

# CA-OLQ<sup>®</sup>

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User Guide  
15.0



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# How to Use This Manual

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## What this manual is about

This manual serves two purposes:

1. Shows you how to use the CA-OLQ menu facility to report on information stored in a CA-IDMS/DB database
2. Introduces you to the OLQ SELECT statement

## Who should use this manual

This manual is for a CA-IDMS/DB user who wants to:

- Learn how to use the OLQ menu facility
- Learn about the power and features of the OLQ SELECT statement
- Refresh your knowledge about the OLQ SELECT statement by referring to examples of its features

## How information is presented

- **An introduction** describes CA-OLQ and how it is used.
- **A preliminary chapter** introduces global CA-OLQ functions.
- **Step-by-step tutorials** show you how to create and format different kinds of reports.

Each tutorial defines **key terms** for that topic at the beginning of the discussion.

- **Step-by-step tutorials** show you how to save and print your reports.  
Each tutorial defines **key terms** for that topic at the beginning of the discussion.
- **Descriptions** of each feature of the OLQ SELECT statement.
- **Coding steps** needed to implement each feature.
- **One or more examples** containing a sample OLQ SELECT statement and the first screen of the CA-OLQ displayed report.

These examples are designed to:

- Highlight each feature of the OLQ SELECT statement
- Build on knowledge gained in preceding examples

**Note:** The examples of the OLQ SELECT statement are only valid when the access switch is set to **olq**.

- **Exercises and answers** which test your knowledge of the OLQ SELECT feature discussed in each chapter.
- **Sample tables and database** that most of the examples use. (Some examples use database records defined in the Employee database that your site receives at installation.)
- **A glossary** defines important terms.

## How to proceed

1. **Begin with the Introduction.** This discussion describes CA-OLQ and how it is used.
2. **Read Chapter 1.** This chapter explains how to sign on to CA-OLQ; how to use the menu facility screens; and how to use the help system.
3. **Look up the type of report that you want to make.** Each chapter teaches you how to create a different kind of report. You can proceed sequentially through the topics or skip to the chapter that describes the report you need.

►► For background information, refer to *CA-IDMS SQL Self-Training Guide*.

►► If you aren't familiar with a term, see the glossary (at the end of this manual) for a definition.

**Users new to CA-OLQ:** If this is your first encounter with the OLQ SELECT statement, begin with -- Heading '14' unknown --, which introduces the OLQ SELECT statement and its clauses. You'll gain even more knowledge by creating some sample tables of your own and submitting OLQ SELECT statements to CA-OLQ as you advance through each chapter.

**Users familiar with CA-OLQ:** If you have already used the OLQ SELECT statement use this manual as a refresher. Find the feature you need by using the index.

**Users new to CA-OLQ command mode:** If you are a CA-OLQ user who usually uses the menu facility, see 14.3, "Some tips on using CA-OLQ" on page 14-7, for some tips on submitting statements to CA-OLQ in command mode.

►► You can find more information about CA-OLQ statements in the *CA-OLQ Reference Guide*.

**Testing your knowledge:** Chapters 15 through 19 each end with self-testing questions. By writing the OLQ SELECT statement to form the query, you can test your understanding of ideas presented in the chapter.

Queries are based on the sample tables and database in Appendix A. Answers are in Appendix B.

## Related documentation

For more information related to CA-OLQ, see these manuals:

- *CA-OLQ Reference Guide* contains syntax and syntax rules for CA-OLQ statements
- *CA-IDMS SQL Reference Guide* contains syntax and syntax rules for the CA-IDMS/DB SELECT statement

# Chapter 1. Introduction

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- 1.1 What is CA-OLQ? . . . . . 1-3
- 1.2 What are CA-OLQ features? . . . . . 1-4
- 1.3 What can I do with the Menu Facility? . . . . . 1-5



## 1.1 What is CA-OLQ?

**In this chapter** CA-OLQ (OnLine Query) is a query tool and report writer that accesses data stored in a CA-IDMS/DB database.: You can use CA-OLQ to:

- **Query a CA-IDMS/DB database.** For example, if you want to know the phone number of an employee, you can use CA-OLQ to retrieve the phone number from the database.
- **Create reports.** For example, if you want to list the names, phone numbers, and sales quotas for a group of salespeople, you can use CA-OLQ to create this report.

## 1.2 What are CA-OLQ features?

**A menu facility:** Using the CA-OLQ menu facility you can learn how to create reports quickly. The menus are easy to use, and provide most of the power of syntax-driven CA-OLQ.

**CA-OLQ command mode:** CA-OLQ also offers syntax mode for very specific queries, or for people who prefer to use syntax.

►► For information on how to use CA-OLQ command mode, refer to the *CA-OLQ Reference Guide*.

**Two processing modes:** You can create a report in either an online or a batch environment.

**Two access modes:** CA-OLQ provides you with the ability to access both SQL and ASF tables, database and logical records, and sequential files (batch only). Setting the access switch to either **idms** or **olq** tells CA-OLQ what kind of table you want to access.

►► For more information about setting the access mode, see 3.2.1, “Step 1 — Select the type of table” on page 3-6.

## 1.3 What can I do with the Menu Facility?

**Create reports:** You can report on:

- SQL tables
- ASF tables
- Database records

**Format your report:** You can enhance the appearance of your report by:

- Sorting report rows
- Modifying column and page headers
- Specifying external pictures for columns
- Changing the spacing between columns
- Using code tables to translate data stored in the database into an alternative external representation

**Perform computations:** You can create the following types of report calculations:

- Computed columns
- Break processing and group subtotals
- Report totals
- Calculations including aggregate and built-in functions

**Save a report:** Once you create a report, you can save it online for a specified period of time.

**Create a table from a report:** You can create a table by saving your CA-OLQ report as a table. The rows and columns in the table correspond to those you have defined in the report.

**Define predefined routines:** You can save the set of CA-OLQ commands used to create a report in a routine. This routine can be re-executed to create reports that reflect the changing nature of data in the database.

**Print a report:** You can route your CA-OLQ report to output devices defined to your system.

**Execute OLQ commands using the OLQ batch facility:** You can use the CA-OLQ batch facility to create reports that query very large amounts of data, or to execute during non-peak hours.



