the inquiry and press Enter to execute the inquiry.

The output is shown in [Figure 8-34 on page 8-32](#).

```

PAGE:          TRANCODE:  II      INQUIRY:

EMP.NO  EMPLOYEE                                SKILL.NAME                                SALARY
10103   WILLIAM AMES                                SALESPERSON                                44,600.00
10103   WILLIAM AMES                                SALESPERSON                                55,000.00
10104   PHYLLIS LOCKMEYER                          SALESPERSON                                41,600.00
10104   PHYLLIS LOCKMEYER                          SALESPERSON                                50,800.00
10105   MARY ANN THOMAS                             SECRETARY                                  14,230.00
21116   WILMA FORD                                  SECRETARY                                  14,340.00
21116   WILMA FORD                                  SECRETARY                                  16,820.00
21124   CHARLES SALTER                              ACCOUNTANT                                 21,980.00
21124   CHARLES SALTER                              ACCOUNTANT                                 26,860.00
21124   CHARLES SALTER                              ACCOUNTANT                                 33,000.00
21137   PETER ZATKIN                                ADMINISTRATOR                              37,200.00
21137   PETER ZATKIN                                ADMINISTRATOR                              42,200.00
21137   PETER ZATKIN                                ADMINISTRATOR                              46,420.00
21164   SUSAN WARE                                  ENGINEER                                   26,800.00
21164   SUSAN WARE                                  ENGINEER                                   34,000.00
    
```

Figure 8-34 Arithmetic Processing on Two Databases - Output

In [Figure 8-34](#), SALARY displays the calculation of the net salary for each employee. The employee's name, number, and job classification are also displayed.

## Using Results of a Calculation in a Condition

In the next example, the results of a calculation are used in a condition. The calculation that determines the net salary is tested. The net salary is displayed only if it is greater than \$30,000.

**Example:** “Modify the listing in [Figure 8-34](#) to show only those employees whose net salaries are greater than \$30,000.”

1. Select the databases and fields as in the previous example.
2. Press PF4 to proceed to the Temporary Field screen. Equate EMP.NAME to the temporary field EMPLOYEE and SALARY to SAL.YTD less SAL.DED.
3. Type a B in the CD column for SALARY. This temporary field will be qualified and its contents displayed.

The B assigns the value of net salary to the temporary field, SALARY; it is necessary in order to display the net salary on the output.

4. Press PF5 to display the Qualification screen.
5. Equate the temporary field, SALARY, to greater than \$30,000, as illustrated in [Figure 8-35](#).

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT  F  AQFM05
Next DB/File To Process : U
@01 EMP.NAME                               #02 SAL.DED
#03 SAL.YTD                                #04 %SALARY

EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
      #04  >  30000

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual  ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual  PF12=
PF3=Fields    PF6=Data Disp  PF9=List Query  Clear,"/Exit"=Exit

```

Figure 8-35 Using Calculation Results in a Condition - Qualification Screen, PLANT Database

6. Press PF6 to proceed to the Data Display screen.

Only information relating to net salaries that are greater than \$30,000 is transferred to the Data Display screen.

```

                                DATA DISPLAY                                AQFM06
LIST   DB/FILE                                CTL -SUMMARIES-  SORT
ORDER  NAME                                FIELD NAME      BRK  CNT  TOT  AVG  ORDER  DESC?
  2    F PLANT %EMPLOYEE
  4    F PLANT %SALARY
  1    U SKILL EMP.NO
  3    U SKILL SKILL.NAME

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File   ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields   PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-36 Using Calculation Results in a Condition - Data Display Screen

Figure 8-36 displays the same selection of fields as Figure 8-35 on page 8-33.

7. Use LIST ORDER to reorder the fields, as shown in Figure 8-36. The printing order is the same as in the previous inquiry.
8. Press PF6 to generate the inquiry and press Enter to execute the inquiry.

The output is shown in Figure 8-37.

```

PAGE:          TRANCODE: II          INQUIRY:

EMP.NO  EMPLOYEE                                SKILL.NAME                                SALARY
10103   WILLIAM AMES                                SALESPERSON                                44,600.00
10103                                       SALESPERSON                                55,000.00
10104   PHYLLIS LOCKMEYER                          SALESPERSON                                41,600.00
10104                                       SALESPERSON                                50,800.00
21124   CHARLES SALTER                              ACCOUNTANT                                  33,000.00
21137   PETER ZATKIN                                ADMINISTRATOR                              37,200.00
21137                                       ADMINISTRATOR                              42,200.00
21137                                       ADMINISTRATOR                              46,420.00
*
*
*
*
*
*
IXX9123 INQUIRY TIME LIMIT EXCEEDED (500,104 USER DB CALLS,ROOTS)
    
```

Figure 8-37 Using Calculation Results in a FIND Command Condition- Output

Only the information relating to employees that meet the criteria is displayed. The criteria consisted of a net salary of greater than \$30,000. The criteria was assigned on the Temporary Field screen of the FIND database, PLANT.

### Using a FIND Database Calculation with a USE Database Calculation

In the next example, the result of a calculation performed upon a field from the FIND database is used in a calculation on the related USE database.

Two temporary fields are needed, SALARY and RAISE. SALARY is the net salary. RAISE is the net salary multiplied by 17 percent. Employee number, employee name, and job classification are also required for this inquiry.

You need to display only those employees whose net salary was greater than \$30,000. Also, the column heading above the employee name is to appear on the output as EMPLOYEE.

**Example:** “Calculate and display a raise of 17% for employees listed in [Figure 8-37 on page 8-34](#).”

1. Select the same databases and fields, and equate EMP.NAME to the temporary field EMPLOYEE, as in the previous inquiry.
2. Equate the net salary to SALARY as in the previous inquiry. However, use the CD code Q for this temporary field. This field will be qualified but not displayed.
3. Press Enter to access the Temporary Field screen of the USE database, SKILL. Equate RAISE to SALARY multiplied by 17%, as shown in [Figure 8-38 on page 8-36](#).

```

          TEMPORARY FIELD DEFINITIONS FROM DB/FILE - SKILL    U    AQFM04
Next DB/File To Process : F

#04  %SALARY

          TEMPORARY      #/@ FIELD or   OP   #/@ FIELD or   OP   #/@ FIELD or
CD      NAME              LITERAL          LITERAL          LITERAL
D  RAISE      =   #04              * 0.17
          =
          =
          =
          =
          =

CD:  D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=          PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5= Qualify  PF8=PGFD Flds PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-38 Using a FIND Database Calculation with a USE Database Calculation - Temporary Field Screen, SKILL Database

4. Press PF5 to proceed to the Qualification screen.
5. On the Qualification screen of the PLANT database, equate the temporary field, SALARY, to greater than the amount \$30,000, as in the previous example.
6. Press PF6 to proceed to the Data Display screen.

[Figure 8-39](#) presents four fields, one from the PLANT database and three from the SKILL database.

One temporary field, EMPLOYEE, was created simply to change the column heading on the output. The other, RAISE, was created to contain the net salary multiplied by 17%.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                    BRK  CNT TOT AVG  ORDER DESC?
  2      F PLANT %EMPLOYEE
  1      U SKILL EMP.NO
  3      U SKILL SKILL.NAME
  4      U SKILL %RAISE

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit

```

Figure 8-39 Using a FIND Database Calculation with a USE Database Calculation - Data Display Screen

7. Reorder the fields as shown in the LIST ORDER column.
8. Press PF6 to generate the inquiry and press Enter to execute the inquiry.

Only information relating to net salaries that are greater than \$30,000 is transferred to the output.

[Figure 8-40](#) displays the output.

```

PAGE:          TRANCODE: II    INQUIRY:

EMP.NO  EMPLOYEE                SKILL.NAME                RAISE
10103   WILLIAM AMES                  SALESPERSON                7,582.0000
10103   PHYLIS LOCKMEYER             SALESPERSON                9,350.0000
10104   PHYLIS LOCKMEYER             SALESPERSON                7,072.0000
10104   CHARLES SALTER               SALESPERSON                8,636.0000
21124   CHARLES SALTER               ACCOUNTANT                 5,610.0000
21137   PETER ZATKIN                 ADMINISTRATOR              6,324.0000
21137   PETER ZATKIN                 ADMINISTRATOR              7,174.0000
21137   PETER ZATKIN                 ADMINISTRATOR              7,891.4000
21164   SUSAN WARE                   ENGINEER                   5,780.0000
30202   FREDERICH GRAY              ADMINISTRATOR              6,531.4000
30202   FREDERICH GRAY              ADMINISTRATOR              7,718.0000
30205   MITCHELL J HOOPS            VICE PRESIDENT            10,608.0000
30205   MITCHELL J HOOPS            VICE PRESIDENT            12,410.0000
*
IXX9123 INQUIRY TIME LIMIT EXCEEDED (501,173 DB CALLS,ROOTS)

```

Figure 8-40 Using a FIND Database Calculation with a USE Database Calculation - Output

This example (calculate a 17% raise for employees from the previous example) uses the net salary twice—once to create SALARY and once to limit the data selected for output. SALARY is later used in a calculation to obtain the raise due each employee whose net salary is greater than \$30,000.

## Creating Temporary Fields from Two Databases

In the next example, temporary fields are created using fields from both databases. These temporary fields are subjected to calculations and then qualified. Add the net salary to the skill code number. Display the names of those employees whose net salary (which is greater than \$30,000) plus skill code, is greater than \$50,000.

**Example:** “Calculate and display a value named %AMOUNT by adding net salary to SKILL.CODE. Display only those employees whose AMOUNT is greater than \$50,000 and net salary is greater than \$30,000.”

1. Select the databases and fields as in the previous inquiry.
2. Additionally, select with a Q the field, SKILL.CODE, of SKILL.
3. Press PF4 to reach the Temporary Field screen, which is shown in [Figure 8-41](#).
4. Equate EMP.NAME to the temporary field EMPLOYEE, as in the previous example.
5. Equate the net salary to SALARY as in the previous inquiry. However, type a Q in the CD column for this temporary field, which will be qualified but not displayed.

```

                TEMPORARY FIELD DEFINITIONS FROM DB/FILE - PLANT F      AQFM04
Next DB/File To Process : U

@01 EMP.NAME                                #02 SAL.DED
#03 SAL.YTD

TEMPORARY      #/@ FIELD or  OP  #/@ FIELD or  OP  #/@ FIELD or
CD   NAME      LITERAL      LITERAL      LITERAL
D   EMPLOYEE  = @01
Q   SALARY    = #03          - #02
=
=
=
=
=

CD: D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=          PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5= Qualify  PF8=PGFD Flds PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit

```

Figure 8-41 Creating Temporary Fields from Two Databases - Temporary Field Screen, PLANT Database

6. Press Enter to access the Temporary Field screen of the USE database, SKILL.

[Figure 8-42](#) illustrates the assignment of AMOUNT.

7. SKILL.CODE and the temporary field SALARY have been assigned #04 and #05. These two fields will be added together to make the temporary field, AMOUNT.
8. Create the temporary field AMOUNT, and assign it a CD code of B. It is to be qualified as well as displayed.
9. Equate AMOUNT to #05 + #04 (SALARY plus SKILL.CODE), as shown in [Figure 8-42](#).

```

TEMPORARY FIELD DEFINITIONS FROM DB/FILE - SKILL  U      AQFM04
Next DB/File To Process : F

#04  SKILL.CODE                                #05  %SALARY

CD   TEMPORARY      #/@ FIELD or  OP  #/@ FIELD or  OP  #/@ FIELD or
    NAME           LITERAL          LITERAL          LITERAL
B   AMOUNT        =  #05            +  #04
    =
    =
    =
    =
    =

CD:  D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=          PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5= Qualify  PF8=PGFD Flds PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-42 Creating Temporary Fields from Two Databases - Temporary Field Screen, SKILL Database

10. Press PF5 to proceed to the Qualification screen.

In [Figure 8-43 on page 8-41](#), the temporary field, SALARY, is the fourth field available for qualification. It was created on the Temporary Field screen of the PLANT database ([Figure 8-41 on page 8-39](#)).

```

      QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT F  AQFM05
Next DB/File To Process : U
@01 EMP.NAME                               #02 SAL.DED
#03 SAL.YTD                                #04 %SALARY

      EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
              #04  > 30000

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit

```

Figure 8-43 Creating Temporary Fields from Two Databases - Qualification Screen, PLANT Database

11. Equate the temporary field, SALARY, to greater than \$30,000.
12. Press Enter to proceed to the Qualification screen of the USE database.

This condition could be deleted from the inquiry without changing the results. It is, however, more efficient to limit the amount of data transferred to the subsequent screens.

In [Figure 8-44 on page 8-42](#), the fields created on the FIND database, PLANT, precede SKILL.CODE and the temporary field AMOUNT, which were created by the USE database, SKILL.

13. To see the fields created by the FIND database, press PF7.

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - SKILL  U  AQFM05
Next DB/File To Process : F

#05 SKILL.CODE                                #06 %AMOUNT

EDIT CON FIELD OP LITERAL VALUE / FIELD NUMBER
      #06  GT 50000

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-44 Creating Temporary Fields from Two Databases - Qualification Screen, SKILL Database

AQF always processes the fields from the FIND database before processing the fields from the USE database.

As fields are added, created, or deleted, the fields from the two databases are reordered on the subsequent screens. The temporary field, AMOUNT, is the sixth field available for qualification.

14. Equate the temporary field, AMOUNT, to greater than 50000, as shown in [Figure 8-44](#).
15. Press PF6 to proceed to the Data Display screen.

In [Figure 8-45 on page 8-43](#), the temporary fields, EMPLOYEE and AMOUNT, are two of the fields available for display. Two data fields from the SKILL database are also available for your report.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER    NAME                                FIELD NAME      BRK  CNT TOT AVG  ORDER DESC?
  2      F PLANT %EMPLOYEE
  1      U SKILL EMP.NO
  3      U SKILL SKILL.NAME
  4      U SKILL %AMOUNT

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear,"/Exit"=Exit

```

Figure 8-45 Creating Temporary Fields from Two Databases - Data Display Screen

16. Press PF6 to generate the inquiry and press Enter to execute your inquiry.

The output is shown in [Figure 8-46](#).

```

PAGE:          TRANCODE: II      INQUIRY:

EMP.NO  EMPLOYEE                                SKILL.NAME      AMOUNT
10103   WILLIAM AMES                                SALESPERSON     55,046.00
10104   PHYLLIS LOCKMEYER                          SALESPERSON     50,846.00
30205   MITCHELL J HOOPS                            VICE PRESIDENT  62,460.00
30205   VICE PRESIDENT                              VICE PRESIDENT  73,060.00
30205   VICE PRESIDENT                              VICE PRESIDENT  78,062.00
40304   DONALD M KING                               DESIGNER        54,470.00
40304   DESIGNER                                    DESIGNER        57,670.00
40306   JOAN EVANS                                 DESIGNER        53,870.00
40306   DESIGNER                                    DESIGNER        57,670.00
*
*
*
*
*
IXX9121 END OF INQUIRY                                (675,358 USER DB CALLS,ROOTS)

```

Figure 8-46 Testing a Result Field in a Conditional Phrase - Output

AMOUNT contains the results of SALARY plus SKILL.CODE. The report displays the names of those employees whose net salary plus their SKILL.CODE is greater than \$50,000.

## Accessing the Same Database More Than One Time

The FIND and USE databases in an inquiry can be the same. The same process of matching on a field and assigning values to temporary fields for transfer must still be done.

In the next example, an executive at the toy company wants to see the names of all employees who hold at least a Master of Science degree.

**Example:** “List all employees who hold at least an MS degree.”

1. Select the database, PLANT, with the select code F on the DB/File Selection screen.
2. Press PF3 to proceed to the Field Selection screen. AQF automatically assigns PLANT as the USE database.
3. Select EMP.NO with the key code 1 on the Field Selection screen of the FIND database, PLANT. Select ED.DEGREE with the select code B.
4. Press Enter to access the second page of the FIND database fields, then press Enter to access the data fields of the USE database.
5. Select EMP.NAME with the select code D on the Field Selection screen of the USE database, PLANT. Select EMP.NO with the select code D and the key code 1.
6. Press PF5 to proceed to the Qualification screen.

[Figure 8-47 on page 8-45](#) is the Qualification screen of the FIND database.

```

          QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT  F   AQFM05
Next DB/File To Process : U

@01 ED.DEGREE

          EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
                @01  GE  'MS'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-47 Accessing the Same Database More Than Once - Qualification Screen, PLANT Database

7. Equate ED.DEGREE to 'MS' as shown. This conditional phrase will locate only those employees who have earned at least a Master of Science degree.



Notice that two employees have 'PD' degrees. The conditional selection allows display of employees who hold any degree equal to or greater than a Master of Science.

## Accessing VSAM Files and an IMS (DL/I) Database

AQF allows you to access a combination of VSAM files and databases. The concept is the same as previously described in this chapter. The following example uses a VSAM file and an IMS (DL/I) database under CICS.

AQF can generate inquiries containing VSAM files in an IMS environment. However, these inquiries cannot be processed because VSAM files are not supported in an online IMS environment.

**Example:** "List the employees that have a secretarial position. Use the SKILL database and VSPLANT data set."

1. Select the IMS (DL/I) database, SKILL, with the select code F on the DB/File Selection screen. This database is identified as an IMS type database on the DB/File Selection screen.
2. Select the VSAM file, VSPLANT, with the select code U on the DB/File Selection screen.
3. Press PF3 to continue to the Field Selection screen of the FIND database, SKILL.
4. Select EMP.NO with the key code 1 on the Field Selection screen of the FIND database, SKILL.
5. Select SKILL.NAME with the select code Q.
6. Press Enter to access the data fields of the USE VSAM file.
7. Select VSEMP.NAME and VSPLANT.ID with the select code D on the Field Selection screen of the USE VSAM file, VSPLANT.
8. Select VSEMP.NO with the select code D and the key code 1.
9. Press PF4 to proceed to the Temporary Field screen, which is shown in [Figure 8-50 on page 8-48](#).

```

TEMPORARY FIELD DEFINITIONS FROM DB/FILE - SKILL F AQFM04
Next DB/File To Process : U

@01 SKILL.NAME

TEMPORARY      #/@ FIELD or   OP   #/@ FIELD or   OP   #/@ FIELD or
CD      NAME      LITERAL      LITERAL      LITERAL
D  SKILL      =   @01
      =
      =
      =
      =
      =

CD:  D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=          PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5= Qualify   PF8=PGFD Flds PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear=Exit
    
```

Figure 8-50 Accessing VSAM Files and an IMS (DL/I) Database - Temporary Field Screen, SKILL Database

[Figure 8-50](#) illustrates the renaming of SKILL.NAME for the output.

10. Press PF5 to proceed to the Qualification screen.

[Figure 8-51 on page 8-49](#) shows the assignment of a condition. This locates only employees who have the job title, 'SECRETARY'.

```

          QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - SKILL  F  AQFM05
Next DB/File To Process : U

@01 SKILL.NAME

          EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
          @01   =   'SECRETARY'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear=Exit
    
```

Figure 8-51 Accessing VSAM Files and an IMS (DL/I) Database - Qualification Screen, SKILL Database

11. Press PF6 to proceed to the Data Display screen, which is shown in [Figure 8-52 on page 8-50](#).

This Data Display screen presents one temporary field, SKILL, from the IMS (DL/I) database, SKILL. Three fields from the VSAM file VSPLANT are also available on this screen. They are VSEMP.NAME, VSEMP.NO, and VSPLANT.ID.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME                                FIELD NAME      BRK  CNT TOT AVG  ORDER DESC?
  4      F SKILL  %SKILL
  3      U VSPLANT VSEMP.NAME
  2      U VSPLANT VSEMP.NO
  1      U VSPLANT VSPLANT.ID

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=Submit
PF3=Fields    PF6=Run       PF9=List Query Clear=Exit
    
```

Figure 8-52 Accessing VSAM Files and an IMS (DL/I) Database - Data Display Screen

12. Apply LIST ORDER to the four fields as shown, to produce the report in [Figure 8-53 on page 8-51](#).
13. Press PF6 to generate the inquiry and press Enter to execute the inquiry.

During the execution of this inquiry, AQF searches for the first occurrence of 'SECRETARY' and assigns that value to the temporary field SKILL of the IMS (DL/I) database. The related EMP.NO is assigned to VSEMP.NO. The data fields of VSPLANT are then printed along with the current values of the temporary field SKILL.

```

PAGE: P/N      TRANSACTION: IQIO
                Enter Inquiry Below:
I SKILL %K.1 = EMP.NO %SKILL = SKILL.NAME  IF SKILL.NAME = 'SECRETARY';
VSPLANT D VSPLANT.ID VSEMP.NO VSEMP.NAME  %SKILL IF ( VSEMP.NO = %K.1 ) ;;

VSPLANT.ID  VSEMP.NO  VSEMP.NAME                SKILL
10100      10,105    MARY ANN THOMAS             SECRETARY
20150      21,116    WILMA FORD
30200      30,207    JANE LOWELL
50300      50,323    VICKY WARD
60200      60,258    KAREN REDFERN
70500      70,522    AGNES COVINGTON
*
*
*
*
*
*
*
IXX9121 END OF INQUIRY                (27,19 USER DB CALLS,ROOTS)
TYPE IN INQUIRY, PRESS ENTER TO RUN QUERY
(SPECIAL) TRANSACTION: 4 = AQF, 3 = RUN DEFERRED QUERY (INPUT = CHECKPOINT #)

```

Figure 8-53 FIND Statement that Accesses an IMS (DL/I) Database and VSAM File - Output

Notice the output in [Figure 8-53](#). The SKILL.NAME field (SECRETARY) is from a structured database, SKILL. Multiple occurrences of segments from a database are suppressed; hence, the value from the SKILL.NAME field, 'SECRETARY', is printed only once.

## Accessing DB2 Tables and IMS (DL/I) Databases

**Note:** DB2 is a VISION:Inquiry option. If DB2 tables do not appear on your DB/File Selection screen, the DB2 option for VISION:Inquiry might not be installed on your system.

AQF allows you to access a combination of databases/VSAM files. The concept is the same as previously described in this chapter.

The following example uses a DB2 table and an IMS (DL/I) database. Similar steps can be taken for accessing a DB2 table and a VSAM file.

**Example:** "List the employees who are engineers. Use the SKILL and SALARIES databases."

1. On the DB/File Selection screen, select the IMS (DL/I) database, SKILL, with the select code U. This database is identified as an IMS type database on the DB/File Selection screen.
2. Select the DB2 table, SALARIES, with the select code F.
3. Press PF3 to proceed to the Field Selection screen of the FIND database, SALARIES.
4. Select EMP\_NO with the key code 1.
5. Select EMP\_NAME, PLANT\_ID, and SAL\_YTD with the select code D.

Note these selections on the Field Selection screen in [Figure 8-54](#).

```

                                FIELD SELECTION FOR DB/FILE - SALARIES F                A QFM03
- CODES-                               - CODES-
SEL KEY  FIELD NAME                    SEL KEY  FIELD NAME
D        EMP_NAME                       1 EMP_NO
        EMP_SEX                          D        PLANT_ID
        PLANT_NAME                       D        PLANT_PHONE
        PLANT_REGION                      D        SAL_DEB
        SAL_YEAR                          D        SAL_YTD

Next field starts with:                               For DB/File: U

- CODES- SEL:  D = Display,  Q = Qualify/Expression only,
              B = Both Display and Qualify/Expression,  V = View description
              KEY:  Enter number for relating database fields when using find
PF1=Help      PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=          PF11=          PF12=
PF3=Completed PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-54 Accessing a DB2 Table and an IMS (DL/I) Database - Field Selection Screen, SALARIES

6. Press Enter to access the data fields of the USE database. Select EMP.NO with the select code D and the key code 1. Select SKILL.NAME with the select code Q.
7. Press PF4 to proceed to the Temporary Field screen, which is shown in [Figure 8-55](#). Create the temporary field SKILL, assign it a CD code of D, and equate it to SKILL.NAME (@01).

```

TEMPORARY FIELD DEFINITIONS FROM DB/FILE - SKILL      U      AQFM04
Next DB/File to process : U

@01 SKILL.NAME

CD      TEMPORARY      #/@ FIELD or   OP   #/@ FIELD or   OP   #/@ FIELD or
      NAME              LITERAL              LITERAL              LITERAL
D SKILL      = @01
      =
      =
      =
      =
      =
CD: D = Display, Q = Qualify only, B = Both Display and Qualify
PF1=Help      PF4=          PF7=PGBK Flds  PF10=PGBK Temp ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds PF11=PGFD Temp PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 8-55 Accessing a DB2 Table and an IMS (DL/I) Database - Temporary Field Screen, SKILL Database

[Figure 8-55](#) illustrates the renaming of SKILL.NAME for the output.

8. Press PF5 to proceed to the Qualification screen. Equate SKILL.NAME to 'ENGINEER', as shown in [Figure 8-56 on page 8-54](#).

This locates only employees who have the job title, 'ENGINEER'.

```
QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - SKILL      U      AQFM05
Next DB/File to process : U

@01 SKILL.NAME

EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
      @01   =  'ENGINEER'

ESCAPE CHARACTER:
EDIT:  I = Insert a new line before this one,  D = Delete this line
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
```

Figure 8-56 Accessing a DB2 Table and an IMS (DL/I) Database - FIND Database Containing a Conditional Phrase

9. Press PF6 to proceed to the Data Display screen.

[Figure 8-57](#) presents two fields from the IMS (DL/I) database, SKILL. Three fields from the DB2 table, SALARIES, are also available on this Data Display screen.

10. Apply LIST ORDER to these five fields as shown in [Figure 8-57 on page 8-55](#), to produce the report shown in [Figure 8-58 on page 8-55](#).



During the execution of this inquiry, AQF searches for the first occurrence of 'ENGINEER' and assigns that value to the temporary field, SKILL, of the IMS (DL/I) database. The related EMP.NO is assigned to EMP\_NO. The data fields of SALARIES are then printed with the current values of the temporary field, SKILL.

[Figure 8-58](#) lists two engineers, Susan Ware and Martha Wallingham. The requested fields of plant ID, name, employee number, salary, and job title, are displayed on each line. Compare this report to the report shown in [Figure 8-53 on page 8-51](#), in which the hierarchical IMS (DL/I) database suppresses repetitious data.

## Accessing VSAM Files and DB2 Tables

The following is an example which uses both a VSAM file and a DB2 table under CICS. The description of the VSAM test file, used in this example, can be found in [Chapter 2, "Databases and Files"](#).

AQF can generate inquiries containing VSAM files in an IMS environment. However, these inquiries cannot be processed because VSAM files are not supported in an online IMS environment.

**Example:** "List the employees with a secretarial position. Use the SKILLS DB2 table and VSPLANT VSAM file."

1. Select the DB2 table, SKILLS, with the select code F on the DB/File Selection screen.
2. Select the VSAM file, VSPLANT, with the select code U on the DB/File Selection screen.
3. Press PF3 to proceed to the Field Selection screen of the FIND database, SKILLS. Select EMP\_NO with the key code 1, and select SKILL\_NAME with the select code Q.
4. Press Enter to access the data fields of the USE VSAM file, VSPLANT. Select VSEMP.NAME, VSEMP.NO, and VSPLANT.ID with the select code D. Select VSEMP.NO with the key code 1.
5. Press PF4 to proceed to the Temporary Field screen. Rename SKILL\_NAME to SKILL for the output.
6. Press PF5 to proceed to the Qualification screen. Equate the temporary field, SKILL, to 'SECRETARY'. AQF will locate the records of only those employees whose job title is secretary.
7. Press PF6 to proceed to the Data Display screen.

[Figure 8-59](#) presents one field from the DB2 table, SKILLS. Three fields from the VSAM file, VSPLANT, are also available on this Data Display screen.

8. Apply LIST ORDER to these fields, as shown in [Figure 8-59](#), to produce the report in [Figure 8-60 on page 8-58](#).

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME                                FIELD NAME      BRK  CNT  TOT  AVG  ORDER  DESC?
  4      F SKILLS  %SKILL
  3      U VSPLANT VSEMP.NAME
  2      U VSPLANT VSEMP.NO
  1      U VSPLANT VSPLANT.ID

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save     PF12=Submit
PF3=Fields    PF6=Run        PF9=List Query Clear= Exit
    
```

Figure 8-59 Accessing VSAM Files and a DB2 Table - Data Display Screen

9. Press PF6 to generate the inquiry and press Enter to execute the inquiry.

[Figure 8-60](#) displays the report. Both VSAM files and DB2 tables are treated as single segment databases. There are no control fields or group fields and no suppression of multiple occurrences of a segment.

```
PAGE: P/N      TRANSACTION: IQIO
                          Enter Inquiry Below:
I SKILLS %K.1 = EMP NO %SKILL = SKILL NAME  IF SKILL NAME = 'SECRETARY';
VSPLANT D VSPLANT.ID VSEMP.NO VSEMP.NAME  %SKILL IF ( VSEMP.NO = %K.1 ) ;;

VSPLANT.ID  VSEMP.NO  VSEMP.NAME                SKILL
10100      10,105    MARY ANN THOMAS           SECRETARY
30200      30,207    JANE LOWELL                SECRETARY
50300      50,323    VICKY WARD                 SECRETARY
70500      70,522    AGNES COVINGTON           SECRETARY
20150      21,116    WILMA FORD                 SECRETARY
60200      60,258    KAREN REDFERN              SECRETARY
*
*
*
*
*
*
*
IXX9121  END OF INQUIRY.                (12,12 USER DB CALLS,ROOTS)
TYPE IN INQUIRY, PRESS ENTER TO RUN QUERY
(SPECIAL)TRANSACTION: 4 = AQF, 3 = RUN DEFERRED QUERY (INPUT = CHECKPOINT #)
```

Figure 8-60 Accessing a VSAM Files and a DB2 Table - Output

Compare this report to the report shown in [Figure 8-53 on page 8-51](#), in which the hierarchical IMS (DL/I) database suppresses repetitious data.

## Using Directory Commands - Storing Inquiries

---

### Notes:

- AQF does not support the native SQL syntax facility. The stored inquiry discussion in this chapter does not apply to this facility.
- In this chapter, the term **directory** is a reference to **primary directory**. Any reference to a **connected directory** is stated explicitly.

**Stored inquiries** are those that you or your system administrator write and save in the directory for future use. A stored inquiry can be retrieved and executed as needed. This chapter explains how to store inquiries in the directory, how to look at the stored items, and how to delete items that are no longer needed.

Inquiries are saved using the Data Display screen and stored in the directory. The directory can be described as a library that holds many kinds of information relating to AQF. One of its purposes is to hold stored inquiries and functions.

You can find additional information about creating and using stored inquiries in the *Advantage VISION:Inquiry Reference Guide*.

## Using the Data Display Screen

Using the Data Display screen, you store inquiries under assigned names in the directory. For example, if you have prepared an inquiry that lists the plants, the names of their employees, and the related employee numbers, you can save it under the name, ROSTER, as shown in [Figure 9-1](#).

**Example:** “Prepare a stored inquiry that lists the plants, the names of their employees, and the related employee numbers.”

1. Type ROSTER after the phrase ‘If saving query, name to be used:’.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME                                FIELD NAME      BRK  CNT TOT AVG  ORDER DESC?
  3      U PLANT EMP.NAME
  2      U PLANT EMP.NO
  1      U PLANT PLANT.ID

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used: ROSTER
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds PF11=Save     PF12=
PF3=Fields   PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 9-1 Data Display Screen

[Figure 9-1](#) tells AQF to name the inquiry ROSTER and to store it in the directory under that name.

2. Press PF11 to generate the inquiry for saving. The PF key or the select code generates the inquiry for the function which is to be executed.

```

PAGE:          TRANCODE: II          INQUIRY: DDI PLANT 'ROSTER' PLANT D PLANT.ID
EMP.NO EMP.NAME;;
    
```

Figure 9-2 Generating the Inquiry for Saving to the Directory

The first screen you receive shows the DDI (Define Directory Inquiry) statement, the database name, and the generated inquiry name.

3. Press Enter to execute the inquiry.
4. Pressing Enter executes the function and stores the inquiry in the directory.

```
PAGE:          TRANCODE: II      INQUIRY:

IXX0254 DEFINE OF 'ROSTER' IS ADDED.
```

Figure 9-3 Confirmation That Inquiry Has Been Saved to the Directory

[Figure 9-3](#) shows the message returned by VISION:Inquiry when the inquiry has been successfully stored (IXX0254 DEFINE OF 'ROSTER' IS ADDED.). The message tells you that the inquiry named ROSTER has been added to the list of stored inquiries indicated in the DDI (Define Directory Inquiry) statement.

Later, when you want to use the inquiry, you select it by its name on the Stored Queries screen, and AQF executes it. This is discussed later in this chapter.

Saving inquiries has several advantages:

- The same inquiry can be used many times by the same or different users.
- Saves considerable programming and computer time.
- Ensures accuracy of AQF options.
- Provides standardization of output and reports.

## Storing Inquiries with Substitutable Values

An inquiry is written and stored only once; however, it can contain variable conditions. This means that each time you run the inquiry, you can provide information (substitutable values) so that the inquiry can access a different part of the database and output different information. Substitutable values can also be called conditional values.

The same inquiry can be used to report information on Plant 10100 one time and Plant 50300 the next time, or salary information for 1992 one time and 1993 the next time.

You specify the conditional values needed for a particular run when you execute the inquiry. Writing these kinds of inquiries is explained in this section. The execution and substitution process is illustrated in [Chapter 10, "Using Stored Inquiries and Functions"](#).

The following example creates an inquiry which produces a report of employee names, numbers, degrees earned, and current salaries. The values of the degrees earned or salary fields are not specified at this time.

**Example:** "Relate salaries and degrees and vary the conditions each time the inquiry is run."

1. Select the database PLANT with a U on the DB/File Selection screen.
2. Proceed to the Field Selection screen. Select the fields as shown in [Figure 9-4 on page 9-4](#).

```

FIELD SELECTION FOR DB/FILE - PLANT  U                AQFM03

-CODES-
SEL KEY  FIELD NAME                                -CODES-
SEL KEY  FIELD NAME                                SEL KEY  FIELD NAME

B        ED.DEGREE
          ED.YEAR
D        EMP.NO
          PLANT.ID
          PLANT.PHONE
          PROD.AMT
          PROD.DESC
          SAL.DED
          SAL.DED.T

          ED.SCHOOL
          D        EMP.NAME
          EMP.SEX
          PLANT.NAME
          PLANT.REGION
          PROD.CODE
          PROD.QTY
          SAL.DED.DEC
          SAL.YEAR

Next field starts with: SAL.YTD                      For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
              B = Both Display and Qualify/Expression,  V = View description
KEY:  Enter number For relating database fields when using find
PF1=Help    PF4=Temp Flds  PF7=                PF10=                ENTER=Next Scr
PF2=DB/File PF5=Qualify   PF8=                PF11=                PF12=
PF3=Completed PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 9-4 Storing Inquiries with Substitutable Values - Field Selection Screen

3. Scroll through the fields to SAL.YTD, and select it with a B.
4. Press PF5 to proceed to the Qualification screen.
  - Equate ED.DEGREE to the substitutable value %1 and SAL.YTD to the substitutable value %2.
  - Use the '&' (AND) connector to join the two conditions, as shown in [Figure 9-5 on page 9-5](#).

```

          QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT U   AQFM05
Next DB/File To Process : U

@01 ED.DEGREE                               #02 SAL.YTD

          EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
                @01  =   %1
                &   #02  <=  %2

          ESCAPE CHARACTER:
          EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit

```

Figure 9-5 Storing Inquiries with Substitutable Values - Qualification Screen

The two conditions permit test values to be substituted at the time the inquiry is executed.

- '@01 = %1' tells AQF that the data selected for output is limited by ED.DEGREE, but that the specific value of ED.DEGREE will be substituted later.
- '#02 <= %2' indicates to AQF that the output is also limited by SAL.YTD, but the test value of SAL.YTD will be substituted later.

The symbols for the substitutable values, %1 and %2, are assigned by their order of appearance in the condition.

5. Press PF6 to proceed to the Data Display screen, which is shown in [Figure 9-6 on page 9-6](#).

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME                                FIELD NAME      BRK  CNT TOT AVG  ORDER DESC?
  3      U PLANT ED.DEGREE
  2      U PLANT EMP.NAME
  1      U PLANT EMP.NO
  4      U PLANT SAL.YTD

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used: DEGREE.SALARY
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File   ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 9-6 Storing Inquiries with Substitutable Values - Data Display Screen

6. In [Figure 9-6](#), four fields from the PLANT database are available. Apply LIST ORDER to the fields as shown. EMP.NO is the first column to be printed, followed by EMP.NAME, ED.DEGREE, and SAL.YTD.
7. Type the name under which to save the inquiry, DEGREE.SALARY.
8. Press PF11 to generate the inquiry for saving, and then press Enter to execute the save, and store the inquiry in the directory.

DEGREE.SALARY is stored in the directory. [Figure 9-7](#) displays the output.

```

PAGE:          TRANCODE: II          INQUIRY:

IXX0254 DEFINE OF 'DEGREE.SALARY' IS ADDED.
    
```

Figure 9-7 Defining a Stored Inquiry with Substitutable Values

The inquiry DEGREE.SALARY has two conditions with undefined values. When you execute the inquiry DEGREE.SALARY, you must enter values for the fields ED.DEGREE and SAL.YTD. This is discussed in [Chapter 10, "Using Stored Inquiries and Functions"](#).

## Storing an Inquiry with Several Options

Any AQF option except LIMIT can be included in a stored inquiry. The next example shows a more complex stored inquiry containing several options and incorporating a compound condition.

**Example:** Create and store an inquiry with several AQF options and a compound condition:

1. Select the database PLANT as in the previous example.
2. Select the fields, EMP.NAME and SAL.YTD, with the select code D, PLANT.ID with the select code B, and ED.DEGREE with the select code Q.
3. Press PF5 to proceed to the Qualification screen, shown in [Figure 9-8](#).

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT U   AQFM05
Next DB/File To Process : U

@01 ED.DEGREE                               @02 PLANT.ID

EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
      &    @01   =   %1
      &    @02   =   %2
      |    @02   =   %3
      &    @01   =   %4

ESCAPE CHARACTER:
EDIT: I = Insert a new Line before this one, D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit

```

Figure 9-8 Storing an Inquiry with Several Options - Qualification Screen

4. [Figure 9-8](#) illustrates the assignment of the fields ED.DEGREE and PLANT.ID to substitutable values. Use the '&' connector between the two conditions and use the '|' (OR) connector between the two compound conditions.
5. The second and third substitutable values will be used for PLANT.ID.
6. Press PF6 to proceed to the Data Display screen, shown in [Figure 9-9 on page 9-8](#).
7. The three fields, PLANT.ID, EMP.NAME, and SAL.YTD are available. Apply the options COUNT and TOTAL to two of these fields:
  - Select a grand count for EMP.NAME.
  - Select a grand total for SAL.YTD.

8. Apply LIST ORDER to the three fields. PLANT.ID is the first column to be printed, followed by EMP.NAME and SAL.YTD.
9. Enter the name SALARY.REPORT under which the inquiry will be saved.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER    NAME      FIELD NAME                    BRK  CNT  TOT  AVG  ORDER  DESC?
  2      U  PLANT  EMP.NAME                          D
  1      U  PLANT  PLANT.ID
  3      U  PLANT  SAL.YTD                                D

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used: SALARY.REPORT
Specify PC file name for FTS:

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 9-9 Storing an Inquiry with Several Options - Data Display Screen

10. Press PF11 to generate the inquiry (for saving).
11. Press Enter to execute the save and store the inquiry in the directory.

SALARY.REPORT is stored in the directory. [Figure 9-10](#) displays the output.

```

PAGE:          TRANCODE: II      INQUIRY:

IXX0254 DEFINE OF 'SALARY.REPORT' IS ADDED.
    
```

Figure 9-10 Stored Inquiry with Several Options

[Figure 9-10](#) illustrates storing an inquiry that has several options and four substitutable values in its condition.

## Replacing Stored Inquiries

Suppose that, after you define a stored inquiry, you need to change part of it. For example, you decide to add EMP.NO to the inquiry SALARY.REPORT created in the previous example. In such a case, you correct the inquiry and then save it again. AQF replaces the old version of SALARY.REPORT with the new version.

**Example:** Edit a stored inquiry and replace it (save it again under the same name).

1. Select the database and fields as in the previous inquiry. In addition, select EMP.NO with a D, as shown in [Figure 9-11](#).

FIELD SELECTION FOR DB/FILE - PLANT U				AQFM03
-CODES-		-CODES-		
SEL KEY	FIELD NAME	SEL KEY	FIELD NAME	
Q	ED.DEGREE		ED.SCHOOL	
	ED.YEAR	D	EMP.NAME	
D	EMP.NO		EMP.SEX	
B	PLANT.ID		PLANT.NAME	
	PLANT.PHONE		PLANT.REGION	
	PROD.AMT		PROD.CODE	
	PROD.DESC		PROD.QTY	
	SAL.DED		SAL.DED.DEC	
	SAL.DED.T		SAL.YEAR	
Next field starts with: SAL.YTD		For DB/File: U		
-CODES- SEL: D = Display, Q = Qualify/Expression only, B = Both Display and Qualify/Expression, V = View description				
KEY: Enter number For relating database fields when using find				
PF1=Help	PF4=Temp Fls	PF7=	PF10=	ENTER=Next Scr
PF2=DB/File	PF5=Qualify	PF8=	PF11=	PF12=
PF3=Completed	PF6=Data Disp	PF9=List Query Clear,"/Exit"=Exit		

Figure 9-11 Replacing Stored Inquiries - Data Fields of the PLANT Database

2. Press PF5 to proceed to the Qualification screen. Assign the conditions as in the previous example.
3. Press PF6 to proceed to the Data Display screen. As in [Figure 9-12 on page 9-10](#), apply LIST ORDER to the four fields. PLANT.ID is the first column to be printed, followed by EMP.NO, EMP.NAME, and SAL.YTD.
4. Type Ds opposite EMP.NAME in the CTL CNT column.  
Type D in the TOT column opposite SAL.YTD.
5. Type 1 for sort order and A for ascending sort for PLANT.ID.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME      FIELD NAME                BRK  CNT TOT AVG  ORDER DESC?
  3      U PLANT EMP.NAME                        D
  2      U PLANT EMP.NO
  1      U PLANT PLANT.ID                        1    A
  4      U PLANT SAL.YTD                        D

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used: SALARY.REPORT
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 9-12 Replacing Stored Inquiries - Data Display Screen

6. Save the inquiry as SALARY.REPORT.

- Press PF11 to generate the inquiry.
- Press Enter to replace the original stored inquiry.

The new SALARY.REPORT is stored in the directory.

[Figure 9-13](#) displays the output.