# Chapter 2. Getting Started

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- 2.2 Getting help . . . . . 2-5
- 2.3 Using Menu Facility screens . . . . . 2-6
- 2.4 Using PF keys . . . . . 2-10



---

**In this chapter** In this chapter, you will learn how to do the following in CA-OLQ:

- Sign on and sign off
- Use the help system
- Use menu facility screens
- Use PFkeys

## 2.1 Signing on and signing off

**Signing on:** You sign on to CA-OLQ from CA-IDMS/DC or CA-IDMS/UCF. When CA-IDMS/DC or CA-IDMS/UCF prompts you with ENTER NEXT TASK CODE, type the following:

**olq menu options**

**To go directly to a specific screen,** name the screen when you sign on. For example, to go straight to the Session Options screen when you sign on, type the following at the CA-IDMS/DC or CA-IDMS/UCF system prompt:



```
V12 ENTER NEXT TASK CODE:  
olq menu options
```

**Signing off:** To sign off from CA-OLQ:

- Press [PF3] from any menu facility screen.
- Type **QUIT** or **BYE** in the command line.

## 2.2 Getting help

The CA-OLQ help system provides quick answers about how to use CA-OLQ.

For example, if you're working on the Column Select screen and have a question about how to specify selection criteria, you can press [PF1] to get more information.

The following help screen shows ways to specify retrieval selection criteria.

```

CA-OLQ Release 15.0                      *** Help ***
->                                         Page 10 of 20
127000 Press the ENTER key to go to the next screen

                HELP FOR *** COLUMN (FIELD) SELECT ***
-----
Retrieving all rows                      If you don't enter any selection criteria on
                                         the screen, CA-OLQ will retrieve all rows from
                                         the data tables or records.

What to type under                        Each column has its own SELECTION CRITERIA
SELECTION CRITERIA                      entry. If you want to retrieve rows based
                                         on the value in a certain column, fill in the
                                         SELECTION CRITERIA entry of that column. For
                                         example:
                                         SELECTION CRITERIA
                                         X 02 COLUMN1
                                         02 COLUMN2
                                         X 02 COLUMN3          eq 2000
                                         X 02 COLUMN4          gt 5 * COLUMN1

-----
2=GLOBAL HELP 3=QUIT 4=MESSAGE 6=MENU 7=BWD 8=FWD CLEAR=PREVIOUS SCREEN
                                         (continued)--

```

Type of Help	PF key	Information
How to use CA-OLQ in general	[PF2]	General information on how to use the CA-OLQ menu facility.  Topics include CA-OLQ command-line commands, PF-key assignments, and overviews of how to report on tables and records.
How to use a specific menu facility screen	[PF1]	How to use each screen, including how to use each of the fields on the screen.
What the message on your screen means	[PF4]	Explains the messages that you receive on the message line of the screen.

## 2.3 Using Menu Facility screens

**Screen components:** Each CA-OLQ screen has:

- **The screen name** listed in the top right corner.
- **A page field** under the screen name. The page field shows you which page of the current screen or report you are on. You can type over this field to jump to a specific page.
- **A command line** marked by the -> prompt. You can enter commands to move you to other screens or to perform other CA-OLQ functions.
- **A message line** right below the command line. CA-OLQ messages either tell you what to do next or signal that you have tried to perform an invalid function.
- **A list of PF keys** along the bottom of the screen. The PF key assignments correspond to those established at system generation.

```

                                Computer Associates International, Inc.
      CA-OLQ Release 15.0                                *** Menu ***
->                                     Page   1  Of   3
107017 CA-OLQ Release 15.0
107019 Copyright(C) 1972,2000 Computer Associates International,Inc.
      Select
      Pfkey  Option  Description                                Command/  Show/
                                     Screen Name  Help
      ---> Data Source for Report <---
      X      Choose tables                                TABLE   -
PF2  -      Choose subschema                            SUBSchema -
      ---> Retrieval Activity <---
      -      Choose records from selected subschema      RECOrd   -
      -      Choose columns for report                    COLUmN   -
      -      Retrieve data to build report                RETrievE -
      -      Alter database access strategy              LINKage  -
      ---> Processing Mode <---
      -      Execute or create a predefined routine       QFILE    -
      -      View existing or save current report        SAVe     -
      -      Submit batch report request                  BATch    -
1=HELP      3=QUIT      4=MESSAGE      5=GLOBAL HELP      8=FWD

```

**How to use the screens:** To select a screen option, type any character (except a blank, underscore, or d) on the line next to the option listing and press [Enter].

For example, to select the EMPLOYEE record from the Record Select screen, type a character on the line next to the EMPLOYEE option and press [Enter].

```

CA-OLQ Release 15.0                               *** Record Select ***
->                                                Page 1 of 1
123000 Select records and press the ENTER key

Enter records :                                Records currently selected: 0

-and/or-
Select records :
- COVERAGE
- DENTAL-CLAIM
- DEPARTMENT
x EMPLOYEE
- EMPOSITION
- EXPERTISE
- HOSPITAL-CLAIM
- INSURANCE-PLAN
- JOB
- NON-HOSP-CLAIM
- OFFICE
- SKILL
- STRUCTURE

1=HELP      3=QUIT      4=MESSAGE      6=MENU      PA2=REFRESH

```

**To get to another menu screen**, type the command for that screen in the command line and press [Enter].

For example, to get to the Menu screen, type **MENU** in the command line of any menu facility screen and press [Enter].

```

CA-OLQ Release 15.0                               *** Display Report ***
-> menu                                           Page 1 Line 1
125000 Press the ENTER key to go to the next page of the report.

EMPLOYEE/EMPOSITION REPORT
03/02/99

LAST NAME      FIRST NAME    START        SALARY        SALARY        BONUS
NAME           NAME          START        GRADE         AMOUNT        PERCENT
-----
TERNER         NANCY         05 26 82    11            13000.00     .004
JOHNSON        CYNTHIA       03 23 77    11            13500.00     .004
-----
AVE FOR 11:    13250.00

NICEMAN        BRIAN         05 06 80    12            14000.00     .004
GARDNER        ROBIN         06 15 81    12            14000.00     .004
KING           DORIS         08 16 80    12            14500.00     .004
-----
AVE FOR 12:    14166.66

- 1 -
1=HELP      3=QUIT      4=MESSAGE    6=MENU      8=FWD      10=LEFT     11=RIGHT