```

PAGE:          TRANCODE: II          INQUIRY:

IXX0255 DEFINE OF 'SALARY.REPORT' IS REPLACED.
    
```

Figure 9-13 Replacing a Stored Inquiry - Output

**Notes:**

- This example points out the necessity of taking care when assigning names to inquiries. If you choose a name that has already been used for another stored inquiry, your newly-named inquiry will replace the existing one.
- To view a list of all existing query names before naming your new query, use the Stored Queries screen, described in the section [Using the Stored Queries Screen on page 9-23](#).

## Storing Inquiries that Call Stored Functions

A **function** is an arithmetic expression, such as the calculation of salary deductions.

- A function may be simple or complex.
- You can call or use a function in one or more inquiries.
- You can not create or store a function using AQF. You use the VISION:Inquiry free-form syntax to create and store functions.
- You can select a stored function for use in an AQF inquiry. A function appears as a field on the Field Selection screen. You select the function in the same manner as a data field.
- A function is an arithmetic expression that follows the rules of arithmetic processing, which are explained in [Chapter 7, "Assignment Statement and Arithmetic Processing"](#).

For example, a function YEARLY.BONUS calculates an employee's yearly bonus of 15.5 percent. The function assigns the result to a temporary field, BONUS.SAL.

The temporary field, BONUS.SAL, holds the result of the arithmetic calculation, executed by the function, BONUS.SAL. When the value of the temporary field is displayed by an inquiry, BONUS.SAL appears as the column heading.

The names of the function, YEARLY.BONUS, and the temporary field, BONUS.SAL, may be the same. It may be easier to relate them to each other if they match.

In the next example, you are creating an inquiry which calculates an employee's monthly salary at each plant. The function, YEARLY.BONUS, appears on the Field Selection screen in alphabetical order with the data fields of the database PLANT.

Though you cannot view the arithmetic expression of the function, YEARLY.BONUS, you can include the function in your inquiry. Contact your system administrator concerning the creation and storing of functions.

**Note:** YEARLY.BONUS is not provided by VISION:Inquiry. You must create it using free-form syntax, as described in the *VISION:Inquiry Reference Guide*.

**Example:** “Produce a report that shows the yearly bonus earned by each employee. There is a stored function that performs this calculation.”

1. As shown in [Figure 9-14](#), select EMP.NAME and PLANT.ID with Ds. Press Enter to scroll the fields. Select YEARLY.BONUS with a D.

```

FIELD SELECTION FOR DB/FILE - PLANT  U                      AQFM03
-CODES-
SEL KEY  FIELD NAME
          ED.DEGREE
          ED.YEAR
          EMP.NO
          D  PLANT.ID
          PLANT.PHONE
          PROD.AMT
          PROD.DESC
          SAL.DED
          SAL.DED.T
          ED.SCHOOL
          D  EMP.NAME
          EMP.SEX
          PLANT.NAME
          PLANT.REGION
          PROD.CODE
          PROD.QTY
          SAL.DED.DEC
          SAL.YEAR

Next field starts with: SAL.YTD                               For DB/File: U

-CODES- SEL: D = Display,  Q = Qualify/Expression only,
          B = Both Display and Qualify/Expression,  V = View description
KEY: Enter number For relating database fields when using find
PF1=Help   PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File PF5=Qualify   PF8=          PF11=          PF12=
PF3=Completed PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 9-14 Storing Inquiries that Call Stored Functions - Field Selection Screen

2. Press PF6 to proceed to the Data Display screen.

[Figure 9-15 on page 9-13](#) illustrates the saving of PAYROLL in the directory. PAYROLL calls in the stored function named YEARLY.BONUS.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE
ORDER     NAME                    FIELD NAME                    CTL  -SUMMARIES-  SORT
                U PLANT EMP.NAME                BRK  CNT  TOT  AVG  ORDER  DESC?
  2
  1      U PLANT PLANT.ID
  3      U PLANT YEARLY.BONUS

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used: PAYROLL
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear,"/Exit"=Exit
    
```

Figure 9-15 Storing Inquiries that Call Stored Functions - Data Display Screen

3. Press PF11 to generate the inquiry for saving. [Figure 9-16](#) displays the output.

```

PAGE:          TRANCODE: II          INQUIRY: DDI PLANT 'PAYROLL' PLANT D PLANT.ID
EMP.NAME YEARLY.BONUS;;
    
```

Figure 9-16 Storing an Inquiry that Calls a Stored Function - Generate Inquiry

4. Press Enter to execute the save and store the inquiry in the directory. [Figure 9-17](#) displays the output.

```

PAGE:          TRANCODE: II          INQUIRY:
IXX0254 DEFINE OF 'PAYROLL' IS ADDED.
    
```

Figure 9-17 Storing Inquiries that Call Stored Functions - Confirmation of Stored Inquiry

In [Figure 9-16](#), PAYROLL has been added to the stored inquiries related to the PLANT database. Note that the name of the stored function, YEARLY.BONUS, is not enclosed in quotation marks. In [Figure 9-17](#), AQF confirms that the inquiry 'PAYROLL' has been stored in the directory.

## Using a Stored Function and a Substitutable Value

In the next example, create an inquiry which produces the monthly salary for each employee at each plant. Include the function, YEARLY.BONUS, in your inquiry and qualify PLANT.ID as a substitutable value.

**Example:** "Produce a report showing the yearly bonus for each employee. Create the inquiry so it can be run for different plants."

1. Select the database PLANT as in the previous example.
2. On the Field Selection screen, select the field EMP.NAME with a D, and the field PLANT.ID with a B, as shown in [Figure 9-18](#).
3. Press Enter to scroll through the fields. Select the function YEARLY.BONUS with a D.

```

FIELD SELECTION FOR DB/FILE - PLANT  U                               AQFM03
-CODES-                               -CODES-
SEL KEY  FIELD NAME                    SEL KEY  FIELD NAME
      ED.DEGREE
      ED.YEAR
      EMP.NO
      B   PLANT.ID
      PLANT.PHONE
      PROD.AMT
      PROD.DESC
      SAL.DED
      SAL.DED.T
      ED.SCHOOL
      D   EMP.NAME
      EMP.SEX
      PLANT.NAME
      PLANT.REGION
      PROD.CODE
      PROD.QTY
      SAL.DED.DEC
      SAL.YEAR

Next field starts with: SAL.YTD                                     For DB/File: U

-CODES- SEL: D = Display,  Q = Qualify/Expression only,
          B = Both Display and Qualify/Expression,  V = View description
KEY: Enter number For relating database fields when using find
PF1=Help   PF4=Temp Flds  PF7=          PF10=      ENTER=Next Scr
PF2=DB/File PF5=Qualify   PF8=          PF11=      PF12=
PF3=Completed PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 9-18 Using a Stored Function and a Substitutable Value - Field Selection Screen

4. Press PF5 to proceed to the Qualification screen, which is shown in [Figure 9-19 on page 9-15](#). Equate the field, PLANT.ID, to the substitutable value, %1.

During execution of this inquiry, test values are substituted for the value of PLANT.ID.

```
          QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT U   AQFM05
Next DB/File To Process : U

@01 PLANT.ID

          EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
                @01  =  %1

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
```

Figure 9-19 Using a Stored Function and a Substitutable Value - Qualification Screen

5. Press PF6 to proceed to the Data Display screen, shown in [Figure 9-20 on page 9-16](#).

Apply LIST ORDER to the fields to achieve the printing order: PLANT.ID, EMP.NAME, and YEARLY.BONUS.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME                                FIELD NAME      BRK  CNT TOT AVG  ORDER DESC?
  2      U PLANT EMP.NAME
  1      U PLANT PLANT.ID
  3      U PLANT YEARLY.BONUS

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used: SALARY.BONUS
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 9-20 Using a Stored Function and a Substitutable Value - Data Display Screen

6. Save the inquiry in the directory under the name, SALARY.BONUS. SALARY.BONUS calls the stored function YEARLY.BONUS.
  - Press PF11 to generate the inquiry for saving.
  - Press Enter to execute the save and store the inquiry in the directory.

Figure 9-21 displays the output.

```

PAGE:          TRANCODE: II          INQUIRY:

IXX0254 DEFINE OF 'SALARY.BONUS' IS ADDED.
    
```

Figure 9-21 Stored Inquiry that Calls a Stored Function and Has a Substitutable Value

This adds SALARY.BONUS to the inquiries stored for the PLANT database. Included in this inquiry is the name of a stored function; the test value of the condition is a substitutable value. AQF substitutes the terms of the function for the name as it stores the inquiry. The substitutable value is specified each time the inquiry is executed.

This example illustrates the versatility of the stored inquiry. An inquiry that performs a variety of operations and utilizes several stored functions can be stored and used repeatedly, each time against different groups of data.

**Note:**

If you want to change the terms in a function, contact your system administrator. The function must be redefined, and the stored inquiry which calls the function must be redefined.

## Storing Inquiries that Access Multiple Databases

Inquiries accessing more than one database can also be stored in the directory. This is illustrated in the next example, which creates a stored inquiry to display the names of all employees who have the job title, 'SECRETARY'. Included in your inquiry are the employee name, employee number, plant ID, and job classification.

**Example:** "Store the inquiry that displays all employees who are secretaries."

1. Select PLANT with a U and SKILL with an F on the DB/File Selection screen.
2. Press PF3 to proceed to the Field Selection screen. The Field Selection screen of the FIND database, SKILL, is displayed first, as shown in [Figure 9-22](#).

```

                                FIELD SELECTION FOR DB/FILE - SKILL      F      AQFM03
- CODES-
SEL KEY  FIELD NAME
      1  EMP.NO
        PID
        SC
Q       SKILL.NAME
                                - CODES-
                                SEL KEY  FIELD NAME
                                EN
                                PLANT.ID
                                SKILL.CODE
                                SN

Next field starts with:                                For DB/File: U

- CODES- SEL:  D = Display,  Q = Qualify/Expression only,
              B = Both Display and Qualify/Expression,  V = View description
KEY:  Enter number For relating database fields when using find
PF1=Help  PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File  PF5=Qualify  PF8=          PF11=          PF12=
PF3=Completed  PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit

```

Figure 9-22 Storing Inquiries that Access Two Databases - Field Selection Screen, SKILL Database

3. As shown in [Figure 9-22](#), select EMP.NO with the key code 1. EMP.NO is the field used to link the two databases.
4. Select SKILL.NAME with a select code Q. SKILL.NAME is to be renamed as 'SKILL' on the Temporary Field screen.
5. Press Enter to access the data fields of the PLANT database.

The Field Selection screen of the PLANT database is displayed second, as shown in [Figure 9-23](#).

```

FIELD SELECTION FOR DB/FILE - PLANT  U                AQFM03
-CODES-
SEL KEY  FIELD NAME
      ED.DEGREE
      ED.YEAR
D   1  EMP.NO
D   PLANT.ID
      PLANT.PHONE
      PROD.AMT
      PROD.DESC
      SAL.DED
      SAL.DED.T
      ED.SCHOOL
D   EMP.NAME
      EMP.SEX
      PLANT.NAME
      PLANT.REGION
      PROD.CODE
      PROD.QTY
      SAL.DED.DEC
      SAL.YEAR

Next field starts with:  SAL.YTD                For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
            B = Both Display and Qualify/Expression,  V = View description
KEY:  Enter number For relating database fields when using find
PF1=Help   PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File PF5=Qualify   PF8=          PF11=          PF12=
PF3=Completed PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 9-23 Storing Inquiries that Access Multiple Databases - Field Selection Screen, PLANT Database

6. In the Field Selection screen for the PLANT database, select the fields, EMP.NAME, EMP.NO, and PLANT.ID with Ds.
7. Select EMP.NO with the key code 1.
8. Press PF4 to proceed to the Temporary Field screen.
9. A temporary field will be used to rename SKILL.NAME for the output. Rename the field from the SKILL database, as indicated in [Figure 9-24](#). SKILL.NAME appears as SKILL on the output.

```

TEMPORARY FIELD DEFINITIONS FROM DB/FILE - SKILL FAQFM04
Next DB/File To Process : U

@01 SKILL.NAME

TEMPORARY      #/@ FIELD or  OP  #/@ FIELD or  OP  #/@ FIELD or
CD  NAME        LITERAL          LITERAL          LITERAL
D  SKILL        =  @01
      =
      =
      =
      =
      =

CD:  D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=          PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5= Qualify   PF8=PGFD Flds PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 9-24 Storing Inquiries that Access Multiple Databases - Temporary Field Screen

10. Press PF5 to proceed to the Qualification screen. As shown in [Figure 9-25](#), equate the field, SKILL.NAME, to the character constant, 'SECRETARY'. Use the = operator and field identifier in your condition.

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - SKILL F AQFM05
Next DB/File To Process : U

@01 SKILL.NAME

EDIT CON FIELD OP LITERAL VALUE / FIELD NUMBER
      @01 = 'SECRETARY'

ESCAPE CHARACTER:
EDIT: I = Insert a new Line before this one, D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 9-25 Storing Inquiries Access Multiple Databases - Qualification Screen

11. Press PF6 to proceed to the Data Display screen. As shown in [Figure 9-26 on page 9-20](#), apply LIST ORDER to these fields to achieve a printing order different from the default order.

The temporary field %SKILL will be the last column printed.

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME                                BRK  CNT TOT AVG  ORDER DESC?
  4      F SKILL %SKILL
  3      U PLANT EMP.NAME
  2      U PLANT EMP.NO
  1      U PLANT PLANT.ID

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used: EMPLOYEE.JOB.CLASS
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save    PF12=
PF3=Fields   PF6=Run       PF9=List Query Clear, "/Exit"=Exit
    
```

Figure 9-26 Storing Inquiries Accessing Two Databases - Data Display Screen

12. Enter the name EMPLOYEE.JOB.CLASS as shown, to add this inquiry to the directory.

EMPLOYEE.JOB.CLASS accesses fields from two databases, SKILL and PLANT. SKILL is the FIND database. AQF processes the FIND database first when multiple databases/files are accessed.

13. Press PF11 to generate this inquiry and press Enter to store the inquiry in the directory.

[Figure 9-27 on page 9-21](#), which is shown here as two partial screens, displays the output.

Your display will be two full, separate screens. The generated inquiry is shown above the horizontal line in [Figure 9-27](#), and the message indicating storage of the inquiry is shown below the line.

```
PAGE:          TRANCODE: II      INQUIRY:
DDI SKILL 'EMPLOYEE.JOB.CLASS' I SKILL %K.1 = EMP.NO %SKILL = SKILL.NAME
IF SKILL.NAME = 'SECRETARY'; PLANT D PLANT.ID EMP.NO EMP.NAME %SKILL
IF ( EMP.NO =%K.1 );;
```

```
PAGE:          TRANCODE: II      INQUIRY:

IXX0254 DEFINE OF 'EMPLOYEE.JOB.CLASS' IS ADDED.
```

Figure 9-27 Storing an Inquiry Containing a FIND Statement

Notice that the FIND database, SKILL, is the one that is referenced in the stored inquiry. This stored inquiry is available only in the directory for the FIND database, SKILL.

## Storing Inquiries with LIKE Operator and Title Line

In the next example, an inquiry with the LIKE operator in the qualification criteria and a report title line is created and stored.

**Example:** “Produce a report showing the employee and plant information for employees whose skills contain the word, ADMIN.”

1. Select SKILL with a U on the DB/File Selection screen.
2. Press PF3 to proceed to the Field Selection screen.
3. Select the fields EMP.NO and PLANT.ID with a D, and SKILL.NAME with Q.
4. Press PF5 to proceed to the Qualification screen and use the LIKE operator to qualify the SKILL.NAME as shown in [Figure 9-28](#).
5. Press PF6 to proceed to the Data Display screen, shown in [Figure 9-29](#).
6. Add the title that appears on top of each page of the report in the Title1 field.
7. Enter the name of the stored query, EMPLOYEE.SKILL, on the Data Display screen.
8. Press PF11 to generate the inquiry for saving, then press Enter to execute the save and store the inquiry in the directory. [Figure 9-30](#) displays the output.

```

          QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - SKILL      U      AQFM05
Next DB/File to process : U

@01 SKILL.NAME

          EDIT  CON  FIELD  OP    LITERAL VALUE / FIELD NUMBER
                @01  LIKE  '%ADMIN%'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual  ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual  PF12=
PF3=Fields    PF6=Data Disp PF9=List Query CLEAR, "/EXIT"=Exit
    
```

Figure 9-28 Qualification Screen

```

LIST      DB/FILE          FIELD NAME          CTL  -SUMMARIES-  SORT
ORDER    NAME              FIELD NAME          BRK  CNT  TOT  AVG  ORDER  DESC?
        U PLANT      EMP.NO
        U PLANT      PLANT.ID

Title1: EMPLOYEES WITH THE WORD ADMIN IN THEIR SKILL RECORD
Title2:
Specify limit value if desired:
If saving query, name to be used: EMPLOYEE.SKILL
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds PF11=Save     PF12=Submit
PF3=Fields    PF6=Run       PF9=List Query CLEAR,"/EXIT"=Exit

```

Figure 9-29 Data Display Screen Using Title Line

```

PAGE:          TRANCODE: II          INQUIRY:

IXX0254 DEFINE OF 'EMPLOYEE.SKILL' IS ADDED.

```

Figure 9-30 Stored Query EMPLOYEE SKILL Added to the Directory

## Using the Stored Queries Screen

[Figure 9-31 on page 9-24](#) displays a stored inquiry after it was saved. To list inquiry names stored in the primary or connected directories for a database or all databases, you access the Stored Queries screen. Use the Stored Queries screen to list one or more inquiry names stored in the primary or connected directories.

To access the Stored Queries screen for the PLANT database:

1. Select PLANT with a U on the DB/File Selection screen.
2. Press PF9.

[Figure 9-31](#) shows the Stored Queries screen.

STORED INQUIRIES FOR DB PLANT					AQFM07
Next query starts with:					
SEL CON	QUERY NAME	DB FILE	LTERM	CHNG DATE	TIME
	DEGREE.SALARY	PLANT	N076	04/18/2002	09:32
	PAYROLL	PLANT	N028	05/11/2002	09:32
	ROSTER	PLANT	N006	04/13/2002	12:58
	SALARY.BONUS	PLANT	N028	03/10/2002	09:32
	SALARY.REPORT	PLANT	N076	11/20/2001	15:20
SEL: S=Select to execute, V=View description, D=Delete query, E=Edit query					
PF1=Help PF4=Temp Fls PF7= PF10=Comments ENTER=Next Scr					
PF2=DB/File PF5=Qualify PF8= PF11= PF12=					
PF3=Fields PF6=Data Disp PF9= Clear, "/Exit"=Exit					

Figure 9-31 Stored Queries Screen, Single Database

The Stored Queries screen lists the stored inquiry names, in alphabetical order, as well as their status.

Col. Heading	Explanation
CON	Indicates whether the stored inquiry is in the primary or connected directory (character "C" on this column). Trying to display or delete an inquiry stored in a connected directory will result in an error message. This is a VISION:Inquiry default.  For detailed information about connected directories, see the <i>Advantage VISION:Inquiry for IMS and TSO Technical Reference Guide</i> .
DB FILE	The database or file name.
LTERM	The name of the last terminal that modified the stored inquiry, or, in case of no modification, the name of the terminal that stored the inquiry.
CHNG DATE TIME	The last date and time that the inquiry was modified, or, in case of no modification, the date and time the inquiry was originally stored (created).

## Listing All Inquiries in a Directory

To list the inquiries stored in primary or connected directories for all the databases as opposed to a single database:

1. On the DB/File Selection screen, delete any select code entered for databases.
2. Press PF9.

STORED QUERIES FOR DB ALL						AQFM07
Next query starts with:						
SEL CON	QUERY NAME	DB FILE	LTERM	CHNG DATE	TIME	
	DEGREE.SALARY	PLANT	N076	04/18/2002	09:32	
C	EMPLOYEE.JOB.CLASS	SKILL	N080	02/27/2002	10:20	
	EMPLOYEE SKILL	SKILL	N006	06/12/2002	10:32	
	PAYROLL	PLANT	N028	05/11/2002	09:32	
	ROSTER	PLANT	N006	04/13/2002	12:58	
	SALARY.BONUS	PLANT	N028	03/10/2002	09:32	
	SALARY.REPORT	PLANT	N076	11/20/2001	15:20	

SEL: S=Select to execute, V=View description, D=Delete query, E=Edit query  
 PF1=Help PF4=Temp Flds PF7= PF10=Comments ENTER=Next Scr  
 PF2=DB/File PF5=Qualify PF8= PF11= PF12=  
 PF3=Fields PF6=Data Disp PF9= CLEAR, "/Exit"=Exit

Figure 9-32 Listing All Inquiries in a Directory - Stored Queries Screen

[Figure 9-32](#) shows the list of stored inquiries. The directories contain stored inquiries for the PLANT and SKILL databases. The stored inquiry EMPLOYEE.JOB.CLASS is stored in the connected directory.

## Viewing a Stored Inquiry

Some options (commands) that you use with stored inquiries require at least three distinct steps:

1. Type a select code in the SEL column across from the inquiry name.
2. Press Enter to generate the inquiry.
3. And then press Enter to perform the option (command).

In [Figure 9-33](#), a stored inquiry has been selected with the code V to view the contents of the inquiry. The selection code V tells AQF to list the inquiry that has been stored in the directory.

**Example:** "List the stored inquiry named SALARY.BONUS."

1. Select SALARY.BONUS with the SEL code V, as shown in [Figure 9-33](#).

STORED INQUIRIES FOR DB PLANT						AQFM07
Next query starts with:						
SEL CON	QUERY NAME	DB FILE	LTERM	CHNG DATE	TIME	
	DEGREE.SALARY	PLANT	N076	04/18/2002	09:32	
	PAYROLL	PLANT	N028	05/11/2002	09:32	
	ROSTER	PLANT	N006	04/13/2002	12:58	
V	SALARY.BONUS	PLANT	N028	03/10/2002	09:32	
	SALARY.REPORT	PLANT	N076	11/20/2001	15:20	
SEL: S=Select to execute, V=View description, D=Delete query, E=Edit query						
PF1=Help PF4=Temp Flds PF7= PF10=Comments ENTER=Next Scr						
PF2=DB/File PF5=Qualify PF8= PF11= PF12=						
PF3=Fields PF6=Data Disp PF9= Clear,"/Exit"=Exit						

Figure 9-33 Selecting a Stored Inquiry to View

2. Press Enter to generate the inquiry for viewing.
3. Press Enter again to display the stored inquiry.

[Figure 9-34 on page 9-27](#) shows the output from choosing the select code V (for View) in the Stored Query screen.



STORED INQUIRIES FOR DB PLANT					AQFM07
Next query starts with:					
SEL CON	QUERY NAME	DB FILE	LTERM	CHNG DATE	TIME
	DEGREE.SALARY	PLANT	N076	04/18/2002	09:32
	PAYROLL	PLANT	N028	05/11/2002	09:32
	ROSTER	PLANT	N006	04/13/2002	12:58
D	SALARY.BONUS	PLANT	N028	03/10/2002	09:32
	SALARY.REPORT	PLANT	N076	11/20/2001	15:20
SEL: S=Select to execute, V=View description, D=Delete query, E=Edit query					
PF1=Help PF4=Temp Flds PF7= PF10=Comments ENTER=Next Scr					
PF2=DB/File PF5=Qualify PF8= PF11= PF12=					
PF3=Fields PF6=Data Disp PF9= Clear, "/Exit"=Exit					

Figure 9-35 Deleting a Stored Inquiry - Stored Queries Screen

- Press Enter to display the Confirm Delete message, shown in [Figure 9-36](#).

STORED QUERIES FOR DB PLANT					AQFM07
Query to be deleted - SALARY.BONUS					
Verify above inquiry deletion - Enter Y or N: N					
PF1=Help PF4= PF7= PF10= ENTER=Next Scr					
PF2= PF5= PF8= PF11= PF12=					
PF3= PF5= PF9= Clear, "/Exit"=Exit					

Figure 9-36 Confirming the Deletion of a Stored Inquiry - Confirm Deletion Message

After you select a stored inquiry for deletion and press Enter, AQF asks you to confirm the deletion.

- Notice that the stored inquiry name, SALARY.BONUS, is displayed following the phrase, 'Query to be deleted'.
  - The statement, 'Verify above inquiry deletion - Enter Y or N: N'. displays beneath the inquiry name. 'N' (NO) is the default.
- To delete the stored inquiry, SALARY.BONUS, enter Y after the colon, and press Enter to generate the inquiry for deletion.

4. Press Enter again.

The output is shown in [Figure 9-37](#).

```
PAGE:          TRANCODE: II      INQUIRY:

IXX0121 STORED INQUIRY/FUNCTION NAME 'SALARY.BONUS' HAS BEEN DELETED.
```

Figure 9-37 Deleting Inquiries from the Directory

The output shown in [Figure 9-37](#) displays the message that is displayed when an item has been deleted from the directory.

All the select codes and their functions explained in this section for the Stored Queries screen of a specific database are applicable to the Stored Queries screen for all databases.

### Attempting to Delete Connected Directories Stored Inquiries

As a VISION:Inquiry system default, inquiries stored in a connected directory (character “C” in column CON) cannot be deleted. Attempts to delete them generate an error message.

## Editing Stored Inquiries

To edit a stored inquiry using the Text Editor facility:

1. In the Stored Queries screen, select the stored inquiry 'ROSTER' with the select code E (E for Editor), as shown in [Figure 9-38](#),

STORED INQUIRIES FOR DB PLANT					AQFM07
Next query starts with:					
SEL CON	QUERY NAME	DB FILE	LTERM	CHNG DATE	TIME
	DEGREE.SALARY	PLANT	N076	04/18/2002	09:32
	PAYROLL	PLANT	N028	05/11/2002	09:32
E	ROSTER	PLANT	N006	04/13/2002	12:58
	SALARY.REPORT	PLANT	N076	11/20/2001	15:20
SEL: S=Select to execute, V=View description, D=Delete query, E=Edit query					
PF1=Help		PF4=Temp Flds	PF7=	PF10=Comments	ENTER=Next Scr
PF2=DB/File		PF5=Qualify	PF8=	PF11=	PF12=
PF3=Fields		PF6=Data Disp	PF9=	Clear, "/Exit"=Exit	

Figure 9-38 Selecting a Stored Inquiry to Edit -Stored Queries Screen

2. Press Enter to generate the inquiry for editing; the results are shown in the top portion of [Figure 9-39](#).
3. Press Enter again to display the stored inquiry on the Text Editor screen.

The retrieved inquiry is shown in the lower portion of the figure.

```

PAGE:          TRANCODE:  II      INQUIRY:
PLANT EDITSQ 'ROSTER';;

COMMAND:                                SCROLL: FULL
DB NAME: PLANT      INQUIRY NAME: ROSTER
COMMENT:
0000 *****          T O P   O F   D A T A          *****
0001 PLANT DISPLAY PLANT.ID EMP.NO EMP.NAME          ;;
      *****          B O T T O M   O F   D A T A          *****

F1=HELP F2=RUN F3=EXIT F4=SAVE/RUN F5=RFIND F7=UP F8=DOWN F9=SAVE F12=EDNEXT

```

Figure 9-39 Editing a Stored Inquiry - Text Editor Screen

**Notes:**

- You can find additional information about the Text Editor commands and options in the *Advantage VISION:Inquiry Reference Guide*.
- You can edit inquiries stored in a primary or connected directory (character "C" in column CON).

## Viewing Comments Associated with Stored Queries

You can save a comment when storing an inquiry in the native mode to give information about the query. You can view the comments on the Stored Queries with Comments screen in AQF by pressing the PF10 key on the Stored Queries screen. [Figure 9-40](#) shows the Stored Queries with Comments screen. The stored query name line is followed by the comment information saved for the query. The blank line following MON.SAL stored query indicates there is no comment for this stored query. From this screen, you can do the same functions available in the Stored Queries screen that discussed earlier in this chapter.

STORED INQUIRIES WITH COMMENTS FOR DB PLANT						AQFM07
Next query starts with:						
SEL CON	QUERY NAME	DB FILE	LTERM	CHNG DATE	TIME	
BONUS	BONUS SALARY INFORMATION	PLANT	BATCH	04/18/2001	09:32	
MON.SAL		PLANT	BATCH	04/18/2000	09:32	
PS2	GENERAL EMPLOYEE INFORMATION	PLANT	N060	04/13/2001	12:58	
WOMEN.DEGREES	FEMALE EMPLOYEE DEGREE INFORMATION	PLANT	N060	04/18/2001	09:32	
SEL: S=Select to execute, V=View description, D=Delete query, E=Edit query PF1=Help PF4=Temp Flds PF7= PF10= ENTER=Next Scr PF2=DB/File PF5=Qualify PF8= PF11= PF12= PF3=Fields PF6=Data Disp PF9=List Query CLEAR,"/Exit"=Exit						

Figure 9-40 Stored Queries with Comments Screen

# Using Stored Inquiries and Functions

---

**Notes:**

- AQP does not support the native SQL syntax facility; the stored inquiry discussion in this chapter does not apply to this facility.
- In this chapter, the term directory is a reference to primary directory. Any reference to a connected directory is stated explicitly.

Methods for storing inquiries and functions are explained in [Chapter 9, “Using Directory Commands - Storing Inquiries”](#). This chapter describes how to use stored inquiries.

You or your system administrator write and store inquiries in the primary directory or connected directories. Users access stored inquiries whenever needed.

Stored inquiries are related to the particular database that they access. The names of the stored inquiries are assigned at the time they are stored. You may want to use the Stored Queries screen (explained in [Executing a Stored Inquiry - Stored Queries Screen on page 10-2](#)) to see the names of inquiries that have been stored in a directory. Your system administrator can provide you with a list of names of stored inquiries that you may execute.

Additional information about creating and using stored inquiries is available in the *Advantage VISION:Inquiry Reference Guide*.

**Note:** The references to the Stored Queries screen in this chapter are also applicable to the Stored Queries with Comments screen. You can get to the Stored Queries with Comments screen from the Stored Queries screen by pressing the PF10 key. This Stored Queries with Comments screen has an additional line per query, showing the comment associated with each query.



4. Press Enter to execute the inquiry.

AQF retrieves the inquiry from the primary or connected directory and then executes it. The output from this inquiry is the same as if you had created the inquiry.

[Figure 10-3](#) shows the first page of output from the stored inquiry, ROSTER.

PAGE:	TRANCODE: II	INQUIRY:
PLANT.ID	EMP.NO	EMP.NAME
10100	10103	WILLIAM AMES
	10104	PHYLLIS LOCKMEYER
	10105	MARY ANN THOMAS
20150	21116	WILMA FORD
	21124	CHARLES SALTER
	21137	PETER ZATKIN
	21164	SUSAN WARE
30200	30201	JOHN HENRY CRANE
	30202	FREDERICH GRAY
	30205	MITCHELL J HOOPS
	30207	JANE LOWELL
	30211	PATRICIA BLAKELY
	30215	SHARON DALEY
40300	40304	DONALD M KING
	40306	JOAN EVANS
50300	50304	JONATHAN OAKS
	50322	MADELYN BATES
	50323	VICKY WARD
60200	60205	DAVID YORK

Figure 10-3 Executing a Stored Inquiry - Output from Inquiry Named ROSTER

## Using Substitutable Values in a Stored Inquiry

In some stored inquiries, the test values in the condition have not been explicitly stated. They have been replaced with substitutable values in the form of %1, %2, and so on.

When you use a stored inquiry with substitutable values, you enter the specific values for which you want to test. AQF makes the substitution of the data you have entered, allowing you to use the same inquiry with many sets of input values.

In the following example, replace values for salaries and educational levels in a stored inquiry named DEGREE.SALARY, which is related to the database PLANT.



3. Delete the phrases 'ENTER ED.DEGREE' and 'ENTER SAL.YTD', and type the substitution values, 'HS' for ED.DEGREE (include the quotation marks), and 42000 for SAL.YTD (no quotation marks).
4. If your screen is different from [Figure 10-4](#), delete any entry in the PAGE column, and any other words that appear before the two semicolons.

The inquiry now reads:

```
INQUIRY: PLANT DEGREE.SALARY 'HS' 42000 ;;
```

When this stored inquiry is executed, the values you entered are substituted on a one-to-one basis from left to right. ED.DEGREE is replaced first, followed by SAL.YTD.

5. Press Enter to execute the stored inquiry.

When DEGREE.SALARY executes, it displays the employee number and name, educational degree, and year-to-date salary from the PLANT database, if ED.DEGREE = HS and if SAL.YTD is less than or equal to \$42,000.

Above the horizontal line in [Figure 10-5](#) is a portion of the first screen you will receive, which displays the generated inquiry. Below the line is the complete second screen, which displays the results of the inquiry.

PAGE:            TRANCODE: II            INQUIRY: PLANT DEGREE.SALARY 'HS' 42000;;			
-----			
PAGE:            TRANCODE: II            INQUIRY:			
EMP.NO	EMP.NAME	ED.DEGREE	SAL.YTD
10105	MARY ANN THOMAS	HS	15,600.00
21116	WILMA FORD		15,600.00
		HS	18,800.00
30201	JOHN HENRY CRANE		13,400.00
			19,600.00
		HS	22,000.00
30207	JANE LOWELL		22,000.00
			26,000.00
		HS	26,000.00
30215	SHARON DALEY	HS	17,000.00
50323	VICKY WARD	HS	20,000.00
60258	KAREN REDFERN		22,000.00
		HS	26,000.00
70519	STEPHEN MCGEE		19,000.00
		HS	23,000.00
70522	AGNES COVINGTON		20,000.00
		HS	23,000.00

Figure 10-5 Using Substitutable Values in Stored Inquiries - Output

[Figure 10-5](#) displays your report. The substitution values, 'HS' and 42000, are entered, and the generated inquiry displays at the top of the first screen, prior to the display of the output in the second screen.

### Using Different Substitutable Values

You can use different sets of substitutable values in your stored inquiry simply by entering the new values at your terminal.

Suppose you were interested in seeing a report of the employees holding a Bachelor of Arts degree who are earning \$50,000 or less. You would substitute those values after viewing the stored inquiry, as shown in [Figure 10-6 on page 10-7](#).

**Example:** "Report those employees who have BA degrees and earn \$50,000 or less."

1. Select PLANT on the DB/File Selection screen.
2. Press PF9, and select the DEGREE.SALARY with a V on the Stored Queries screen to view the stored inquiry before executing it.
3. Press Enter to generate the inquiry for viewing, and press Enter again to execute the inquiry.

The stored inquiry displays in two screens. They are shown in [Figure 10-6](#) as two partial screens, the first above a horizontal line, the second below it.

```

PAGE:          TRANCODE: II      INQUIRY: PLANT PDI 'DEGREE.SALARY';;
-----
PAGE:          TRANCODE: II      INQUIRY:

DEGREE.SALARY          N076      04-18-2002 10:55
DISPLAY PLANT EMP.NO EMP.NAME ED.DEGREE SAL.YTD IF ED.DEGREE = %001
AND SAL.YTD <= %002 ;
*
*
*
*
*
*
*
*
*
*
*
*
*
*
*
*
IXX9121 END OF INQUIRY          (0,0 USER USER DB CALLS,ROOTS)
    
```

Figure 10-6 Using Different Substitutable Values - Viewing the Stored Inquiry, DEGREE.SALARY

The inquiry displays as stored. You can see that ED.DEGREE has been equated to %001 and SAL.YTD has been equated to %002.

4. Type the database name, PLANT, followed by the stored inquiry name and the substitutable values:

```
PLANT DEGREE.SALARY 'BA' 50000;;
```

5. Press Enter to execute this inquiry.

[Figure 10-7](#) shows the output.

PAGE:		TRANCODE: II	INQUIRY:	
EMP.NO	EMP.NAME	ED.DEGREE	SAL.YTD	
10104	PHYLLIS LOCKMEYER	BA	48,000.00	
21124	CHARLES SALTER		24,000.00	
			30,000.00	
		BA	39,000.00	
21137	PETER ZATKIN		44,000.00	
		BA	50,000.00	
30202	FREDERICH GRAY	BA	48,000.00	
50322	MADELYN BATES	BA	32,000.00	
60205	DAVID YORK		31,000.00	
			37,000.00	
		BA	43,000.00	
60209	RUSSELL M SIMMONS	BA	48,000.00	
60251	MARCIE MORINO	BA	31,000.00	
70511	RONALD T JACKSON		32,000.00	
			39,000.00	

Figure 10-7 Using Different Sets of Substitutable Values - Output

The report formats in [Figure 10-5 on page 10-6](#) and [Figure 10-7](#) are the same. The different values substituted in the condition of the inquiry select different employees from the database.

Being able to use substitutable values in stored inquiries gives you flexibility and allows repeated use of stored inquiries for various purposes.



PAGE:				TRANCODE: II		INQUIRY:	
PLANT.ID	EMP.NO	EMP.NAME		SAL.YTD			
10100	10103	WILLIAM AMES		52,000.00			
	10104	PHYLLIS LOCKMEYER		64,000.00			
				48,000.00			
				59,000.00			
60200	60205	DAVID YORK		31,000.00			
				37,000.00			
				43,000.00			
	60209	RUSSELL M SIMMONS		48,000.00			
				*			
				*			
-----							
PAGE:				TRANCODE: II		INQUIRY:	
COUNTS	EMP.NAME						
	5						
TOTALS	SAL.YTD						
	473,000.00						
				*			
				*			

Figure 10-9 Using COUNT and TOTAL in a Stored Inquiry - Output

[Figure 10-9](#) shows the first and second pages of your output. Totals of employees and salary are displayed on the second page.

## Using Stored Functions

Using stored functions is somewhat different than using stored inquiries. Assume that you have stored a calculation of the yearly bonus in the database, and named the function YEARLY.BONUS, using the free-form syntax of VISION:Inquiry.

You use the stored function by selecting it as a data field in an inquiry. AQF automatically replaces the name of the function, YEARLY.BONUS, with the steps in the arithmetic calculation, and performs the indicated arithmetic operations when it executes the inquiry.

**Example:** "List the employees and their yearly bonus by plant identification."

1. Select the PLANT database with a U on the DB/File Selection screen.
2. Press F3 to proceed to the Field Selection screen. Select EMP.NAME, PLANT.ID, and YEARLY.BONUS with the select code D.
3. Press PF6 to proceed to the Data Display screen, shown in [Figure 10-10](#).

```

                                DATA DISPLAY                                AQFM06
LIST      DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER     NAME                                BRK  CNT  TOT  AVG  ORDER  DESC?
  2      U PLANT    EMP.NAME
  1      U PLANT    PLANT.ID
  3      U PLANT    YEARLY.BONUS

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify    PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run        PF9=List Query Clear, "/Exit"=Exit

```

Figure 10-10 Using Stored Functions - Data Display Screen

[Figure 10-10](#) lists the selected fields. LIST ORDER has been applied to the fields. The output from the function will be displayed under the heading BONUS.SAL.

4. Press PF6 to generate the inquiry. Press Enter to execute the inquiry. AQF executes the function within the inquiry as it executes the inquiry.

[Figure 10-11](#) displays the output.

PLANT.ID	EMP.NAME	BONUS.SAL
10100	WILLIAM AMES	6,913.0000
	PHYLLIS LOCKMEYER	8,525.0000
	MARY ANN THOMAS	6,448.0000
20150	WILMA FORD	7,874.0000
	CHARLES SALTER	2,205.6500
	PETER ZATKIN	2,222.7000
	SUSAN WARE	2,607.1000
		3,406.9000
		4,163.3000
		5,115.0000
		5,766.0000
		6,541.0000
		7,195.1000
		4,154.0000
		5,270.0000

Figure 10-11 Using Stored Functions - Output

[Figure 10-11](#) illustrates the use of the stored function, YEARLY.BONUS. The results of the calculations of the yearly bonus are listed for each employee under the column heading, BONUS.SAL.

## Using Multiple Stored Functions

An inquiry can contain more than one stored function. Suppose you have stored and want to use two stored functions, YEARLY.BONUS and BONUS, in an inquiry.

YEARLY.BONUS generates an employee's yearly bonus of 15.5 percent. BONUS produces an employee's salary plus \$10.00.

**Example:** “List the employees and their yearly bonus and salary bonus by plant identification. Use two stored functions to perform these calculations.”

1. Select the database, PLANT, with a U.
2. Press PF3, and select BONUS, EMP.NAME, PLANT.ID, and YEARLY.BONUS with Ds.
3. Press PF6. The Data Display screen appears (see [Figure 10-12](#)).
4. Apply LIST ORDER to the four fields to override the default printing order as shown in [Figure 10-12](#). BONUS is the fourth column to be printed. PLANT.ID, EMP.NAME, and YEARLY.BONUS precede it.