```

**To specify syntax on your screen**, enter the syntax statement next to the prompt on the screen.

## 2.3 Using Menu Facility screens

For example, to specify a COMPUTE statement, enter the statement next to the **Compute** prompt.

```
CA-OLQ Release 15.0                                     *** Report Format - Sort ***
->                                                       Page      1 of      2
133000 Specify sort or group by request and press the ENTER key

                Disp      Sort      Order      Group By
                Seq      Priority  (A/D)      Level #
EMPLOYEE
X EMP-FIRST-NAME-0415                2      -      -      -
X EMP-LAST-NAME-0415                 1      -      -      -
X START-YEAR-0415                    5      -      -      -
X START-MONTH-0415                   3      -      -      -
X START-DAY-0415                     4      -      -      -
EMPOSITION
X SALARY-GRADE-0420                   6      1      A      1
X SALARY-AMOUNT-0420                  7      -      -      -
X BONUS-PERCENT-0420                  8      -      -      -

                Display lines: Detail X and/or Summary X      Group by all _
Compute: compute ave-salary = ave(salary-amount-0420) group by salary-grade-042
0 having salary-grade-0420 gt 18
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  8=FWD  11=HEADER
```

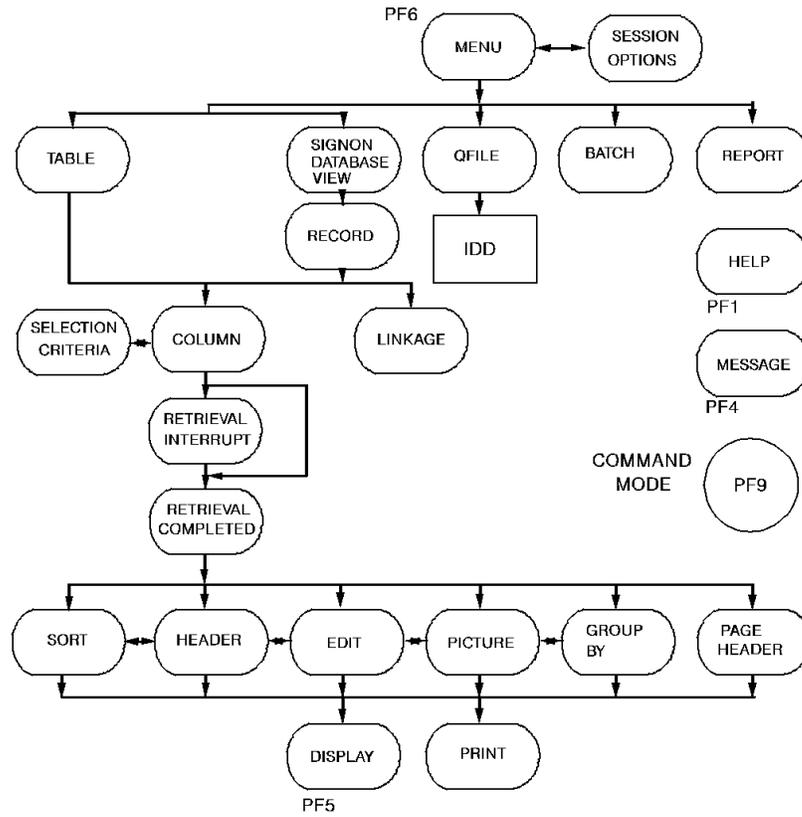


Figure 2-1. An Overview of CA-OLQ screens

## 2.4 Using PF keys

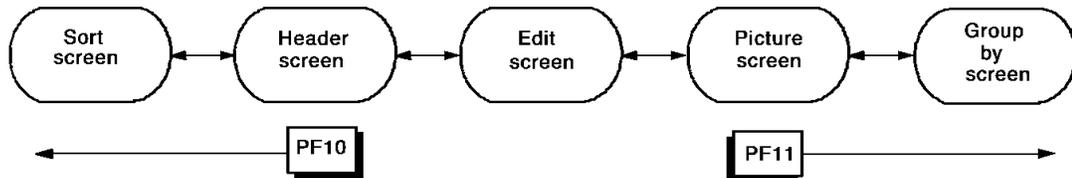
PF keys are used to:

- **Scroll through pages of a screen** ([PF7] and [PF8])
- **Display the current report** ([PF5])
- **Access a specific screen** (for example, [PF6] for the Menu screen)
- **Page right and left** through the default sequence of the Report Format screens ([PF10] and [PF11])
- **Access the help system** ([PF1], [PF2], [PF4])
- **Terminate a CA-OLQ session** ([PF3])

For example, CA-OLQ has a set of screens that you use to add formatting enhancements to your report. These screens are set up so that you can scroll through them by using [PF10] and [PF11].

After you have created your report, you can enhance its appearance by using the Report Format screens. Usually, you start with the Report Format - Sort screen and use [PF11] to scroll right to additional formatting screens.

Figure 2-2. Default Paging Sequence of the Report Format screens. You can use PF keys to page between the CA-OLQ report formatting screens.



PF key values are assigned at system generation. The values given in this discussion are the default system-generation values. If your site has other PF key assignments, they will be reflected in the help system.

# Chapter 3. How to Make a Report from a Table

---

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**In this chapter** In this chapter, you create a report that retrieves data from a table. The following report displays data stored in the EMPLOYEE table.

```
CA-OLQ Release 15.0                                *** Display Report ***
->                                                    Line      1
125004 press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

                        EMPLOYEE REPORT
                        05/01/99

      EMP-LAST-NAME      DEPT-ID      SALARY-AMOUNT      PROJECT
      -----
      BANK                4000                80000.00          TESTING
      ANGELO              4000                18000.00          PLANNING
      MCDUGALL            4000                18000.00          PLANNING
      PENMAN              4000                39000.00          PLANNING
      JACKSON             4000                34000.00          PLANNING
      ZEDI                4000                37000.00          EVALUATE
      END OF REPORT

                                     - 1 -
1=HELP      3=QUIT      4=MESSAGE      6=MENU      10=LEFT      11=RIGHT
```

**What is a table?:** A table is a systematic arrangement of data in **rows** and **columns**:

- Each **row** contains related information about a particular item. For example, data about an employee named Jackson.
- Each **column** represents a category of information. For example, each employee's last name.

In other words, columns are **attributes** associated with each row. Each row contains one entry for each column.

Figure 3-1 on page 3-4 shows a table containing information about employees.

---



---

EMPLOYEE Table				
EMP-ID	EMP-LAST-NAME	EMP-FIRST-NAME	START-YEAR	DEPT-HEAD-ID
0075	Lanzarotta	Jennifer	78	0003
3302	Elopoulos	Bart	67	0004
3871	Mahoney	Reginald	90	0007
4230	Ho	Duc	91	0011
6264	Ortega	Daniel	91	0013
6348	Jones	Edith	85	0015
7170	Poznanski	Anthea	88	0030
8939	Sahu	Ankur	77	0321
8957	Sternbach	William	82	0349

---

Figure 3-1. The EMPLOYEE table. The EMP-ID column represents one category of information on the EMPLOYEE table. Each row represents one data occurrence, which includes all the information about one employee.