```

                                DATA DISPLAY                                AQFM06
LIST   DB/FILE                                CTL  -SUMMARIES-  SORT
ORDER  NAME      FIELD NAME                  BRK  CNT TOT AVG  ORDER DESC?
  4    U PLANT   BONUS
  2    U PLANT   EMP.NAME
  1    U PLANT   PLANT.ID
  3    U PLANT   YEARLY.BONUS

Title1:
Title2:
Specify limit value if desired:
If saving query, name to be used:
Specify PC file name for FTS:
PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PC File  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=PGFD Flds  PF11=Save     PF12=
PF3=Fields    PF6=Run       PF9=List Query Clear, "/Exit"=Exit

```

Figure 10-12 Using Multiple Stored Functions - Data Display Screen

5. Press PF6 to generate the inquiry, and press Enter to execute the inquiry.

[Figure 10-13](#) shows the results of the two stored functions, BONUS and YEARLY.BONUS. BONUS heads the last column. The results of the arithmetic calculation are always assigned to a temporary field when the function is defined. Therefore, the column heading appears on the display as 'BONUS'.

PAGE:		TRANCODE: II	INQUIRY:	
PLANT.ID	EMP.NAME		BONUS.SAL	BONUS
10100	WILLIAM AMES		6,913.0000	52,010.00
			8,525.0000	64,010.00
	PHYLLIS LOCKMEYER		6,448.0000	48,010.00
			7,874.0000	59,010.00
	MARY ANN THOMAS		2,205.6500	15,610.00
20150	WILMA FORD		2,222.7000	15,610.00
			2,607.1000	18,810.00
	CHARLES SALTER		3,406.9000	24,010.00
			4,163.3000	30,010.00
			5,115.0000	39,010.00
	PETER ZATKIN		5,766.0000	44,010.00
			6,541.0000	50,010.00
			7,195.1000	56,010.00
	SUSAN WARE		4,154.0000	32,010.00
			5,270.0000	41,010.00

Figure 10-13 Using Multiple Stored Functions - Output with Two Stored Functions in an Inquiry

The FIND database, PLANT, contains multiple occurrences of fields, such as salaries. The function, BONUS, is applied to each occurrence of salary in the database. Each occurrence is printed, as well as the employee's name, plant location, and yearly bonus.



- There are no substitution values to enter. Press Enter to execute the inquiry. The results are shown in [Figure 10-16](#).

PLANT.ID	EMP.NAME	BONUS.SAL
10100	WILLIAM AMES	6,913.0000
	PHYLLIS LOCKMEYER	8,525.0000
	MARY ANN THOMAS	6,448.0000
	WILMA FORD	7,874.0000
20150	CHARLES SALTER	2,205.6500
	PETER ZATKIN	2,222.7000
	SUSAN WARE	2,607.1000
		3,406.9000
		4,163.3000
		5,115.0000
		5,766.0000
		6,541.0000
		7,195.1000
		4,154.0000
		5,270.0000

Figure 10-16 Using a Stored Inquiry with Stored Functions - Output

[Figure 10-16](#) shows a stored inquiry which includes stored functions.

### Using a Stored Inquiry with Stored Functions and a Substitutable Value

The stored inquiry SALARY.BONUS contains one substitution value and one function. The value for PLANT.ID is undefined in the stored inquiry.

The function, which calculates an employee's yearly bonus of 15.5 percent, is contained in YEARLY.BONUS. The stored inquiry also displays the plant number and employee name.

[Figure 10-17 on page 10-17](#) is the generated inquiry.

- To enter the substitutable values, delete the phrase, 'ENTER PLANT.ID'. Type the plant number, 30200, after the stored inquiry name, SALARY.BONUS, as shown here:

```
PLANT SALARY.BONUS 30200;;
```

- Press Enter to execute the inquiry.

```

PAGE:          TRANCODE: II          INQUIRY: PLANT SALARY.BONUS 'ENTER PLANT.ID';;

PF4=Return TO AQF          ENTER=Run Query

```

Figure 10-17 Using a Stored Inquiry with Stored Functions and a Substitutable Value - The Stored Inquiry, SALARY.BONUS

[Figure 10-18](#) displays the output.

```

PAGE:          TRANCODE: II          INQUIRY: PLANT SALARY.BONUS 30200;;

-----

PAGE:          TRANCODE: II          INQUIRY:

PLANT.ID  EMP.NAME          BONUS.SAL
30200    JOHN HENRY CRANE  1,863.1000
          2,734.2000
          3,007.0000
          FREDERICH GRAY  5,955.1000
          7,037.0000
          MITCHELL J HOOPS  9,672.0000
          11,315.0000
          12,090.3100
          JANE LOWELL    2,697.0000
          3,131.0000
          PATRICIA BLAKELY  4,011.4000
          SHARON DALEY    2,393.2000
*
*
IXX9121  END OF INQUIRY.          (26,1 USER DB CALLS,ROOTS)

```

Figure 10-18 Using a Stored Inquiry with a Stored Function and a Substitutable Value - Output

[Figure 10-18](#) displays the generated inquiry above the horizontal line, and below it, the report for employees who work at Plant 30200.

If you are interested in seeing the information for people who work in Plant 20150, enter the appropriate substitutable value in place of the plant number, 30200.

**Example:** “List the employees and their yearly bonus raise if they work at Plant 20150.”

1. Substitute the value 30200, as shown here:

```
PLANT SALARY.BONUS 20150;;
```

2. Press Enter to execute the inquiry.

PAGE:	TRANCODE: II	INQUIRY: PLANT SALARY.BONUS 20150;;
-----		
PAGE:	TRANCODE: II	INQUIRY:
PLANT.ID	EMP.NAME	BONUS.SAL
20150	WILMA FORD	2,222.7000
		2,607.1000
	CHARLES SALTER	3,406.9000
		4,163.3000
		5,115.0000
	PETER ZATKIN	5,766.0000
		6,541.0000
		7,195.1000
	SUSAN WARE	4,154.0000
		5,270.0000
*		
*		
IXX9121	END OF INQUIRY.	(20,1 USER DB CALLS,ROOTS)

Figure 10-19 Substituting a Value in a Stored Inquiry that Calls a Function

[Figure 10-19](#) displays the report for employees who work at Plant 20150. Other substitutions would produce other reports.

## Displaying All Stored Inquiries

You can display all stored inquiries in your primary and connected directories at one time. In the DB/File Selection screen, do not make a selection. Press PF9 to display the Stored Queries screen, as shown in [Figure 10-20](#).

STORED QUERIES FOR DB ALL						AQFM07
Next query starts with:						
SEL	CON	QUERY NAME	DB FILE	LTERM	CHNG DATE	TIME
		DEGREE.SALARY	PLANT	N076	04/18/2002	09:32
C		EMPLOYEE.JOB.CLASS	SKILL	N080	02/27/2002	10:20
		EMPLOYEE SKILL	SKILL	N006	06/12/2002	10:32
		PAYROLL	PLANT	N028	05/11/2002	09:32
		ROSTER	PLANT	N006	04/13/2002	12:58
		SALARY.BONUS	PLANT	N028	03/10/2002	09:32
		SALARY.REPORT	PLANT	N076	11/20/2001	15:20
SEL: S=Select to execute, V=View description, D=Delete query, E=Edit query						
PF1=Help		PF4=Temp Flds	PF7=	PF10=Comments	ENTER=Next Scr	
PF2=DB/File		PF5=Qualify	PF8=	PF11=	PF12=	
PF3=Fields		PF6=Data Disp	PF9=	CLEAR,"/Exit"=Exit		

Figure 10-20 Stored Queries Screen

The Stored Queries screen displays all the inquiries stored in your primary and connected directories are displayed. Notice that this screen displays the inquiry name, its database or file name, and so on. To view any additional pages, press Enter.

All the selection codes and their functions explained in this chapter for the Stored Queries screen of a specific database are also applicable to the Stored Queries screen for all databases and for the Stored Queries with Comments screen.



# Commands, Noise Words, and Name Combinations

This appendix summarizes commands, noise words, and name combinations.

## Commands

The VISION:Inquiry commands are listed below, along with a brief description of their function and a reference to the chapter in the *Advantage VISION:Inquiry Reference Guide* in which they are explained. Note that not all of these commands can be generated by AQF. For example, AQF does not generate UDO inquiries.

Some VISION:Inquiry commands do not have to be completely spelled out in an inquiry. You can use abbreviations (synonyms) instead. The standard abbreviations are shown on the following pages.

The commands listed in this guide are the standard default commands that are supplied with the system. The actual names of the commands and their abbreviations can be customized by each installation. Check with your system administrator for the particular names used in your system.

Command	Function	Synonym	Chapter
DISPLAY	Displays indicated fields	D, PRINT	5
IF	Performs conditional selection	WITH	5
FIRST	Tests first occurrence of a field		5
LAST	Tests last occurrence of a field		5
ESCAPE	Used with the LIKE operator		5
SORT	Re-sequences data as it is output		5
ASC	Default. Sorts into ascending order		5
DSC	Sorts into descending order		5
LIMIT	Limits the number of lines of data to output		5

Command	Function	Synonym	Chapter
SUM	Performs subtotals and arithmetic calculations on subgroups of data		7
OUTPUT	Sends output display to another output device		5, 12
TOTAL	Calculates and displays grand or group totals		6
AVERAGE	Calculates and displays grand or group averages		6
COUNT	Calculates and displays grand or group counts		6
FIND	Allows access to one or more databases	I, INTER	8
DEFINE DIRECTORY INQUIRY	Stores an inquiry in the directory	DDI	9
DEFINE DIRECTORY FUNCTION	Stores a function in the directory	DDF	9
DISPLAY DIRECTORY INQUIRY	Displays one or more stored inquiries	PDI	9
DISPLAY DIRECTORY INQUIRY WHOLE	Displays all the stored inquiries	PDIW	9
DISPLAY DIRECTORY INQUIRY COMMENT	Displays the comment associated with one or more stored inquiries	PDIC	9
DISPLAY DIRECTORY INQUIRY COMMENT WHOLE	Displays the comments associated with all the stored inquiries	PDICW	9

Command	Function	Synonym	Chapter
DISPLAY DIRECTORY FUNCTION	Displays one or more stored functions	PDF	9
DELETE DIRECTORY INQUIRY	Deletes a stored inquiry from the directory		9
DELETE DIRECTORY FUNCTION	Deletes a stored function from the directory		9
(No command needed)	Use stored inquiry or function (See after this section)		10
EDITSQ	Allows editing of stored inquiries; invokes Text Editor facility		10
FORMAT	Primary UDO command that produces formatted output		11
COLUMN n	Positions data across the page	COL n	11
SPACE n	Positions data across the page	SP n	11
LINE n	Positions data down the page		11
SKIP n	Positions data down the page		11
NOSPACE	Turns off the spacing between output fields	NOSP	11
EDIT	Defines the specifications for editing a numeric field		11
PF	Allows part of a field to be displayed		11
REPEAT n	Specifies the number of segments displayed from the database	REP n	11
SHOW	Allows you to see the next record in your buffer when you have reached the limit of your database calls when operating in conversational mode using the FORMAT command		4
CONTINUE	Indicates processing of an inquiry should continue	PF1	4

Command	Function	Synonym	Chapter
DEFER	Indicates processing of an inquiry should be deferred	PF2 DI	4
CONTINUE DEFERRED INQUIRY	Indicates processing of a deferred inquiry should now be continued	PF3 CDI	4
DELETE DEFERRED INQUIRY	Deletes a deferred inquiry from the system		4

**Notes:**

- FIRST, LAST, and SUM do not apply to VSAM non-hierarchical files and DB2 tables.
- To use a stored inquiry or function, no command is needed. Enter the name of the stored inquiry followed by the name of the related database.
- The synonyms PF1 for CONTINUE, PF2 for DEFER, and PF3 for CONTINUE DEFERRED INQUIRY are function keys on terminal keyboards for systems operating under IMS. For systems operating under CICS, in the TRANSACTION field, type: 1 for CONTINUE, 2 for DEFER, and 3 for CONTINUE DEFERRED INQUIRY.

## Noise Words

To improve readability, you can add the following words to an inquiry for clarity. They are, however, not required.

Note that the translation time will be increased slightly with the use of noise words. However, the actual time increase depends on the number of noise words used in the inquiry.

Noise Words				
A	BY	HAVE	NONE	THE
AN	FROM	IN	OF	TO
ARE	HAD	IS	ON	WAS
AS	HAS	NO	THAN	WERE

## Name Combinations

**Note:** For the DISPLAY DIRECTORY MAP command (PDM), only the first page of the map is displayed.

You can use the following name combinations or their abbreviations with VISION:Inquiry.

DISPLAY DIRECTORY MAP	PDM
DISPLAY DIRECTORY MAP WHOLE	PDMW
DISPLAY DIRECTORY INQUIRY	PDI
DISPLAY DIRECTORY INQUIRY WHOLE	PDIW
DISPLAY DIRECTORY INQUIRY COMMENT	PDIC
DISPLAY DIRECTORY INQUIRY COMMENT WHOLE	PDICW
DISPLAY DIRECTORY VOCABULARY	PDV
DISPLAY DIRECTORY DATA	PDD
DISPLAY DIRECTORY DATA WHOLE	PDD WHOLE
DISPLAY DIRECTORY FUNCTION	PDF
DISPLAY DIRECTORY LTERM	PDL
DISPLAY DIRECTORY DATA DESCRIPT	PDDDS

Examples of the above commands can be found in the *VISION:Inquiry Reference Guide*.



# Automatic Query Facility (AQF) Screens

This appendix summarizes each of the AQF screens. Fields, codes, and keys are briefly explained.

## VISION:Inquiry AQF SYSTEM or Introduction Screen

To display the first AQF screen, enter your AQF transaction code. Press Enter.

[Figure B-1](#) shows the VISION:Inquiry AQF SYSTEM screen, hereafter referred to as the **Introduction** screen. This screen welcomes you to AQF and instructs you on how to access the system. Type your native VISION:Inquiry transaction code and press Enter.

```

                                VISION:Inquiry AQF SYSTEM                                AQFM01

Enter your VISION:Inquiry transaction code:

VISION:Inquiry lists you as terminal/user:          NMSFG026

Press ENTER to use this transaction code and display DBD/File names to
process. Press CLEAR to clear screen and type "/EXIT" to exit from
AQF system.

PF1=Help      PF4=          PF7=          PF10=          ENTER=Next Scr
PF2=          PF5=          PF8=          PF11=          PF12=
PF3=          PF6=          PF9=          Clear, "/Exit"=Exit
  
```

Figure B-1 Introduction Screen

## Branching from the Introduction Screen

From the Introduction screen (as shown in the previous figure), you can:

- Press Enter to continue to the DB/File Selection screen.
- Press Clear and type /EXIT to exit AQF under IMS. Press Clear to exit AQF under CICS.
- Press PF1 to access the online Help. The online Help demonstrates the correct completion of this screen.

## DATABASE/FILE SELECTION or DB/File Selection Screen

[Figure B-2 on page B-3](#) is the DATABASE/FILE SELECTION screen, hereafter referred to as the **DB/File Selection** screen. This screen presents the available databases or files and their types. For example, PLANT is an IMS (DL/I) database whereas VSPLANT is a VSAM KSDS file.

You select a database or file in order to generate an inquiry. For example, the database, PLANT, could be used to produce a report of the names of all women employees, their plant locations, and their educational degrees.

### Select Codes

You can use the following three select codes on the DB/File Selection screen:

U = Use

V = View description

F = Find

These select codes indicate how you want to retrieve data from the database or file. Each code is more fully described in the text which follows.

## Select Code U for Use

The select code U for Use indicates to AQF that you want to 'use' information from one database or file. Only one U is permissible per inquiry.

DATABASE / FILE SELECTION						AQFM02		
SELECT CODE	DB/FILE NAME	TYPE	SELECT CODE	DB/FILE NAME	TYPE	SELECT CODE	DB/FILE NAME	TYPE
	ACTYPE	DB2		DEPT	DB2		ED2SUB	DB2
	EMPL	DB2		EMPRAC	DB2		EMP2ED	DB2
	EMP2SAL	DB2	U	PLANT	IMS		PLANT2	DB2
	PL2EMP	DB2		PL2PROD	DB2		PRODUCTS	DB2
	PROJ	DB2		PROJAC	DB2		SALARIES	DB2
	SKILL	IMS		SKILLS	DB2		SKILL2	DB2
	SK2EMP	DB2		SK2PLANT	DB2		SUBJECTS	DB2
	VSPLANT	VSAMKSDS		VSSKILL	VSAMRRDS			

Next database starts with:

SELECT CODE: U = Use for query, V = View description, F = Find for query

PF1=Help      PF4=              PF7=              PF10=              ENTER=Next Scr  
 PF2=              PF5=              PF8=              PF11=              PF12=  
 PF3=Fields      PF6=              PF9=List Query Clear, "/Exit"=Exit

Figure B-2 DB/File Selection Screen

Type the select code U opposite PLANT. Press PF3 to proceed to the Field Selection screen. The data fields and stored function names for the PLANT database display on the top portion of the Field Selection screen.

PLANT contains the information you want to retrieve. You use this database to extract information and build your report. However, the contents of the database remain unchanged, regardless of the number of times you access the database or file. The data is not affected by your inquiry.

**Note:** DB2 is a VISION:Inquiry option. If DB2 tables do not appear on your DB/File Selection screen, the DB2 option for VISION:Inquiry might not be installed on your system.

```

                                FIELD SELECTION FOR DB/FILE - PLANT      U                AQFM03
-
CODES-
SEL KEY  FIELD NAME
                                -
CODES-
SEL KEY  FIELD NAME

      ED.DEGREE
      ED.YEAR
      EMP.NO
      PLANT.ID
      PLANT.PHONE
      PROD.AMT
      PROD.DESC
      SAL.DED
      SAL.DED.T

                                ED.SCHOOL
                                EMP.NAME
                                EMP.SEX
                                PLANT.NAME
                                PLANT.REGION
                                PROD.CODE
                                PROD.QTY
                                SAL.DED.DEC
                                SAL.YEAR

Next field starts with: SAL.YTD                                For DB/File: U

-
CODES- SEL:  D = Display,  Q = Qualify/Expression only,
            B = Both Display and Qualify/Expression,  V = View description
KEY:      Enter number For relating database fields when using find
PF1=Help   PF4=Temp Flds  PF7=                PF10=                ENTER=Next Scr
PF2=DB/File PF5=Qualify  PF8=                PF11=                PF12=
PF3=Completed PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure B-3 Field Selection Screen

If the PLANT database does not contain the data fields you want to retrieve, press PF2 to return to the DB/File Selection screen. Type U opposite a different DB/File Name (for example, SKILL) and press PF3 to proceed to the Field Selection screen for the selected database.

### Select Code F for Find

If the PLANT and SKILL databases each contain some of the fields you require for your report, you may want to link the databases. This linkage gives you access to all the fields you require.

To display data from one or more databases or files, enter the select code F for Find. To retrieve information from an additional database or file, it is necessary to link the second file or database to the first file or database. Once the files or databases are linked using a common field, more information is available for display.

For example, an employee's salary record (name, current salary, salary deductions) could be linked to a production record (job classification, job code) using the common field, EMP.NO. A report could then be displayed containing the employee's name, salary YTD, deductions, and occupation.

- Type F opposite one file or database and U opposite a different database or file to link fields from two databases or files for the same inquiry. Press PF3.
- To access the same database more than one time, type F opposite one file or database. Press PF3. AQF assigns a U to the same database or file.

One F and one U may be selected per inquiry. At least one U or one F must be selected in order to continue the inquiry. Databases or files are linked using options on the Field Selection for DB/File screen. This is discussed in [FIELD SELECTION FOR DB/FILE or Field Selection Screen on page B-8](#).

Linked databases or files allow a field in the first database or file, common or temporary, to be matched to an existing field in the second database or file.

Fields are linked to allow easy access to fields not common to both databases or files. All these fields are then available to produce the required report.

### Select Code V for View

To view the descriptions of the databases or file, enter the select code V for View. You can enter more than one V at the same time. After you have entered the necessary Vs, press Enter. The View Description screen is displayed, as shown in [Figure B-4](#).

```

                                DATABASE / FILE DESCRIPTIONS                                AQFM02
Name / Description
PLANT TEST DATABASE - PRODUCTS & EMPLOYEES
SKILL TEST DATABASE - JOB CLASSIFICATIONS

Press Enter To Return To The Selection Screen
(or view other databases selected).
    
```

Figure B-4 View Description Screen

In [Figure B-4](#), each selected database or file (with a brief description) is displayed. The databases or files are listed in alphabetical order.

Press Enter to:

- View additional databases or files, if any.
- Return to DB/File Selection screen.

When you have viewed all the database or file descriptions requested, press Enter to return to the DB/File Selection screen.

These descriptions help you identify which databases or files you want to query. These descriptions can only be changed by your system administrator. Contact your system administrator if these descriptions require alteration.

### Next Database Starts With

Additional pages of databases or files may exist. If you know the name of the database or file (for example, PLANT) and it is not displayed, type the name after the colon, as shown, and press Enter.

Next database starts with:

Databases or files are listed in alphabetical order horizontally across the screen. To locate additional databases or files, enter a name (PLANT) or a letter (P) after the colon. AQF scrolls to the page containing the P databases or files, as shown in [Figure B-5](#).

DATABASE / FILE SELECTION									AQFM02
SELECT CODE	DB/FILE NAME	TYPE	SELECT CODE	DB/FILE NAME	TYPE	SELECT CODE	DB/FILE NAME	TYPE	
U	PLANT	IMS		PLANT2	DB2	PL2EMP	DB2		
	PL2PROD	DB2		PRODUCTS	DB2	PROJ	DB2		
	PROJAC	DB2		SALARIES	DB2	SKILL	IMS		
	SKILLS	DB2		SKILL2	DB2	SK2EMP	DB2		
	SK2PLANT	DB2		SUBJECTS	DB2	VSPLANT	VSAMKSDS		
	VSSKILL	VSAMRRDS							
Next database starts with:									
SELECT CODE: U = Use for query, V = View description, F = Find for query									
PF1=Help	PF4=	PF7=	PF10=	ENTER=Next Scr					
PF2=	PF5=	PF8=	PF11=	PF12=					
PF3=Fields	PF6=	PF9=List Query Clear, "/Exit"=Exit							

Figure B-5 DB/File Selection Screen

**Note:** DB2 is a VISION:Inquiry option. If DB2 tables do not appear on your DB/File Selection screen, the DB2 option for VISION:Inquiry might not be installed on your system.

If no more databases or files are available, no name will appear after the colon (see [Figure B-5](#)). If additional databases or files exist, the name of the database or file which begins the next display page is displayed after the colon.

### Branching from the DB/File Selection Screen

If you have selected one or two databases or files, press PF3 to proceed to the Field Selection screen.

To access stored inquiries, press PF9 to proceed to the Stored Queries screen.

You can use the following PF keys whether or not entries have been made on the DB/File Selection screen:

- Press PF1 to proceed to the first page of Help for the DB/File Selection screen. You may page backward and forward through the Help screens. Press PF3 to return to the DB/File Selection screen.
- Press Clear and type /EXIT to exit AQF under IMS. Press Clear to exit AQF under CICS.

**Note:** If you have not selected any database or file and press PF9 to proceed to the Stored Queries screen, all the inquiries for all the databases are displayed.

## Help Screen

If you have any questions regarding this screen, press PF1 to view the Help screens for the DB/File Selection screen. Page 1 of Help is displayed. There are three screens (pages) describing the DB/File Selection screen.

```

Page: 1 of 3                HELP:  DATABASE/FILE SELECTION                AQFH02
Select IMS (DL/I) databases, DB2 tables, and VSAM files to be queried.
You can also choose to relate one database (or file) to another database
(or file). Select at least one database as "U" or "F" to continue your
QUERY or to list stored Queries for that database.

The fields on the panel are defined as follows:

SELECT CODE      -   Enter one of the following values opposite
                    the desired database, table, or file.

                    U - Use this database, table, or file
                      to query. Enter at most one "U" per Query.

                    V - View a description of the database, table,
                      or file. May enter more than one "V".

                    F - Find a database, table, or file related by
                      field to another database, table, or file.
                      Enter at most one "F" per Query.

PF3=EXIT HELP                PF8/ENTER=PAGE FORWARD
    
```

Figure B-6 DB/File Selection Help Screen

On the Help screen, you may:

- Press Enter or PF8 to page forward
- Press PF7 to page backward
- Press PF3 to exit from Help.

You may page forward and backward to view the Help screens. However, no input is allowed.

Notice that the header of each page contains the name of the screen from which you requested Help.

## FIELD SELECTION FOR DB/FILE or Field Selection Screen

The FIELD SELECTION FOR DB/FILE screen, hereafter referred to as the **Field Selection** screen presents the available fields and stored functions for the selected database or file. [Figure B-7](#) displays the fields for PLANT.

```

FIELD SELECTION FOR DB/FILE - PLANT      U      AQFM03

-CODES-
SEL KEY  FIELD NAME                      -CODES-
SEL KEY  FIELD NAME

D        ED.DEGREE                       D        ED.SCHOOL
        ED.YEAR                          D        EMP.NAME
        EMP.NO                            Q        EMP.SEX
D        PLANT.ID                        PLANT.NAME
        PLANT.PHONE                      PLANT.REGION
        PROD.AMT                         PROD.CODE
        PROD.DESC                        PROD.QTY
        SAL.DED                          SAL.DED.DEC
        SAL.DED.T                        SAL.YEAR

Next field starts with: SAL.YTD           For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
             B = Both Display and Qualify/Expression,  V = View description
KEY:  Enter number For relating database fields when using find
PF1=Help  PF4=Temp Fls  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File  PF5=Qualify  PF8=          PF11=          PF12=
PF3=Completed  PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit

```

Figure B-7 Field Selection Screen

Notice that, in [Figure B-7](#), the selected database, PLANT, appears as part of the header of this screen. The header always reflects the name of the selected database or file.

The fields, ED.DEGREE, ED.SCHOOL, and so on, are in alphabetical order, horizontally displayed across the page. There may be more fields assigned to a database or file than can be displayed on one screen.

To view the additional fields, press Enter or enter a name or an alpha character after the 'Next field starts with:' phrase.

When you have viewed the last field in the list and you press Enter, AQF proceeds to the next screen in the sequence that you have set up if you have selected only ONE database or file.

**Note:** If you have selected more than one database or file and you press Enter after having viewed the last field, AQF transfers you to the top of the field listing of the second database or file you have selected.

## Field Selection Screen Select Codes

For the fields displayed in the Field Selection screen shown in [Figure B-7 on page B-8](#), there are four select codes available with which to request display of data:

D = Display

Q = Qualify only

B = Both Display and Qualify

V = View description

These codes determine the following:

- Which data fields appear in your output
- Which data fields appear on subsequent screens.

You must enter at least one D, Q, or B to proceed to the next screen. Press PF3 when you have completed filling out the screen.

## Selecting Fields for Display

To display this field in your report, type the select code D opposite the field name. These data field names appear as the column headers of your report. The data in the alphanumeric and numeric fields may be sorted and printed.

Press PF3 to complete the selection of these fields.

## Selecting Data Fields for Qualification or Expression

To qualify the field, type the select code Q. Qualifying a field causes AQF to select information based on this qualification or condition. For example, a required report is specific to women. This condition, women, must be specified to AQF in order to produce the desired output.

You would qualify those fields which you want to test. The test might be women or salary greater than \$36,000. These qualified data field names do not appear as the column headers of your report.

The select code Q is also used for fields to be used on the Temporary Field screen to perform calculations or rename data fields. This is fully explained in [Chapter 5, "Simple Reports"](#).

Press PF3 to complete the qualification of the selected fields.

## Selecting Data Fields for Qualification and Display

To display and qualify a field, type the select code B. These data field names appear as the column headers of your report. These fields may also be used on the Temporary Field screen to perform calculations or rename data fields.

[Figure B-8](#) displays a completed Field Selection screen. Each of the previously mentioned select codes, D, Q, and B, has been entered on this screen.

```

FIELD SELECTION FOR DB/FILE - PLANT      U      AQFM03

-CODES-
SEL KEY  FIELD NAME                    -CODES-
SEL KEY  FIELD NAME

  B      ED.DEGREE
         ED.YEAR
         EMP.NO
  D      PLANT.ID
         PLANT.PHONE
         PROD.AMT
         PROD.DESC
         SAL.DED
         SAL.DED.T
         ED.SCHOOL
         EMP.NAME
         EMP.SEX
         PLANT.NAME
         PLANT.REGION
         PROD.CODE
         PROD.QTY
         SAL.DED.DEC
         SAL.YEAR

Next field starts with: SAL.YTD                For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
             B = Both Display and Qualify/Expression,  V = View description
KEY:  Enter number For relating database fields when using find
PF1=Help      PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=          PF11=          PF12=
PF3=Completed PF6=Data Disp  PF9=List Query Clear, "/Exit"=Exit

```

Figure B-8 Field Selection Screen

Press PF5 to proceed to the Qualification screen. Press PF4 to proceed to the Temporary Field screen. These screens are discussed later in this chapter.

## Selecting Fields to View Descriptions

To view the descriptions of the fields, type the select code V. The fields are listed in alphabetical order, as shown in [Figure B-9](#).

To view additional fields and their descriptions, press Enter.

FIELD DESCRIPTIONS FOR DB/FILE PLANT		AQFM03
Name / Description		
PLANT		
ED.DEGREE	DEGREE ATTAINED	
ED.SCHOOL	SCHOOL ATTENDED	
ED.YEAR	YEAR OF GRADUATION	
EMP.NAME	NAME OF EMPLOYEE	
EMP.NO	IDENTIFICATION CODE FOR EMPLOYEE	
EMP.SEX	EMPLOYEE'S SEX	
Press Enter To Return To The Selection Screen (or view other fields selected)		

Figure B-9 View Field Description Screen

These descriptions help you identify which data field(s) you want to query. The descriptions can only be changed by your system administrator.

## Using Key Codes

The **key code** is a numeric field. You enter a number from one through nine in the key field if you selected a database or file with the select code F on the DB/File Selection screen.

To link the PLANT and SKILL databases, type a number opposite a common field(s). PLANT and SKILL have the data field name, EMP.NO, in common. Use this field to link the two databases. Type the number 1 opposite the field, EMP.NO, as shown in [Figure B-10](#). Remember that the same number must be entered opposite the same field on both the PLANT and SKILL Field Selection screens.

This field, EMP.NO, is the first data field with which AQF links the two databases, PLANT and SKILL. AQF uses this field to construct a temporary database containing all the fields from both databases. However, the linked fields are not duplicated in the temporary file.

To relate another data field, type the number 2 in the KEY column opposite another data field, PLANT.ID. This is the second data field with which AQF links the two databases.

```

FIELD SELECTION FOR DB/FILE - PLANT      U      AQFM03

-CODES-
SEL KEY  FIELD NAME                      -CODES-
SEL KEY  FIELD NAME

B        ED.DEGREE                        D        ED.SCHOOL
        ED.YEAR                          D        EMP.NAME
D   1    EMP.NO                          Q        EMP.SEX
        PLANT.ID                        PLANT.NAME
        PLANT.PHONE                     PLANT.REGION
        PROD.AMT                         PROD.CODE
        PROD.DESC                        PROD.QTY
        SAL.DED                          SAL.DED.DEC
        SAL.DED.T                        SAL.YEAR

Next field starts with: SAL.YTD                For DB/File: U

-CODES- SEL:  D = Display,  Q = Qualify/Expression only,
              B = Both Display and Qualify/Expression,  V = View description
KEY:  Enter number For relating database fields when using find
PF1=Help   PF4=Temp Flds  PF7=          PF10=          ENTER=Next Scr
PF2=DB/File PF5=Qualify  PF8=          PF11=          PF12=
PF3=Completed PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure B-10 Field Selection Screen

AQF accepts up to nine key codes (1–9). That is to say, there are a possible nine fields with which to link or relate databases or files when using AQF. Once the key code is entered, this number must appear in both/all of the related databases or files.

### Next Field Starts With

Additional pages of fields may exist. If you know the name of the field (for example, EMP.NAME), and it is not displayed, type the name after the colon, as shown below:

```
Next field starts with: EMP.NAME
```

After typing the field name, press Enter.

Fields are listed in alphabetical order. To locate additional fields, enter a name, EMP.NAME, or a letter, E, after the colon. AQF scrolls to the page containing the fields which begin with E.

The name after the colon always reflects the name of the field which begins the next display page.

## For DB/File

Use the For DB/File field to quickly access the fields of the additional databases or files you selected.

- If you have selected only one database or file, the area displays the select code you have chosen. Press Enter to scroll through all the field names for that database or file.
- If you have selected more than one database or file, the area will first display the F (Find) select code along with the field names for that database or file. Press Enter to scroll through the field listing for the selected database or file.

At the last page of the field names listing of the first database selected, AQF will then display the U (Use) select code and proceed to the field listing of the second database or file selected.

Press Enter to scroll through the field names defined for the second database or file. At any time, you can switch to either database or file by entering the appropriate select code F or U. Make sure that there is either a field name or a letter in the Next Field Starts With field when switching databases or files.

- If you have selected one database or file with the select code F, you can type the select code U in this area and press Enter. AQF displays the same field names for selection.

## Branching Using PF Keys

If you have selected fields with Ds only, press PF6 to proceed to the Data Display screen.

If you have selected any field with a Q or B, use the following PF keys to reach other AQF screens from the Field Selection screen:

- Press PF4 if you want to perform calculations or create temporary fields with the selected data fields. AQF proceeds to the Temporary Field Selection screen.
- Press PF5 if you want to assign conditions. AQF proceeds to the Qualification screen.

You can use the following PF keys whether or not entries have been made on the Field Selection screen:

- Press PF1 to display the first page of Help for the Field Selection screen. There are three pages of Help screens. You may page backward and forward through the Help screens. Press PF3 to return to the Field Selection screen.
- Press PF2 to proceed to the DB/File Selection screen.
- Press Clear and type /EXIT to exit AQF under IMS. Press Clear to exit AQF under CICS.
- Press PF9 to proceed to the Stored Queries screen.

## TEMPORARY FIELD DEFINITION FROM DB/FILE or Temporary Field Screen

The TEMPORARY FIELD DEFINITION FROM DB/FILE screen, hereafter referred to as the **Temporary Field** screen permits you to rename data fields or to perform arithmetic calculations on the fields you have previously selected. See [Chapter 7, “Assignment Statement and Arithmetic Processing”](#) for a complete discussion of temporary fields.

Data fields are listed on this screen in alphabetical order horizontally across the top of the screen. Each field is assigned an alphanumeric code (#01, @02). The code consists of an identifier (# or @) and a number:

- The identifier indicates if the field is alphanumeric (@) or numeric (#).
- The number indicates the order of selection you made on the Field Selection screen(s).
- Codes starting with a # may be combined in mathematical calculations. Codes starting with an @ are not numeric. Any attempt to include these codes in a mathematical expression results in an error message.

## Assigning Data Fields to a Temporary Field Name

You can assign data fields to a temporary field in order to change a column heading on your report. The temporary field name, EMPLOYEE, is assigned the value of the data field, EMP.NAME. The temporary field name and its assigned value, as shown in [Figure B-11](#), appear on your report.

```

          TEMPORARY FIELD DEFINITIONS FROM DB/FILE - PLANT F          AQFM04
Next DB/File To Process : U

@01 EMP.NAME                #02 SAL.DED
#03 SAL.YTD

      TEMPORARY      #/@ FIELD or  OP  #/@ FIELD or  OP  #/@ FIELD or
CD   NAME           LITERAL          LITERAL          LITERAL
B   EMPLOYEE       = @01
D   SALARY         = #03      -   #02
D   RATE           = 300
      =
      =
      =
      =

CD:  D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=          PF7=PGBK FlDs  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5= Qualify  PF8=PGFD FlDs  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure B-11 Temporary Field Screen

## Performing Calculations

You can perform calculations on the numerical fields you have selected. You can also include literals in your calculations.

In [Figure B-11](#), two temporary fields, SALARY and RATE, are numeric fields. SALARY involves the calculation of the net salary. RATE creates a temporary field with the literal value, 300. Calculations may wrap from one line to the next. Connect second and subsequent lines using an arithmetic operator in the CD column.

Note that calculations cannot be continued to the next page.

The available arithmetic operators are:

Operator	Meaning
+	addition
/	division
*	multiplication
-	subtraction

The temporary field functions as if it were a field selected from the Field Selection screen. The temporary field is recognized on subsequent screens by a % and the name you assign it, such as %RATE.

You can use any of the numeric fields (SAL.YTD, SAL.DED) at the top of the screen or literals (that is, 368, - 1.375, .02) in a calculation. The results can be stored in a temporary field. See [Figure B-12 on page B-16](#) for a valid example of arithmetic processing.

Opening or closing parentheses may precede/follow the field number or numeric literal.

```

          TEMPORARY FIELD DEFINITIONS FROM DB/FILE - PLANT F          AQFM04
Next DB/File To Process : U

#01 SAL.DED                      #02 SAL.YTD

CD   TEMPORARY   #/@ FIELD or   OP   #/@ FIELD or   OP   #/@ FIELD or
     NAME        LITERAL         LITERAL         LITERAL
B   MON.SAL     = (#02          -   #01)           /   12
D   TERM        = 100           *   #01
D   NET.SAL     = #02           -   #01
     =
     =
     =
     =

CD: D = Display, Q = Qualify Only, B = Both Display and Qualify
PF1=Help      PF4=          PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5= Qualify  PF8=PGFD Flds PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure B-12 Temporary Field Screen

## Temporary Field Screen Select Codes

Each temporary field is assigned a select code. The select codes for this screen are the same as for the Field Selection screen.

D = Display

Q = Qualify only

B = Both Display and Qualify

## Using Temporary Fields

You can display temporary fields or use them in a qualification.

You can use temporary fields created on the Temporary Field screen of a FIND database or file on the Temporary Field screen of a USE database or file. However, the reverse is not true. Temporary fields created on the USE database or file may not be accessed on the FIND database or file.

## Next DB/File to Process

You can perform calculations upon other fields from an additional database or file. Type the DB/File selection code, U or F, for the database or file or type a name PLANT or SKILL, for the database or file. Press Enter.

Next DB/File To Process: U

AQF displays the Temporary Field screen for the additional database or file.

- Press PF7 to scroll backward through the data fields. Press PF8 to scroll forward through the data fields.
- Press PF10 to scroll backward through the temporary fields. Press PF11 to scroll forward through the temporary fields.

## Branching from the Temporary Field Screen

- Press PF6 to proceed to the Data Display screen and skip the Qualification screen.
- Press PF5 to proceed to the Qualification screen. Enter conditions on the Qualification screen.
- Press PF3 to proceed to the Field Selection screen and change, add, or delete fields.
- Press PF2 to proceed to the DB/File Selection screen and change, add, or delete databases or files.

You can use the following PF keys whether or not entries have been made on the Temporary Field screen:

- Press PF1 to access the online Help screen. There are five Help screens concerning the creation and use of temporary fields. Exit Help by pressing PF3.
- Press Clear and type /EXIT to exit AQF under IMS. Press Clear to exit AQF under CICS.
- Press PF7 to scroll backward through the available fields. Press PF8 to scroll forward through the available fields.
- Press PF9 to proceed to the Stored Queries screen.
- Press PF10 to scroll backward through the temporary fields. Press PF11 to scroll forward through the temporary fields.

## QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE or Qualification Screen

Conditional selection indicates that only certain data is to be processed by an inquiry. A condition is assigned by using the select codes, Q, B, or both, on the Field Selection screen, and completing the QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE screen, hereafter referred to as the **Qualification** screen.

You can enter up to six conditions on a Qualification screen. However, you may page down to add more conditions on additional screens.

### Entering Qualifications or Conditions

The fields selected with Qs or Bs on the Field Selection screen or on the Temporary Field screen are displayed in two columns horizontally across the top of the screen in alphabetical order.

In [Figure B-13](#), EMP.SEX has been assigned the number, 01. It is the first data field selected for qualification. The number, preceded by an @ symbol, is used for the qualification. A numeric field would be identified by a # symbol.