►► For more information about tables, refer to *CA-IDMS SQL Self-Training Guide*.

## 3.1 Key terms

**Column:** A vertical division in a table. A column represents a category of information, for example, employee last name.

**Table:** A presentation of data as a series of rows and columns.

- *ASF tables* refers to tables associated with the IDMSR schema.
- *SQL tables* refers to tables associated with an SQL schema.

**Row:** A horizontal division in a table. A row represents one data occurrence, for example, information about each employee.

**Selection criteria:** An expression that specifies which rows of a table are to be selected for processing.

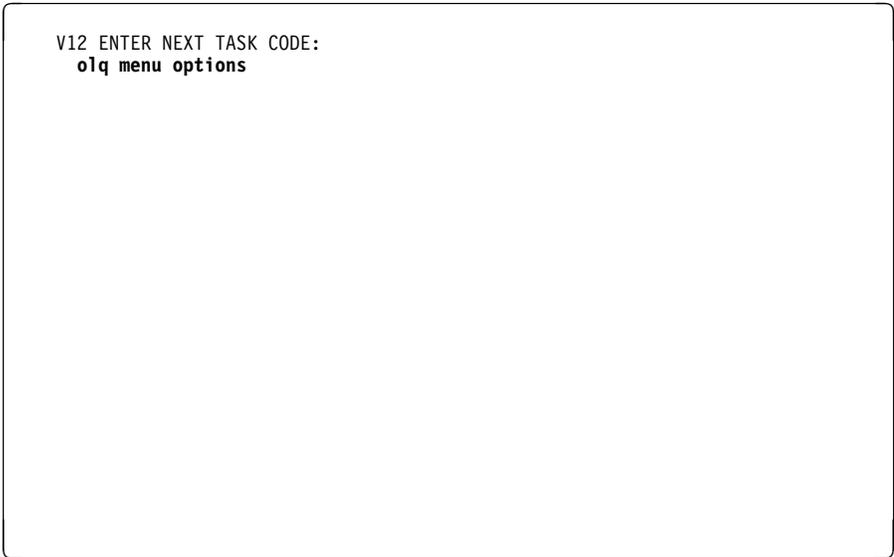
## 3.2 Creating your report from an SQL table

In this example, you create a report from an SQL table using the following steps:

1. Be certain the access switch is set to **idms**
2. Select a table
3. Indicate which columns you want to appear in your report and specify selection criteria that determine which rows are retrieved for your report
4. Specify any additional selection criteria for rows to be retrieved for your report
5. Retrieve the data for your report
6. Display your report

### 3.2.1 Step 1 — Select the type of table

When you sign on to CA-OLQ, select the Session Options screen:



```
V12 ENTER NEXT TASK CODE:  
olq menu options
```

For this example, select **Y** to access SQL tables:

```

CA-OLQ Release 15.0                                     *** Session Options ***
->                                                    Page 1 of 2
107017 CA-OLQ Release 15.0
107019 Copyright(C) 1972,2000 Computer Associates International, Inc.
Current interrupt count: 100      Current underline character: -
Access IDMS SQL tables: Y (Y/N)  Current SQL NULL data value: .

User options:
  Help      Change Option      Page Columns Spread: (L-Left,E-Even,M-Max,nn)
              Current option  Alternate option

-> Report Processing Options <-
      -      -      NOFiller      FILLer
      -      -      FULL      SPARse
      -      -      HEAder      NOHeader

-> Column Processing Options <-
      -      -      OLQheader      NOOLqheader
      -      -      PICTure      NOPIcture
      -      -      CODetable      NOCODetable

1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD

```

►► For more information about the access switch, refer to the *CA-OLQ Reference Guide*.

### 3.2.2 Step 2 — Select a table

For this example, select **Choose tables**.

```

Computer Associates International, Inc.
CA-OLQ Release 15.0                                     *** Menu ***
->                                                    Page 1 Of 3
122000 Select an option and press the ENTER key.

  Select
  Pfkey  Option  Description      Command/  Show/
              Screen Name  Help

      ---> Data Source for Report <---
      -      Choose tables      TABLE      -

      ---> Retrieval Activity <---
      -      Choose records from selected subschema      RECOrd      -
      -      Choose columns for report      COLUm      -
      -      Retrieve data to build report      RETRIeve      -
      -      Alter database access strategy      LINKage      -

      ---> Processing Mode <---
      -      Execute or create a predefined routine      QFILE      -
      -      View existing or save current report      SAVE      -
      -      Submit batch report request      BATCh      -

1=HELP      3=QUIT      4=MESSAGE      5=GLOBAL HELP      8=FWD

```

Specify **SELECT** and select the **EMPLOYEE** table.

```

CA-OLQ Release 15.0                                     *** Table Processing ***
->                                                    Page 1 of 11
138000 Select function, table(s) and press the ENTER key.

Dictname:                                             Schema:
Function:  X Select          _ Create          _ Delete
          _ Add              _ Replace

Enter table:
-or-
Select table
- DEMO.TAB1
- EMPDEMO.COVERAGE
- EMPDEMO.DENTAL_CLAIM
- EMPDEMO.DEPARTMENT
s EMPDEMO.EMPLOYEE
- EMPDEMO.EMPOSITION
- EMPDEMO.EXPERTISE
- EMPDEMO.HOSPITAL_CLAIM
- EMPDEMO.INSURANCE_PLAN
- EMPDEMO.JOB
- EMPDEMO.NON_HOSP_CLAIM
1=HELP      3=QUIT      4=MESSAGE      6=MENU      7=BWD      8=FWD

```

### 3.2.3 Step 3 — Choose columns and specify selection criteria

When you create a report that retrieves data from a table, you do not have to display the whole table. You can restrict the scope of your report in three ways:

- By choosing which columns you want to display
- By specifying selection criteria to restrict which rows are retrieved for your report
- By specifying that you want to display only unique rows on your report

**Choosing columns:** You don't have to display all of the columns in your table. By using the Column Select screen, you can select only those columns that you want to include in your report.

For example, if you just wanted to list employees' names and department numbers, you would only select those columns:

```

Columns Currently Selected:  0      Selection Criteria      Distinct N Y/N
- EMPDEMO.EMPLOYEE
- 02 EMP_ID_0415
s 02 EMP_LAST_NAME_0415
- 02 EMP_FIRST_NAME_0415
- 02 EMP_STREET_0415
- 02 EMP_CITY_0415
- 02 EMP_STATE_0415
- 02 EMP_ZIP_FIRST_FIVE_0415
- 02 EMP_ZIP_LAST_FOUR_0415
- 02 EMP_PHONE_0415
- 02 EMP_SALARY_AMOUNT_0415
- 02 EMP_START_YEAR_0415
- 02 EMP_TERMINATION_DATE_0415
s 02 EMP_DEPT_ID

```

**Specifying selection criteria:** Selection criteria are logical expressions that you use to tell CA-OLQ which rows of data to retrieve for your report. You specify your selection criteria in the **Selection criteria** field of the Column Select screen.

For example, if you only wanted to list the names of those employees in department 4000, you would specify the following:

```
Columns Currently Selected:  0      Selection Criteria      Distinct Y Y/N
EMPDEMO.EMPLOYEE
- 02 EMP_ID_0415
s 02 EMP_LAST_NAME_0415
- 02 EMP_FIRST_NAME_0415
- 02 EMP_STREET_0415
- 02 EMP_CITY_0415
- 02 EMP_STATE_0415
- 02 EMP_ZIP_FIRST_FIVE_0415
- 02 EMP_ZIP_LAST_FOUR_0415
- 02 EMP_PHONE_0415
- 02 EMP_SALARY_AMOUNT_0415
- 02 EMP_START_YEAR_0415
- 02 EMP_TERMINATION_DATE_0415
s 02 EMP_DEPT_ID                      eq 4000
```

**Specifying only unique rows:** You do not have to include duplicate rows (detail lines) on your report. By using the **Distinct Y/N** field on the Column Select screen, you can display a report that contains only unique rows.

Select lastname, state, phone, salary, start year, termination date, and department ID. Specify that you want to display only unique rows. Also, specify that you want to view only the list of employees in department 4000.

```
CA-OLQ Release 15.0                      *** Column Select ***
->                                         Page      1 Of      1
124000 Select columns, specify selection criteria and press the ENTER key.

Columns Currently Selected:  0      Selection Criteria      Distinct N Y/N
EMPDEMO.EMPLOYEE
- 02 EMP_ID_0415
s 02 EMP_LAST_NAME_0415
- 02 EMP_FIRST_NAME_0415
- 02 EMP_STREET_0415
- 02 EMP_CITY_0415
s 02 EMP_STATE_0415
- 02 EMP_ZIP_FIRST_FIVE_0415
- 02 EMP_ZIP_LAST_FOUR_0415
s 02 EMP_PHONE_0415
s 02 EMP_SALARY_AMOUNT_0415
s 02 EMP_START_YEAR_0415
s 02 EMP_TERMINATION_DATE_0415
s 02 EMP_DEPT_ID .                      eq 4000

Additional Selection Criteria:

Proceed to Selection Criteria Screen? N Y/N
1=HELP      3=QUIT      4=MESSAGE      6=MENU      PA2=REFRESH
```

### 3.2.4 Step 4 — Specifying additional selection criteria

**Additional selection criteria:** The **Additional selection criteria** field and the **Selection Criteria** screen, give you more room to add selection criteria for the rows of data you want in your report.

In this example, you want to report on those employees whose:

- Department ID is 4000 (already specified above)
- Phone exchange (first 3 digits) is '329'
- Last name begins with a 'C' or an 'S'
- State of residence is Massachusetts or New Hampshire
- Annual salary is greater than \$40,000 and less than \$100,000
- Start date with the company was after 1988
- Status is active (still an active employee)

Begin entering the additional selection criteria on this screen. Then specify **Y** to go to the Selection Criteria Screen for more room to enter selection criteria.

```

CA-OLQ Release 15.0                               *** Column Select ***
->                                                    Page 1 Of 1
124000 Select columns, specify selection criteria and press the ENTER key.

Columns Currently Selected:  0      Selection Criteria  Distinct N Y/N
- EMPDEMO.EMPLOYEE
- 02 EMP_ID_0415
s 02 EMP_LAST_NAME_0415
- 02 EMP_FIRST_NAME_0415
- 02 EMP_STREET_0415
- 02 EMP_CITY_0415
s 02 EMP_STATE_0415
- 02 EMP_ZIP_FIRST_FIVE_0415
- 02 EMP_ZIP_LAST_FOUR_0415
s 02 EMP_PHONE_0415
s 02 EMP_SALARY_AMOUNT_0415
s 02 EMP_START_YEAR_0415
s 02 EMP_TERMINATION_DATE_0415
s 02 EMP_DEPT_ID                               eq 4000

Additional Selection Criteria: EMP_PHONE_0415 = 329

Proceed to Selection Criteria Screen? Y Y/N
1=HELP          3=QUIT          4=MESSAGE      6=MENU          PA2=REFRESH

```

Finish entering the additional selection criteria.

```

CA-OLQ Release 15.0                               ***Selection Criteria***
->                                                  Line   1 Of   1

146000 Type in selection criteria, and press the ENTER key.
Please Enter Additional Selection Criteria:
EMP_PHONE_0415 = 329 AND (EMP_LAST_NAME_0415 = 'C' OR EMP_LAST_NAME_0415
= 'S') AND (EMP_STATE_0415 = 'MA' OR EMP_STATE_0415 = 'NH') AND (EMP_SALARY_
AMOUNT_0415 > 40000 AND EMP_SALARY_AMOUNT_0415 < 100000) AND (EMP_START_YEAR_
0415 > 88) AND (EMP_TERMINATION_DATE_0415 IS NOT NULL);

1=HELP          3=QUIT          4=MESSAGE          6=MENU          PA2=REFRESH

```

With the Selection Criteria screen you can *also* enter:

- Exists predicates
- Quantified predicates (ANY, SOME, ALL)
- Nested select predicates
- Multiple criteria for the same command
- Group by, order by, and so on

### 3.2.5 Step 5 — Retrieve the data

When you are retrieving the data for your report, two CA-OLQ screens help you monitor what's going on.

**The Retrieval Interrupted screen:** This screen indicates that your report will contain more records than the current **interrupt count** allows.

**Note:** This screen is here just to show you an example. The numbers on the screen do not reflect the numbers you will encounter in this example.

Specify **Yes** to continue data retrieval.

```

CA-OLQ Release 15.0                                     *** Retrieval Interrupted ***
->
131000 Select YES or NO and press the ENTER key

      Retrieval interrupted due to excessive data base accesses.

Number of whole rows. . . . .                90
Total number of records read. . . . .       100
Total number of records selected. . . . .    90
Number of data errors . . . . .             0

      Continue execution      x Yes
                              X No

      Current interrupt interval is      100 data base accesses.

1=HELP                               3=QUIT                               4=MESSAGE

```

**What is an interrupt count?:** The interrupt count indicates how many records are retrieved from the database at a time. It serves as a testing feature when you are designing your report, enabling you to create the report format that you want without retrieving more data than you need to.