```

QUALIFICATION/CONDITIONAL SELECTION FOR DB/FILE - PLANT    U    AQFM05
Next DB/File To Process : U

@01 EMP.SEX                                @02 PLANT.ID

EDIT  CON  FIELD  OP  LITERAL VALUE / FIELD NUMBER
      &    @01   =   'M'
      &    @02   >   '20000'

ESCAPE CHARACTER:
EDIT:  I = Insert a new Line before this one,  D = Delete this line

PF1=Help      PF4=Temp Flds  PF7=PGBK Flds  PF10=PGBK Qual ENTER=Next Scr
PF2=DB/File   PF5=          PF8=PGFD Flds  PF11=PGFD Qual PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit
    
```

Figure B-13 Qualification Screen

- Type the assigned number and field identifier in the FIELD column, as shown in [Figure B-13](#). Use an AND operator (&) to connect the two conditions.
- Type the relational operator in the OP column. In [Figure B-13](#), the first condition contains the operator = in the OP column.

The relational operators for this screen are:

Operator	Meaning
EQ or =	equal to
NE or $\neq$	not equal to
LT or <	less than
GT or >	greater than
LE or <=	less than or equal to
GE or >=	greater than or equal to
LIKE	Partial matching for character fields only

- Type the condition in the LITERAL VALUE/FIELD NUMBER column. In [Figure B-13](#), two conditions have been established: EMP.SEX equal male 'M' and PLANT.ID greater than 20000.

Notice that the character constant, 'M', has been enclosed in single quotation marks. Numeric constants do not require single quotation marks, that is, SAL.YTD = 25000.

- Use the CON column to link second and subsequent conditions to the first condition. Conditions are linked by either AND or OR. AND may be expressed as A, \*, or &. OR may be expressed as O, +, |, or †.
 

When second and subsequent lines are deleted, AQF examines the connector, AND or OR, to ensure that logical errors are not created.
- Use the EDIT column to add or delete lines between conditions. Type I to insert lines. Type D to delete lines. Press Enter.
- The LIKE operator uses two special characters, % and \_ in the literal value for partial matching. The % sign indicates any string of zero or more characters. The \_ sign indicates any single character. Type a single character in the Escape Character field when using the LIKE operator and the % and/or \_ signs are actually part of the literal value condition. The escape character must precede the % and/or \_ characters in the literal value of the LIKE operator to indicate the real value of % and/or \_ characters.
- Press PF7 to scroll backward through the data fields. Press PF8 to scroll forward through the data fields.
- Press PF10 to scroll backward through the conditions. Press PF11 to scroll forward through the conditions.

## Next DB/File to Process

To qualify other fields from additional databases or files, type the DB/File selection code (U or F) for the database or file or type a name, PLANT or SKILL, for the database or file. Press Enter.

Next DB/File To Process: U

AQF displays the Qualification screen for the additional database or file.

## Branching from the Qualification Screen

If you have completed your inquiry, press PF6 to proceed to the Data Display screen.

To modify a part of your inquiry before submitting it for execution:

- Press PF3 to proceed to the Field Selection screen. You may change, add, or delete fields.
- Press PF2 to proceed to the DB/File Selection screen. You may change, add, or delete database/files.

To add, change, or delete a temporary field, press PF4 to proceed to the Temporary Field screen.

You can use the following PF keys whether or not entries have been made on the Qualification screen:

- Press PF1 to access the online Help screen. There are four Help screens concerning the creation and use of Qualifications. Exit Help by pressing PF3.
- Press Clear, type /EXIT to exit AQF under IMS. Press Clear to exit AQF under CICS.
- Press PF7 to scroll backward through the available fields. Press PF8 to scroll forward through the available fields.
- Press PF9 to proceed to the Stored Queries screen.
- Press PF10 to scroll backward through the conditions. Press PF11 to scroll forward through the conditions.

## DATA DISPLAY or Data Display Screen

The DATA DISPLAY screen, hereafter referred to as the **Data Display** screen, contains all the fields selected for display. Temporary fields are indicated by a %.

- The printing order of the fields may be changed using LIST ORDER.
- The numeric data may be counted, totaled, or averaged according to control break fields.
- Alphanumeric data may be counted.
- Data may be sorted in ascending or descending order.
- One or two title lines can be added to the top of each page of the output report.

DATA DISPLAY				AQFM06		
LIST ORDER	DB/FILE NAME	FIELD NAME	CTL BRK	-SUMMARIES- CNT	TOT AVG	SORT ORDER DESC?
2	U PLANT	EMP.NAME				
1	U PLANT	PLANT.ID				1
3	U PLANT	SAL.YTD				
Title1:						
Title2:						
Specify limit value if desired:						
If saving query, name to be used:						
Specify PC file name for FTS:						
PF1=Help	PF4=Temp Flds	PF7=PGBK Flds	PF10=PC File	ENTER=Next Scr		
PF2=DB/File	PF5=Qualify	PF8=PGFD Flds	PF11=Save	PF12=		
PF3=Fields	PF6=Run	PF9=List Query	Clear, "/Exit"=Exit			

Figure B-14 Data Display Screen

There is only one Data Display screen per inquiry. Multiple database and files are distinguished by U or F preceding the database or file name in the DB/FILE NAME column. [Figure B-14](#) displays the Data Display screen.

Output of the created inquiry may be limited using LIMIT. Type a number after the phrase, 'Specify limit value if desired:'.

Inquiries may be saved in the directory for later execution. Name your inquiry and press PF11. The name may be 32 characters long. For a discussion of valid and invalid names, see [Chapter 3, "Structure and Concept of AQF"](#), and [Appendix A, "Commands, Noise Words, and Name Combinations"](#).

## Using the Data Display Screen

The default printing order is the order the fields appear on this screen. To alter the printing order, enter a number between one and 99 in the LIST ORDER column. 1 is the first field printed, 2 is the second field printed, and so on (see [Figure B-14](#)).

The DB/FILE NAME and FIELD NAME columns are generated by AQF based on the selection of databases or files and the selection and creation of data fields on the previous screens. These may only be added and deleted on the previous screens.

- Enter a number between one and nine to designate a field as a CTL BRK (control break) field. When this field changes, summary options are computed.

The number in the SUMMARIES column must be the same as the applicable CTL BRK number.

- Three types of SUMMARIES are available: COUNT, TOTAL, and AVERAGE. All three may be applied to numeric data. Only COUNT may be applied to alphanumeric data.

Type a number between one and nine in the applicable column. When subtotaling, ensure that the same number is entered in the CTL BRK column.

Grand summaries are always printed on a separate page. These summaries follow the output of the data fields.

- Type a number between one and 99 in the SORT ORDER column. 1 is the primary sort, 2 is the secondary sort, and so on.

Data may be sorted in ascending or descending order. Ascending order is the default order. To sort in descending order, type D or Y in the DESC? column. To sort in ascending order, leave this column blank, or type A or N.

- Type up to 60 characters in the Title1 and Title2 fields, to be displayed at the top of each page of the report.

## Branching from the Data Display Screen

To execute your inquiry and receive your report, press PF6.

To modify a part of your inquiry before submitting it for execution:

- Press PF2 to proceed to the DB/File Selection screen. You may change, add, or delete database/files.
- Press PF3 to proceed to the Field Selection screen. You may change, add, or delete fields.
- Press PF4 to proceed to the Temporary Field screen. You may change, add, or delete temporary fields.
- Press PF5 to proceed to the Qualification screen. You may change, add, or delete conditions.

To save an inquiry in the directory, enter a name after the phrase, 'If saving query, name to be used:' and press PF11.

To submit the inquiry to be processed in the batch region under CICS, press PF12 to proceed to the Batch screen.

You can use the following PF keys whether or not entries have been made on the Data Display screen:

- Press PF1 to access the online Help screen. There are five Help screens concerning Data Display. Exit Help by pressing PF3.
- Press Clear and type /EXIT to exit AQF under IMS. Press Clear to exit AQF under CICS.
- Press PF7 to scroll backward through the available fields. Press PF8 to scroll forward through the available fields.
- Press PF9 to proceed to the Stored Queries screen.

## Batch Submission Under CICS

If you have completed your inquiry and are viewing the Data Display screen, press PF12. AQF proceeds to the BATCH JOB SUBMISSION screen, hereafter referred to as the **Batch** screen, as shown in [Figure B-15](#).

```

Enter either the Job Control Statements or the JCL parameters in the
fields provided below.

//*
//*
//*
//*
//*
//*

Job Name: _____ Accounting Info: _____
User Name: _____ Print Routing: _____
Procedure Name: _____ Terminal Name: MXA

PF1=Help      PF4=Temp Fllds  PF7=          PF10=         ENTER=Next Scr
PF2=DB/File   PF5=Qualify     PF8=          PF11=         PF12=Submit
PF3=Fields    PF6=Data Disp  PF9=List Query CLEAR=Exit

```

Figure B-15 Batch Screen

There are two ways to build the batch JCL statements through the Batch screen:

- You can use the first six lines (lines that start with `/*`) to enter the JCL statements. In this case, AQF does not do any syntax checking and submits the JCL as is. The “Terminal Name” field (described later) is also used in this case to build the `/IAM LTERM` statement required by the native batch mode. Note that you need to change the `/*` characters on each line or it will be considered as a comment line. This method is used when the first line is not blank and does not start with the `/*` characters.
- If the first input line is blank or starts with the `/*` characters, then AQF will build the JCL statements using the information defined by the system administrator at installation time and the information entered on the Batch screen for the fields described below.

**Note:** Clear the remainder of each field after your entry.

<b>Batch Screen Field Name</b>	<b>Description</b>
Job Name	Identifies the name of the job to be run in batch. This field must be a 1-byte to 8-byte alphanumeric value; the first character must be alphabetic, for example, VSAMDEG3.
Accounting Info	Specifies an account number and other accounting information. This field must be a 1-byte to 39-byte alphanumeric value, for example, 66.1.
User Name	Identifies the owner of the job. This field must be a 1-byte to 20-byte alphanumeric value, for example, Martha Watson.
Print Routing	Specifies the destination of the printed output. This field must be a 1-byte to 8-byte alphanumeric value, for example, R184.
Procedure Name	Specifies the name of a procedure which will select the proper databases or files in the batch process. This field must be a 1-byte to 8-byte alphanumeric value, for example, IQVSAM. (The procedure should be available from your system administrator before submitting it to the batch region for processing.)
Terminal Name	Specifies the name of a terminal which will be used for security checking in the batch processing and should be defined to VISION:Inquiry by the system administrator. This field must be a 1-byte to 8-byte alphanumeric value, for example, N041. The default will be the same name you are using in the online environment.  The terminal name is used to build the /IAM LTERM statement required by the native batch mode.

## Branching from the Batch Screen

To submit your inquiry for batch processing, press PF12 or Enter to submit this inquiry for batch processing. You may continue processing inquiries online or you may check the queue to see the status of your job.

If you want to modify a part of your inquiry before submitting it for execution:

- Press PF2. AQF proceeds to the DB/File Selection screen. You can change, add, or delete databases or files.
- Press PF3. AQF proceeds to the Field Selection screen. You can change, add, or delete fields.
- Press PF4. AQF proceeds to the Temporary Field screen. You can change, add, or delete temporary fields.
- Press PF5. AQF proceeds to the Qualification screen. You can change, add, or delete conditions.
- Press PF6. AQF proceeds to the Data Display screen. You can sort, change the list order, or change, add, or delete summary options.

You can use the following PF keys whether or not entries have been made on the Batch screen:

- Press PF1 to access the online Help screens. Exit Help by pressing PF3.
- Press Clear to exit AQF under CICS.
- Press PF9. AQF proceeds to the Stored Queries screen.

## Stored Inquiries

Stored inquiries are inquiries written and saved for future use. A stored inquiry can be retrieved and executed whenever that output is needed. Inquiries are stored using the Data Display screen or they can be stored in native mode.

### Selecting Stored Inquiries

You can execute or edit stored inquiries. Those stored in the primary directory may also be viewed or deleted. To execute a stored inquiry, select the inquiry with the select code S, and press Enter.

Stored Queries for DB PLANT						AQFM07
Next query starts with:						
SEL CON	QUERY NAME	DB FILE	LTERM	CHNG DATE	TIME	
	DEGREE.SALARY	PLANT	N076	04/18/2002	09:32	
	PAYROLL	PLANT	N028	05/11/2002	09:32	
	ROSTER	PLANT	N006	04/13/2002	12:58	
S	SALARY.BONUS	PLANT	N028	03/10/2002	09:32	
	SALARY.REPORT	PLANT	N076	11/20/2001	15:20	
SEL: S=Select to execute, V=View description, D=Delete query, E=Edit query PF1=Help PF4=Temp Flds PF7= PF10=Comments ENTER=Next Scr PF2=DB/File PF5=Qualify PF8= PF11= PF12= PF3=Fields PF6=Data Disp PF9= Clear, "/Exit"=Exit						

Figure B-16 Stored Queries Screen

In [Figure B-16](#), the stored inquiry, SALARY.BONUS, has been selected for execution. Press Enter to generate the inquiry and press Enter to execute the inquiry.

- To delete a stored inquiry from the primary directory, type D opposite the name of the inquiry. Press Enter to proceed to the Confirmation screen. You are prompted to confirm the deletion.
- [Figure B-17 on page B-29](#) is the Confirmation of Deletion screen. Enter Y to delete a stored inquiry. Press Enter. 'N' is the default.

```
                STORED QUERIES FOR DB  PLANT                AQFM07
Query to be deleted -  SALARY.BONUS

                Verify above inquiry deletion - Enter Y or N:  N

PF1=Help      PF4=          PF7=          PF10=        ENTER=Next Scr
PF2=          PF5=          PF8=          PF11=        PF12=
PF3=          PF5=          PF9=          Clear, "/Exit"=Exit
```

Figure B-17 Confirmation Screen when Deleting Inquiries from the Directory

- To view a stored inquiry from the primary directory, type V opposite the name of the inquiry. Press Enter. AQF proceeds to native mode. Pressing Enter again displays the contents for viewing.
- To edit a stored inquiry, type E opposite the name of the inquiry. Press Enter to generate the inquiry and press Enter again to proceed to the Text Editor screen to edit the stored inquiry.
- As a VISION:Inquiry default, inquiries stored in a connected directory (character "C" in column CON) cannot be viewed or deleted. Attempts to do so generate an error message.
- To view the list of the stored inquiries and their associated comments in AQF, press PF10 key from the Stored Queries screen. [Figure B-18 on page B-30](#) shows the Stored Queries with Comments screen. All the selection codes discussed previously for the Stored Queries screen also apply to this screen.



[Figure B-19](#) displays the stored inquiry, DEGREE.SALARY, which has two substitutable values.

When entering character constants, for example, 'HS', on this screen, enclose them in single quotation marks. Quotation marks are not needed for numeric literals, for example, 3.5. Press Enter to execute the inquiry.

A stored inquiry is selected on the Stored Queries screen. When Enter is pressed, AQF proceeds to the native VISION:Inquiry screen (which is shown in [Figure B-19 on page B-30](#)).

This screen has three functions:

- View the generated free-form syntax inquiry.
- Input substitutable values prior to execution.
- Execute a selected inquiry.

The substitutable values are listed in the stored inquiry according to their order of assignment on the Qualification screen. The stored inquiry will not be executed until values for each of the substitutable values has been entered on this screen.

## Branching from the Stored Queries Screen or the Stored Queries with Comments Screen

To execute your stored inquiry, press Enter. AQF generates the inquiry.

To modify a part of your inquiry before submitting it for execution:

- Press PF2 to proceed to the DB/File Selection screen. You can change, add, or delete databases or files.
- Press PF3 to proceed to the Field Selection screen. You can change, add, or delete fields.
- Press PF4 to proceed to the Temporary Field screen. You can change, add, or delete temporary fields.
- Press PF5 to proceed to the Qualification screen. You can change, add, or delete conditions.
- Press PF6 to branch to the Data Display screen. You can change, add, or delete LIST ORDER, SORT, or SUMMARIES.
- Press PF10 key from the Stored Queries screen to proceed to the Stored Queries with Comments screen.
- Press PF9 key from the Stored Queries with Comments screen to proceed to the Stored Queries screen.

You can use the following PF keys whether or not entries have been made on the Stored Queries screen:

- Press PF1 to access the online Help screen. There are two Help screens concerning the creation and use of stored inquiries. Exit Help by pressing PF3.
- Press Clear and type /EXIT to exit AQF under IMS. Press Clear to exit AQF under CICS.

## AQF REENTRY SCREEN or Reentry Screen

[Figure B-20](#) shows the AQF REENTRY SCREEN, hereafter referred to as the **Reentry** screen. This screen provides you with easy reentry access to AQF. Whether you have exited AQF using the Clear key or finished viewing output from a previous inquiry, the Reentry screen is displayed each time you re-access AQF.

```

                                AQF REENTRY SCREEN                                AQFM10
                                VISION:Inquiry transaction code: II
                                VISION:Inquiry terminal/user ID: MXA

SELECT - Screen/Panel

      X   INTRODUCTION (Start over)
      X   DATABASE / FILE SELECTION
      S   FIELD SELECTION
          TEMPORARY FIELD DEFINITIONS
          QUALIFICATION/CONDITIONAL SELECTION
          DATA DISPLAY (Query finalization)
      X   (List of) STORED QUERIES FOR DB
      X   (List of) STORED QUERIES WITH COMMENTS FOR DB

SELECT : Type an "S" by the selection desired and press ENTER key
Or press the appropriate PF key for the screen desired