**Changing the interrupt count:** The interrupt count is set at system generation. You can change this value by using the **Interrupt Count** option on the Retrieval Interrupted screen, or on the Session Options screen.

**What to do:** If the number of records that meet the criteria for your report exceeds the interrupt count, the Retrieval Interrupted screen asks you whether you want to continue data retrieval:

- **If you want to continue retrieval** select the **Yes** function on the screen. CA-OLQ will continue to retrieve more records until the interrupt count is met again, or until all of the records that meet the criteria for your report have been retrieved.
- **If you want to terminate retrieval** select the **No** function on the screen. CA-OLQ will create a report that contains only those records that have been retrieved up to this point.

**The Retrieval Completed screen:** This screen indicates that retrieval is completed for your report. From here you can either display your report or select one of the report formatting or print options from the menu on the screen.

In this example, only eight records are retrieved for your report. Since this is less than the current interrupt count, you bypass the Retrieval Interrupted screen and go straight to the Retrieval Completed screen.

```

CA-OLQ Release 15.0                *** Retrieval Completed ***
->
130000 Select activity and press the ENTER key.

Number of whole rows. . . . .      8 Total displayable cols .    20
Total number of records read. . . . 8 Formatted line length. .  372
Total number of records selected. . 8
Number of data errors . . . . .    0

Select                               Command/
Option  ---> Display/Format Activity <--- Screen Name

X      Display report                DISplay
-      Save report                   SAVE
-      Choose the sort sequence of report SORT
-      Change column headers         HEAdEr
-      Change page header and footer PAGE HEAdEr
-      Change display format of data ($,commas) PICTure
-      Format columns (Alignment, sparse) EDIt
-      Specify summary computations (Totals) GROUp BY
-      Send the report to a printer  PRInt

1=HELP          3=QUIT          4=MESSAGE          6=MENU

```

### 3.2.6 Step 6 — Display your report

Your report displays information on the employees in department 4000 with the additional selection criteria you specified.

```

CA-OLQ Release 15.0                *** Display Report ***
->                                     Line    1
125004 press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

EMP_LAST_NAME_0415 EMP_STATE_0415 EMP_PHONE_0415 EMP_SALARY_AMOUNT_0415 START_
-----
CONNOLLY           MA           6173298912 49000.00      89
COOPER             MA           6173291111 74000.00      89
CULLIPERO          NH           6033291433 90000.00      91
SACCO              NH           6033291212 80000.00      90
STEVENS            MA           6173298155 48000.00      89
STYCZCHENSKI      MA           6173292323 48000.00      90
SULLIVAN           MA           6173292323 55320.00      91
SZCHIEU           NH           6033291414 47770.00      91
      END OF REPORT

1=HELP    3=QUIT    4=MESSAGE    6=MENU    7=BWD    10=LEFT    11=RIGHT

```

Press [PF11] to see the right half of the report.

## 3.2 Creating your report from an SQL table

---

```
CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Line    1
125004 press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

YEAR_0415 EMP_DEPT_ID_0415
-----
      4000
      4000
      4000
      4000
      4000
      4000
      4000
      4000

1=HELP      3=QUIT      4=MESSAGE      6=MENU      7=BWD      10=LEFT      11=RIGHT
```

Type **leftmax** or **lmax** on the command line to return to column 1 of the current page of the report. Type **home** on the command line to return to column 1 of the first page of the report.

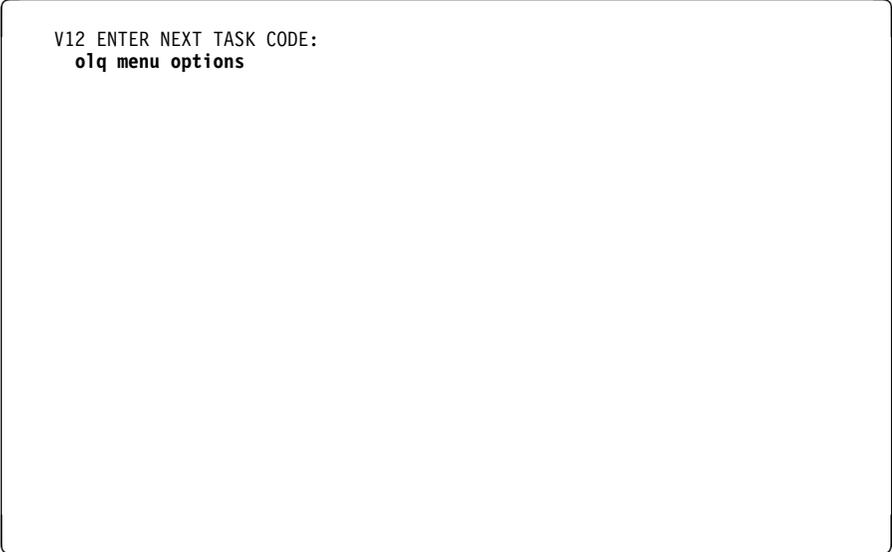
## 3.3 Creating your report from an ASF table

In this example, you create a report from a table using the following steps:

1. Be certain that the access switch is set to **olq**.
2. Select a table.
3. Indicate which columns you want to appear in your report and specify selection criteria that determine which rows are retrieved for your report.
4. Retrieve the data for your report.
5. Display your report.

### 3.3.1 Step 1 — Select the type of table

When you sign on to CA-OLQ, select the Session Options screen:



```
V12 ENTER NEXT TASK CODE:  
olq menu options
```

For this example, select **N** to access ASF tables:

### 3.3 Creating your report from an ASF table

```
CA-OLQ Release 15.0                                     *** Session Options ***
->                                                    Page 1 of 2
107017 CA-OLQ Release 15.0
107019 Copyright(C) 1972,2000 Computer Associates International,Inc.
Current interrupt count: 100 Current underline character: -
Access IDMS SQL tables: N (Y/N) Current SQL NULL data value: .

User options: Page Columns Spread: (L-Left,E-Even,M-Max,nn)
  Help      Change Option      Current option  Alternate option
  -         -              -              -
  -         -              -              -
  -         -              -              -

-> Report Processing Options <-
      NOFiller      FILLer
      FULL         SPARse
      HEAder       NOHeader

-> Column Processing Options <-
      OLQheader    NOOLqheader
      PICTure      NOPIcture
      CODetable    NOCODetable

1=HELP      3=QUIT      4=MESSAGE    6=MENU      8=FWD
```

►► For more information about the access switch, refer to the *CA-OLQ Reference Guide*.

#### 3.3.2 Step 2 — Select a table

For this example, select **Choose tables**.

```
CA-OLQ Release 15.0                                     *** Menu ***
->                                                    Page 1 of 3
114002 Choose before requesting a retrieval, display, or format activity
122000 Select an option and press the ENTER key
Select
Pfkey  Option  Description      Command/  Show
       Option Description      Screen Name Help
-----
x      Choose tables      TABLE
_      Choose subschema    SUBSchema _
_
_      ---> Retrieval Activity <---
_      Choose records from selected subschema  RECord _
_      Choose columns for report              COLumn _
_      Retrieve data to build report         RETrieve _
_      Alter database access strategy        LINKage _
_
_      ---> Processing Mode <---
_      Execute or create a predefined routine  QFILE _
_      View existing or save current report  SAVE _
_      Submit batch report request          BATch _

1=HELP      2=GLOBAL HELP    3=QUIT      4=MESSAGE    8=FWD
```

Specify **SELECT** and select the **EMPLOYEE** table.

```

CA-OLQ Release 15.0                               *** Table Processing ***
->                                                    Page 1 of 2
138000 Select function, table(s) and press the ENTER key

  Owner: DOC1
  Catalog: ASFDICT      Location:
  Function: s Select      _ Create      _ Delete
                _ Add          _ Replace

Enter table:
-or-
Select table
_ ACCOUNTING
_ BUDGET
_ DEPARTMENT
_ EMP-TABLE
s EMPLOYEE
_ EMPLOYEE TABLE
_ EMPLOYEE-DATA
_ JOB SALARIES
_ MELROSE EMPLOYEES
_ OLQ EXAMPLE
_ PERSONNEL
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD

```

### 3.3.3 Step 3 — Choose columns and specify selection criteria

When you create a report that retrieves data from a table, you do not have to display the whole table. You can restrict the scope of your report in three ways:

- By choosing which columns you want to display
- By specifying selection criteria to restrict which rows are retrieved for your report
- By specifying that you want to display only unique rows on your report

**Choosing columns:** You don't have to display all of the columns in your table. By using the Column Select screen, you can select only those columns that you want to include in your report.

For example, if you just wanted to list employees' names and department numbers, you would only select those columns:

```

Columns Currently Selected: 0      Selection Criteria      Distinct N Y/N
_ EMPLOYEE
_ 02 EMP-ID
x 02 EMP-LAST-NAME
_ 02 EMP-FIRST-NAME
_ 02 START-YEAR
_ 02 DEPT-HEAD-ID
x 02 DEPT-ID
_ 02 SALARY-AMOUNT
_ 02 PROJECT
_ 02 OFFICE-CODE

```

**Specifying selection criteria:** Selection criteria are logical expressions that you use to tell CA-OLQ which rows of data to retrieve for your report. You specify your selection criteria in the **Selection criteria** field of the Column Select screen.

### 3.3 Creating your report from an ASF table

For example, if you only wanted to list the names of those employees in department 4000, you would specify the following:

```
Columns Currently Selected:  0      Selection Criteria      Distinct N Y/N
- EMPLOYEE
- 02 EMP-ID
x 02 EMP-LAST-NAME
- 02 EMP-FIRST-NAME
- 02 START-YEAR
- 02 DEPT-HEAD-ID
x 02 DEPT-ID                      eq 4000
- 02 SALARY-AMOUNT
- 02 PROJECT
- 02 OFFICE-CODE
```

►► More information on how to specify selection criteria is given in Chapter 10, “How to Make a Report from Database Records” on page 10-1.

**Specifying only unique rows:** You do not have to include duplicate rows (detail lines) on your report. By using the **Distinct Y/N** field on the Column Select screen, you can display a report that contains only unique rows.

Select lastname, start year, department head, department ID, salary amount, and project. Specify that you want to want to display only unique rows. Also, specify that you want to view only the list of employees in department 4000.

```
CA-OLQ Release 15.0                      *** Column Select ***
->                                         Page 1 of 1
124000 Select columns, specify selection criteria and press the ENTER key.

Columns Currently Selected:  0      Selection Criteria      Distinct N Y/N
- EMPLOYEE
- 02 EMP-ID
s 02 EMP-LAST-NAME
- 02 EMP-FIRST-NAME
s 02 START-YEAR
s 02 DEPT-HEAD-ID
s 02 DEPT-ID                      eq 4000
s 02 SALARY-AMOUNT
s 02 PROJECT
- 02 OFFICE-CODE

Additional Selection Criteria:

Proceed to Selection Criteria Screen? N Y/N

1=HELP      3=QUIT      4=MESSAGE      6=MENU      PA2=REFRESH
```

### 3.3.4 Step 4 — Specifying additional selection criteria

**Additional selection criteria:** The **Additional selection criteria** field and the **Selection Criteria** screen, give you more room to add selection criteria for the rows of data you want in your report.

In this example, you want to report on those employees whose:

- Department ID is 4000 (already specified above)
- Project is Evaluation
- Manager is Ms. Sanchez (DEPT-HEAD-ID = 0111)
- Last name begins with a 'C' or an 'S'
- Annual salary is greater than \$40,000 and less than \$100,000
- Start date with the company was after 1988

Begin entering the additional selection criteria on this screen. Then specify **Y** to go to the Selection Criteria Screen for more room to enter selection criteria.

```

CA-OLQ Release 15.0                               *** Column Select ***
->                                                    Page 1 Of 1
124000 Select columns, specify selection criteria and press the ENTER key.

Columns Currently Selected:  0      Selection Criteria  Distinct N Y/N
EMPLOYEE
- 02 EMP-ID
s 02 EMP-LAST-NAME
- 02 EMP-FIRST-NAME
s 02 START-YEAR
s 02 DEPT-HEAD-ID
s 02 DEPT-ID                                     eq 4000
s 02 SALARY-AMOUNT
s 02 PROJECT
- 02 OFFICE-CODE

Additional Selection Criteria: PROJECT EQ 'EVALUATION'

Proceed to Selection Criteria Screen? Y Y/N
1=HELP          3=QUIT          4=MESSAGE      6=MENU      PA2=REFRESH

```

Finish entering the additional selection criteria.

```
CA-OLQ Release 15.0                                ***Selection Criteria***
->                                                    Line   1 Of   1

146000 Type in selection criteria, and press the ENTER key.
Please Enter Additional Selection Criteria:
PROJECT EQ 'EVALUATION' AND (DEPT-ID EQ 0111) AND (EMP-LAST-NAME
EQ 'C' OR EMP-LAST-NAME EQ 'S') AND (SALARY-AMOUNT GT 40000 AND SALARY-
AMOUNT LT 100000) AND (START-YEAR GT 88)

1=HELP          3=QUIT          4=MESSAGE          6=MENU          PA2=REFRESH
```

With the Selection Criteria screen you can *also* enter:

- Logical record keywords
- Criteria expressions for subscripted fields

#### 3.3.5 Step 5 — Retrieve the data

When you are retrieving the data for your report, two CA-OLQ screens help you monitor what's going on.