PF1=Help      PF4=Temp Flds  PF7=          PF10=Comments  ENTER=Next Scr
PF2=DB/File   PF5=Qualify   PF8=          PF11=Intro     PF12=
PF3=Fields    PF6=Data Disp PF9=List Query Clear, "/Exit"=Exit

```

Figure B-20 Reentry Screen

Each of the AQF menu screens is listed on the Reentry screen.

- You may restart AQF from any available screen containing an X opposite the screen name. Select a screen by typing S over the X and then either press Enter or the appropriate PF key.
- If no X appears in the SELECT column, that screen is not available.

If the previous field selection or inquiry did not require a particular screen (for example, if no fields were selected with Qs or Bs), neither the Qualification screen nor the Temporary Field screen is available for reentry.

To restart AQF from the Field Selection screen, press PF3 or type S opposite the screen name, as shown. Press Enter. AQF returns you to the Field Selection screen. Your previous entries on the screen are displayed. There is no need to reenter your transaction code.



## Unique CICS or IMS Features

The following table displays default features and functions unique to either CICS or IMS. If you have any questions, please refer to the text.

Feature/Function	CICS	IMS
Start AQF default transaction code	IQBE	IIAQF
VISION:Inquiry default transaction code	IQIO	II
Exit AQF	Clear	Clear+ /EXIT+Enter (Press the Clear key, type /EXIT, and press Enter.)
Batch Submission from AQF	Yes	No
VISION:Inquiry generated free-form inquiry and output	Generated inquiry appears on screen with output	Generated inquiry appears on separate screen from output
Default screen output fields	PAGE: TRANSACTION: Enter Inquiry Below:	PAGE: TRANCODE: INQUIRY:
Continue output	Enter 1 in TRANSACTION: field or CONTINUE;	PF1 or CONTINUE;
Defer output	Enter 2 in TRANSACTION: field or DEFER;	PF2 or DEFER;

---

<b>Feature/Function</b>	<b>CICS</b>	<b>IMS</b>
Continue deferred output	Enter 3 in TRANSACTION: field and inquiry number, or CONTINUE DEFERRED INQUIRY n;	PF3 or CONTINUE DEFERRED INQUIRY n;
Access Reentry screen (Enter second inquiry).	Enter 4 in TRANSACTION: field	PF4
VSAM Files	Supported	Not Supported

# Index

## Symbols

---

# numeric field identifier, 5-19, B-14  
% temporary field identifier, 7-4, B-16  
& logical operator AND, 5-26  
(WITH), A-1  
) , A-2  
\* logical operator AND, 5-26  
+ logical operator OR, 5-30  
/EXIT, 1-2, 3-12, 4-19  
@ alphanumeric field identifier, 5-19, B-14  
| logical operator OR, 5-30  
! logical operator OR, 5-30

## A

---

accessing the Reentry screen, C-2  
    enter 4 in CICS, C-2  
    press PF4 in IMS, C-2  
AND logical operator, 5-26  
    adding conditions, 5-18  
    example, 5-25  
    multiple conditions, 5-25  
    symbols &, A, and \*, 5-26  
AQF (Automatic Query Facility), 1-1  
    access, 4-1  
    build inquiries, 1-4  
    CICS reentry, 4-16, 4-19  
    description, 1-1  
    display free-form inquiry, 3-9  
    Help, 1-7  
    highlights errors, 4-4  
    IMS reentry, 4-16  
    inquiry only, no updating, 1-4  
    menu-driven, 1-1  
    names, 3-6  
    PF key navigation chart, 1-9  
    PF key usage, 1-7, 1-9  
    query data, 1-4  
    quit, 1-2  
    reentry, B-33  
    restart, 3-12, 4-7  
    screens, B-1  
    start, 1-2  
    transaction codes, B-1  
arithmetic calculations, 8-30  
    complex, 7-14  
    FIND with USE, 8-35  
    negative values, 7-15  
    temporary field, 7-20  
    use of literals, 7-6  
    user control, 7-5  
    using parentheses, 7-10  
    with summaries, 7-5  
arithmetic operators, 7-5  
    addition, 7-5  
    division, 7-21  
    multiplication, 7-20  
    subtraction, 7-11

---

ASC, A-1

ascending order, 5-40

AVERAGE, 1-8, 6-13, 6-23, 6-27, A-2, B-23

arithmetic calculations, 7-5

description, 6-9

grand average, 6-10

output order, 6-14

with CTL BRK, 6-19, 6-26

with TOTAL & COUNT, 6-18

## B

---

B for both display and qualify (Temporary Field screen), 7-2

B for both display and qualify/expression (Field selection screen), 3-5

batch, 1-1

batch (CICS only), 1-5, 5-62, B-25

Batch screen, B-25

Accounting Info, B-26

Job Name, B-26

Print Routing, B-26

Procedure Name, B-26

Terminal Name, B-26

User Name, B-26

batch submission from AQF, C-1

no for IMS, C-1

yes for CICS, C-1

BMP (Batch Message Processing), 1-1

BMS (Basic Mapping Support), 4-10

paging (CICS), 4-10

## C

---

CD column, 7-3, 7-7

CDI (CONTINUE DEFERRED INQUIRY, PF3), A-4

character constants, 3-7, 5-20, 5-26

name, 5-20

checkpoints, 4-10

CICS, 1-1, A-4

1 for CONTINUE, 4-11, A-4

2 for DEFER, 4-12, A-4

3 for CONTINUE DEFERRED INQUIRY, 4-13, A-4

CLEAR, 1-2

Clear, 3-12, 4-19, B-2

Enter Inquiry Below field, 4-8

exit, 1-2, 3-12

generated inquiry, 3-10

output screen, 4-8

PAGE field, 4-8

reentry, 4-16, 4-19

TRANSACTION field, 4-8

VSAM files supported, 8-56

Clear, 4-19

quit AQF, 4-19, B-2

Clear key, 4-1, 4-2

clear residual entries, 4-17

CLEAR=EXIT, 1-2

COL n (COLUMN n), A-3

COLUMN n (COL n), A-3

commands, 1-8, A-1

AQF, 1-8

AVERAGE, 1-8

CONTINUE or 1, 4-11

COUNT, 1-8

DEFER (DI), 4-12

DEFINE DIRECTORY INQUIRY (DDI), 1-8

DELETE DEFERRED INQUIRY, 4-14

DELETE DIRECTORY INQUIRY, 1-8

DISPLAY, 1-8

DISPLAY DIRECTORY INQUIRY (PDI), 1-8

EDITSQ, 1-8

FIND, 1-8

LIMIT, 1-8

SORT, 1-8

TOTAL, 1-8

CON column, 5-26

conditional phrase, 3-7

conditions, 5-18, 8-9

---

AND example, 5-25  
compound, 5-25, 5-26, 5-28, 5-29, 5-31  
compound complex, 5-33  
multiple, 5-25  
multiple databases, 8-14  
OR example, 5-30  
output example, 5-23  
system-created, 8-9  
user-defined, 8-9

connected directories, 9-1, 9-24, B-29  
  default is no deleting, 9-24, 9-29  
  default is no displaying, 9-24  
  default is no viewing, B-29  
  edit with Text Editor, 9-31  
  list names of stored inquiries, 9-25  
  message displays when you attempt to display or delete, 9-27  
  view a list of inquiry names, 9-23

constants, 3-7, 5-26, 8-17  
  character, 3-7  
  numeric constant, 5-31

CONTINUE, 4-11

CONTINUE (PF1), A-3

CONTINUE DEFERRED INQUIRY (PF3, CDI), A-4

continuing deferred output, C-2  
  enter 3 or CONTINUE DEFERRED INQUIRY in CICS, C-2  
  press PF3 or enter CONTINUE DEFERRED INQUIRY in IMS, C-2

continuing output, C-1  
  enter 1 or CONTINUE for CICS, C-1  
  press PF1 or enter CONTINUE, C-1

continuous mode, 4-5

control breaks, 6-1

control fields, 5-11, 5-13, 5-14  
  description, 5-14  
  for IMS (DL/I), 5-14  
  for VSAM hierarchical files, 5-14  
  not for DB2 tables, 5-13  
  not for VSAM non-hierarchical files, 5-13

conversational mode, 4-5

COUNT, 1-8, A-2, B-23  
  alphanumeric data, 6-8  
  arithmetic calculations, 7-5  
  description, 6-7  
  grand count example, 6-7  
  output order, 6-14  
  with CTL BRK, 6-19, 6-26  
  with DISPLAY, 6-13  
  with TOTAL & AVERAGE, 6-16

CTL BRK, 6-1, 6-23  
  subtotaling, 6-19

## D

---

D for display, 3-5, A-1

Data Display screen, 3-8, 5-4, B-22, B-24  
  AVG column, 6-10, B-23  
  CNT column, 6-7, B-23  
  CTL BRK column, B-23  
  DB/FILE NAME column, B-22, B-23  
  DESC? column, B-23  
  FIELD NAME column, B-23  
  LIST ORDER column, 3-8, 5-7  
  LITERAL VALUE/FIELD NUMBER column, 5-26  
  SORT ORDER column, 5-39, B-23  
  SUMMARIES TOT column, 6-2  
  TOT column, 6-1, B-23

database selection, 3-4

databases, 1-1  
  access, 2-7  
  DB2 tables/views, 1-1  
  definition, 2-1  
  elements, 2-1  
  field, 2-2  
  hierarchical, 2-5  
  IMS (DL/I) databases, 1-1  
  legs, 2-6  
  multiple access, 8-1  
  record, 2-1  
  segment, 2-1

---

selection, 5-1  
terminology, 1-1  
view descriptions, 3-11, B-5  
VSAM files, 1-1

DB/File description, B-5

DB/File Selection screen, 3-4, B-2  
F for find, B-2  
Help screen, 3-11  
U for use, 5-2, B-2  
V for view description, B-2

DB2, 1-1, 2-16  
columns and rows, 2-17  
concepts, 2-16  
relational databases, 2-16  
SQL, 2-17  
tables, 2-17  
terminology, 2-16

DB2 option, 1-1

DB2 tables, 1-1, 2-17, 5-1  
access, 1-1, 5-1  
view descriptions, 3-11, B-5

DDF (DEFINE DIRECTORY FUNCTION), A-2

DDI (DEFINE DIRECTORY INQUIRY), 1-8, A-2

default screen output fields, C-1  
PAGE, TRANCODE, INQUIRY, C-1  
PAGE, TRANSACTION, Enter Inquiry below, C-1

DEFER (DI), 4-12

DEFER (PF2, DI), A-4

deferring output, C-1  
enter 2 or DEFER in CICS, C-1  
press PF2 or enter DEFER in IMS, C-1

DEFINE DIRECTORY FUNCTION (DDF), A-2

DEFINE DIRECTORY INQUIRY (DDI), A-2

delete a condition, 8-26

DELETE DEFERRED INQUIRY, 4-14, A-4

DELETE DIRECTORY FUNCTION, A-3

DELETE DIRECTORY INQUIRY, 1-8, A-3

deleting screen entries, 8-26

descending order, 5-40

DI (DEFER), 4-12

DI (DEFER, PF2), A-4

directories, 4-18, 9-24, B-27  
connected, 9-24  
delete stored inquiry, 9-27  
primary, 9-24  
view list of stored inquiry names, 9-23

DISPLAY, 1-8

DISPLAY (D, PRINT), A-1

DISPLAY DIRECTORY DATA (PDD), A-5

DISPLAY DIRECTORY DATA DESCRIPT (PDDDS), A-5

DISPLAY DIRECTORY DATA WHOLE (PDD WHOLE), A-5

DISPLAY DIRECTORY FUNCTION (PDF), A-3, A-5

DISPLAY DIRECTORY INQUIRY (PDI), A-2, A-5

DISPLAY DIRECTORY INQUIRY COMMENT (PDIC), A-2, A-5

DISPLAY DIRECTORY INQUIRY COMMENT WHOLE (PDICW), A-2, A-5

DISPLAY DIRECTORY INQUIRY WHOLE (PDIW), A-2, A-5

DISPLAY DIRECTORY LTERM (PDL), A-5

DISPLAY DIRECTORY MAP (PDM), A-5

DISPLAY DIRECTORY MAP WHOLE (PDMW), A-5

DISPLAY DIRECTORY VOCABULARY (PDV), A-5

documentation  
VISION:Inquiry for IMS and TSO Technical Reference Guide, 5-13, 5-40, 9-24  
VISION:Inquiry Messages Guide, 4-4, 4-15  
VISION:Inquiry Reference Guide, 9-1, 9-11, 9-31, A-1, A-5

DSC, A-1

---

---

## E

---

EDIT, A-3  
EDITSQ, 1-8, A-3  
Enter Inquiry Below field, 4-8  
environments, 1-1  
    batch, 1-1  
    BMP (Batch Message Processing), 1-1  
    CICS, 1-1  
    TSO, 1-1  
EOF, 4-1  
error messages, 4-14  
    key codes, 8-4  
errors, 4-4  
    highlighted, 4-4  
ESCAPE, A-1  
ESDS (Entry Sequenced Data Set), 2-11  
exit AQF, C-1  
    Clear for CICS, C-1  
    Clear+/EXIT+Enter for IMS, C-1

## F

---

F for find for query, 3-4  
FIELD column, 3-7  
field identifiers, 3-7, 5-20  
    # numeric field, 5-19, B-14  
    % temporary field, B-16  
    @ alphanumeric field, 5-19, B-14  
field selection, 5-3  
    example, 5-6, 5-18  
Field Selection screen, 3-5, B-8  
    B for both display and qualify/expression, 5-3, B-9  
    D for display, 5-3, B-9  
    multiple database access, 8-2  
    Q for qualify/expression only, 5-3, B-9  
    V for view description, 5-3, B-9

Field selection screen, 5-3  
fields, 1-1  
    control field, 5-11, 5-13, 5-14  
    group field, 5-11, 5-13, 5-14  
    subfield, 5-13  
    view descriptions, 3-4  
file selection, 3-4  
FIND, 1-8, 8-1  
    AQF control, 8-19  
    database selection, 8-6, 8-25  
    DB2 table example, 8-52, 8-56  
    same database access, 8-44  
    sequencing data, 8-26  
    VSAM files example, 8-47  
    with condition, 8-14  
    with temporary fields, 8-33  
FIND (I, INTER), A-2  
FIRST, A-1  
    does not apply to VSAM non-hierarchical, A-4  
FORMAT, A-3  
free-form inquiry, 3-9, 5-11

## G

---

group fields, 5-11, 5-13, 5-14

## H

---

Help, 1-2, 3-11, 4-3, B-7  
    access, 1-10  
    exit, 1-10, B-7  
    online, 1-2, 1-7  
    press PF1, 1-7, B-2, B-14  
hierarchical structure, 5-11  
highlighting (errors), 4-4  
horizontal display, 5-4, 5-5

---

## I

I (INTER), A-2  
ID number, 4-13  
IF, A-1  
II (IMS VISION:Inquiry transaction code), 1-3, 4-2  
IIAQF (IMS transaction code), 1-2, C-1  
IMS, 1-1, A-4  
    Clear+/EXIT+Enter, 1-2, 3-12, 4-19, B-2  
    CONTINUE, 4-11  
    CONTINUE DEFERRED INQUIRY n, 4-13  
    DEFER, 4-12  
    exit, 1-2, 3-12  
    INQUIRY field, 4-6  
    output, 4-6  
    PAGE field, 4-6  
    PF1 for CONTINUE, A-4  
    PF2 for DEFER, A-4  
    PF3 for CONTINUE DEFERRED INQUIRY, A-4  
    Reentry, 4-16, 4-19  
    TRANCODE field, 4-6  
    VSAM not supported, 8-56  
IMS (DL/I) databases, 1-1  
    access, 1-1  
inquiries, 1-4  
    enter 2nd inquiry, 4-16  
    not executed, 4-9  
    stored functions, 1-8  
INQUIRY field, 4-6  
INTER (I), A-2  
Introduction screen, 1-3, 3-3, 4-2, B-1  
IQBE (CICS transaction code), 1-2  
IQBE (CICS VISION:Inquiry transaction code), C-1  
IQIO (CICS VISION:Inquiry transaction code), 1-3, 4-2

## K

key, 9-17

9 fields possible, 8-3  
description, 8-3  
match field, 8-9  
key codes, B-11  
KSDS (Key Sequenced Data Set), 2-11

---

## L

LAST, A-1  
    does not apply to VSAM non-hierarchical, A-4  
LIMIT, 1-8, A-1  
    applies to highest level segment referenced, 5-57  
    applies to output, 5-57  
    description, 5-55  
    example, 5-56  
    hierarchical level, 5-57  
    output, 5-56, 5-61  
limits, 1-8, 4-5  
    maximum # of calls to a database, 4-10  
    maximum # of calls to a database, 4-5  
    maximum # of pages, 4-5, 4-10  
LINE n, A-3  
LIST ORDER column, 3-8, 5-7, 6-1  
    example, 5-16, 5-22  
    with SUMMARIES, 6-1  
LITERAL VALUE/FIELD NUMBER column, 5-20, B-20  
literals, 5-20, 7-3, 7-6  
logical operators, 5-26  
    &, 5-26  
    \*, 5-26  
    +, 5-30  
    |, 5-30  
    !, 5-30  
    A, 5-26  
    O, 5-30  
    OR, 5-29, 5-30, 5-33  
    order of evaluation, 5-36

---

## M

---

match field, 8-4

messages, 4-14

- AQF-023, 4-14
- associated with checkpoints, 4-10
- DFH064, 4-15
- DFHTP4108, 4-10
- from the operating system, 4-15
- Informational, 4-7
- Input, 4-4
- IXX0122, 4-14
- IXX0140, 4-13
- IXX0860, 4-14
- IXX9121, 4-5, 4-7
- IXX9122, 4-10, 4-11
- IXX9123, 4-10
- location on screen, 4-3
- terminology, 4-15

modes, 4-5

- continuous mode, 4-5
- conversational mode, 4-5

multiple database access, 5-62

## N

---

name combinations, A-5

names, 1-4, 3-6

- database, 1-4, 3-6
- field, 1-4, 3-6
- segment, 2-2
- stored function, 3-6
- stored inquiry, 3-6
- temporary field, 3-6

negative numbers, 7-2

noise words, A-4

- for clarity, A-4
- increase translation time, A-4

NOSP (NOSPACE), A-3

NOSPACE (NOSP), A-3

## O

---

OP column, 5-30

operators, 1-2, 3-6, 5-20

- arithmetic, 1-2
- logical, 1-2, 5-26, 5-30
- relational, 5-19

OR logical operator, 5-29, 5-30, 5-33

- example, 5-30

OUTPUT, A-2

output (free-form), C-1

- generated inquiry on screen with output, C-1
- generated inquiry on separate screen from output, C-1

output screen, 4-2

- in CICS, 4-8
- in IMS, 4-5

## P

---

PAGE field

- C/terminal ID, 4-8
- CICS, 4-8
- IMS, 4-6
- P/, 4-10
- P/L, 4-8, 4-10
- P/n, 4-8, 4-10

parentheses, 7-12, 7-14, 7-22

PDD (DISPLAY DIRECTORY DATA), A-5

PDD WHOLE (DISPLAY DIRECTORY DATA WHOLE), A-5

PDDDS (DISPLAY DIRECTORY DATA DESCRIPT), A-5

PDF (DISPLAY DIRECTORY FUNCTION), A-3, A-5

PDI, 1-8

PDI (DISPLAY DIRECTORY INQUIRY), A-2, A-5

---

PDIC (DISPLAY DIRECTORY INQUIRY COMMENT), A-2, A-5  
PDICW (DISPLAY DIRECTORY INQUIRY COMMENT WHOLE), A-2, A-5  
PDIW (DISPLAY DIRECTORY INQUIRY WHOLE), A-2, A-5  
PDL (DISPLAY DIRECTORY LTERM), A-5  
PDM ( DISPLAY DIRECTORY MAP), A-5  
PDMW (DISPLAY DIRECTORY MAP WHOLE), A-5  
PDV (DISPLAY DIRECTORY VOCABULARY), A-5  
PF (partial fielding), A-3  
PF keys, 1-9, 4-1, 4-3  
PF1 (CONTINUE), A-3  
PF2 (DEFER, DI), A-4  
PF3 (CONTINUE DEFERRED INQUIRY, CDI), A-4  
PLANT database, 2-8  
primary directory, 9-24, B-27  
    delete stored inquiries, B-27  
    edit stored inquiries, B-27, B-29  
    execute stored inquiries, B-27  
    view stored inquiries, B-27  
    view storied inquiries, B-29  
PRINT, A-1  
print order, 5-4, 5-7  
    change using LIST ORDER, 5-7  
print suppression, 5-45

## Q

---

Q for qualify /expression only, 3-5  
Qualification screen, 3-7, B-18  
    compound condition, 5-25  
    conditional selection, 5-18, 5-19  
    FIELD column, 3-7  
    FIELD NUMBER column, 5-34  
    LITERAL VALUE column, 3-7  
    logical operators, 5-26

## R

---

record, 2-1  
Reentry screen, 4-16, B-33  
    S for select screen, B-33  
    select codes, B-33  
    X for available, B-33  
relational operators, B-20  
    description, 5-20  
    EQ or =, 6-4, 6-7  
REP n (REPEAT n), A-3  
REPEAT n (REP n), A-3  
repetitive printing suppressed, 5-43  
reports, 1-1  
    horizontal display, 5-4, 5-5  
    limit output amount, 5-55  
    print order, 3-8, 5-4  
    vertical display, 5-6  
restart AQF, 4-7  
route output, 4-8  
RRDS (Relative Record Data Set), 2-11

## S

---

S for start over, 3-12  
screens, 1-1  
    Batch screen, B-25  
    Data Display screen, 3-8, B-22  
    DB/File Selection screen, 3-4, B-2  
    display PF key assignments, 4-3  
    Field Selection screen, 3-5, 5-3, B-8  
    Introduction screen, 1-3, 3-3, 4-2, B-1  
    output, 4-2  
    Qualification screen, 3-7, 5-18, B-18  
    Reentry screen, 4-16, B-33  
    Stored Queries Confirmation screen, B-28  
    Stored Queries screen, 4-18, B-27  
    Temporary Field screen, B-14  
    View Description screen, B-5

- 
- segments, 2-1
    - dependent or subordinate, 2-5
    - Multiple access, 5-14
    - multiple occurrences, 2-4, 8-51
    - root, 2-5
  - select codes, 3-4
    - B for both display and qualify (Temporary Field screen), 7-2
    - B for both display and qualify/expression (Field Selection screen), 3-5, 5-29
    - D for display, 3-5, 5-3
    - DB/File Selection screen, B-2
    - F for find for query, 3-4
    - Field Selection screen, 5-18, B-9
    - Q for qualify/expression only, 3-5, 5-18
    - Reentry screen, B-33
    - S for start over, 3-12
    - Temporary Field screen, B-17
    - U for use, 3-4, 5-2
    - V for view description, 3-4, 3-5
  - SHOW, A-3
  - sign off, 4-19
    - Clear, 4-19
    - Clear+/EXIT+Enter, 4-19
  - sign on, 4-2
  - SKILL database, 2-10
  - SKIP n, A-3
  - SORT, 1-8, 5-39, 6-1, 8-28, A-1
    - ascending order, 5-40
    - DESC?, 5-48, B-23
    - descending order, 5-49
    - description, 5-39
    - order of characters, 5-46
    - primary, 5-44, 5-50
    - restrictions, 5-53
    - reversing order, 5-44
    - secondary, 5-44, 5-52
    - SORT ORDER column, 5-46
  - SP n (SPACE n), A-3
  - SPACE n (SP n), A-3
  - SQL (Structured Query Language), 2-17
    - Description, 2-17
    - not supported in AQF, 1-2
  - starting AQF default transaction code, C-1
    - IIAQF for IMS, C-1
    - IQBE for CICS, C-1
  - stored functions, 1-8, 10-10
  - stored inquiries, 9-1
    - cannot delete message, 9-29
    - delete, 9-27, 9-28
    - example, 9-2
    - multiple database access, 9-17, 9-18, 9-19, 9-20
    - process, 1-1, 2-11
    - view a list of names, 9-23
    - view descriptions, 4-18, 9-26
  - Stored Queries screen, 4-18, B-27
    - D for delete query, 4-18, B-28
    - E for edit query, 4-18
    - S for select to execute, 4-18, B-27
    - V for view description, 4-18
    - Y or N to confirm delete, B-28
  - substitutable values, 10-3, B-31
  - subtotal, 6-19
    - summary options, 6-19
    - With CTL BRK, 6-19
  - SUM, A-2
    - does not apply to VSAM non-hierarchical, A-4
  - summaries, 6-1
    - AVERAGE, 6-1, B-23
    - COUNT, 6-1, B-23
    - Grand, 6-13
    - TOTAL, 6-1, B-23
  - synonyms, 4-11, A-1
    - DI = DEFER, 4-12
- 
- ## T
- 
- Temporary Field screen, 7-2, B-14
    - B for both display and qualify, B-17
    - D for display, B-17
    - multiple database access, 8-5
-

---

Q for qualify only, B-17

temporary fields, 7-2

- arithmetic processing, 7-19
- Data Display screen, 7-20
- description, 7-1
- numeric field, 7-7

terminal/user ID, 3-3, 4-2

test databases, 2-7

- PLANT, 2-7
- SKILL, 2-7

test files, 2-12

- VSHPLANT, 2-12
- VSHSKILL, 2-12
- VSPLANT, 2-12
- VSSKILL, 2-12

Text Editor, 1-8, 4-18

TOTAL, 1-8, 6-13, 6-17, A-2, B-23

- arithmetic calculations, 7-5
- description, 6-1
- grand total, 6-3
- numeric fields only, 6-6
- output order, 6-14
- with condition, 6-3
- with COUNT & AVERAGE, 6-18
- with CTL BRK, 6-26
- with CTL BRK, 6-19

totals, 6-1

TRANCODE field, 4-6

transaction codes, 1-2, B-1

- II (IMS VISION:Inquiry default), 1-3, 4-2
- IQAQF (IMS AQF default), 4-2
- IQAQF (IMS AQF default) ), 1-2
- IQBE (CICS AQF default), 1-2, 4-2
- IQIO (CICS VISION:Inquiry default), 1-3, 4-2
- TRANCODE field, 4-6
- TRANSACTION field, 4-8

TSO, 1-1

## U

---

U for use, 3-4, 5-2

USE, 8-1

- database selection, 8-6
- DB/File Selection screen, 8-1
- same database access, 8-44

user ID, 4-2

user profile, 4-14

## V

---

V for view description, 3-4

vertical display, 5-6

- hierarchical databases, 5-7

view databases, B-5

View Description screen, B-5

VISION:Inquiry, 1-1

- DB2 option, 1-1, 5-1
- description, 1-1
- II (default IMS transaction code), 1-3
- IQIO (default CICS transaction code), 1-3
- transaction codes, 1-3

VISION:Inquiry default transaction code, C-1

- II for IMS, C-1
- IQIO for CICS, C-1

VSAM files, 1-1, 2-11, 8-47, 8-56, C-2

- access, 1-1
- CICS can process, 8-47
- ESDS, 2-11
- hierarchical structure, 2-13, 2-14
- IMS cannot process, 8-47
- KSDS, 2-11
- not supported in IMS, C-2
- online environment, 8-47, 8-56
- processing environments, 1-1, 2-11
- RSDS, 2-11
- supported in CICS, C-2
- view descriptions, 3-11, B-5

---

VSAM non-hierarchical, A-4  
FIRST does not apply, A-4  
LAST does not apply, A-4  
SUM does not apply, A-4

VSHPLANT, 2-12, 2-15

VSHSKILL, 2-12, 2-16

VSPLANT, 2-12

VSSKILL, 2-12, 2-13

## W

---

WITH, A-1