**The Retrieval Interrupted screen:** This screen indicates that your report will contain more records than the current **interrupt count** allows.

**Note:** This screen is here just to show you an example. The numbers on the screen do not reflect the numbers you will encounter in this example.

Specify **Yes** to continue data retrieval.

```

CA-OLQ Release 15.0                                     *** Retrieval Interrupted ***
->
131000 Select YES or NO and press the ENTER key

      Retrieval interrupted due to excessive data base accesses.

Number of whole rows. . . . .                46
Total number of records read. . . . .       100
Total number of records selected. . . . .    46
Number of data errors . . . . .              0

      Continue execution      x Yes
                              X No

      Current interrupt interval is      100 data base accesses.

1=HELP                                3=QUIT                                4=MESSAGE

```

**What is an interrupt count?:** The interrupt count indicates how many records are retrieved from the database at a time. It serves as a testing feature when you are designing your report, enabling you to create the report format that you want without retrieving more data than you need to.

**Changing the interrupt count:** The interrupt count is set at system generation. You can change this value by using the **Interrupt Count** option on the Retrieval Interrupted screen, or on the Session Options screen.

**What to do:** If the number of records that meet the criteria for your report exceeds the interrupt count, the Retrieval Interrupted screen asks you whether you want to continue data retrieval:

- **If you want to continue retrieval** select the **Yes** function on the screen. CA-OLQ will continue to retrieve more records until the interrupt count is met again, or until all of the records that meet the criteria for your report have been retrieved.
- **If you want to terminate retrieval** select the **No** function on the screen. CA-OLQ will create a report that contains only those records that have been retrieved up to this point.

**The Retrieval Completed screen:** This screen indicates that retrieval is completed for your report. From here you can either display your report or select one of the report formatting or print options from the menu on the screen.

In this example, only six records are retrieved for your report. Since this is less than the current interrupt count, you bypass the Retrieval Interrupted screen and go straight to the Retrieval Completed screen.

### 3.3 Creating your report from an ASF table

```
CA-OLQ Release 15.0                *** Retrieval Completed ***
->
130000 Select activity and press the ENTER key.

Number of whole rows. . . . .      6 Total displayable cols .      20
Total number of records read. . . . 6 Formatted line length. .    372
Total number of records selected. . 6
Number of data errors . . . . .    0

Select                               Command/
Option  ---> Display/Format Activity <--- Screen Name

X      Display report                DISplay
-      Save report                    SAVE
-      Choose the sort sequence of report SORT
-      Change column headers          HEAder
-      Change page header and footer  PAGE HEAder
-      Change display format of data ($,commas) PICTure
-      Format columns (Alignment, sparse) EDIt
-      Specify summary computations (Totals) GROUp BY
-      Send the report to a printer   PRInt

1=HELP          3=QUIT          4=MESSAGE          6=MENU
```

#### 3.3.6 Step 6 — Display your report

Your report displays information on the employees in department 4000 with the additional selection criteria you specified.

```
CA-OLQ Release 15.0                *** Display Report ***
->                               Line      1
125004 press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

EMPLOYEE REPORT
05/01/99

EMP-LAST-NAME START-YEAR DEPT-HEAD-ID DEPT-ID SALARY-AMOUNT PROJECT
-----
CALLAHAN      89      0111      4000      54000.00      EVALUATE
CARTWRIGHT    91      0111      4000      80000.00      EVALUATE
CEDI          90      0111      4000      77000.00      EVALUATE
SAVINO        91      0111      4000      78000.00      EVALUATE
SCHOOLER      89      0111      4000      48000.00      EVALUATE
STEVENS       90      0111      4000      99000.00      EVALUATE
END OF REPORT

1=HELP      3=QUIT      4=MESSAGE      6=MENU      7=BWD      10=LEFT      11=RIGHT
```

# Chapter 4. How to Make a Report From More Than One Table

---

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- 4.2 How to combine data from more than one table . . . . . 4-5
- 4.3 Creating your report . . . . . 4-10
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**In this chapter** In this chapter, you create a report that combines information from two tables, the DEPARTMENT table and the EMPLOYEE table.

```
CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page    1 Line    1
125004 Press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

                DEPARTMENT/EMPLOYEE REPORT
                05/04/99

                DEPT-NAME                EMP-ID    EMP-LAST-NAME    START-YEAR
                -----                -
PUBLIC RELATIONS                0007    BANK                78
PUBLIC RELATIONS                0120    ANGELO                79
PUBLIC RELATIONS                0127    MCDOUGALL            90
PUBLIC RELATIONS                0149    PENMAN                87
PUBLIC RELATIONS                0158    JACKSON                87
PUBLIC RELATIONS                0476    ZEDI                86
THERMOREGULATION                0329    FINN                89
THERMOREGULATION                0349    WILCO                89
THERMOREGULATION                0355    TIME                81
THERMOREGULATION                0469    KASPAR                80
THERMOREGULATION                0479    CLOTH                89
END OF REPORT

                1=HELP    3=QUIT    4=MESSAGE    - 1 -    6=MENU    10=LEFT    11=RIGHT
```

## 4.1 Key terms

**Join:** A relational operation through which two or more tables are combined. Tables are joined based on columns that the tables have in common.

**Join criteria:** A logical expression that compares like columns in two or more tables.

**Project:** A relational operation through which only particular columns of a table are accessed.

**Select:** A relational operation through which only particular rows of a table are accessed.

**Selection criteria:** An expression that specifies which rows of a table are to be selected for processing.

## 4.2 How to combine data from more than one table

**Relational operations:** When you combine data from two or more tables, you need to specify information that relates them somehow. Three relational operations, **select**, **project**, and **join**, can be used to define and access tables:

- **Select** enables you to choose which **rows** you want to include in your report.
- **Project** enables you to choose which **columns** you want to display.
- **Join** enables you to combine **two or more tables** on the basis of common values.

In the preceding chapter, you applied two of these relational operations:

- You **selected** which rows you want displayed in your report by specifying selection criteria.

---

```
select * from department where dept-id = 4000
```

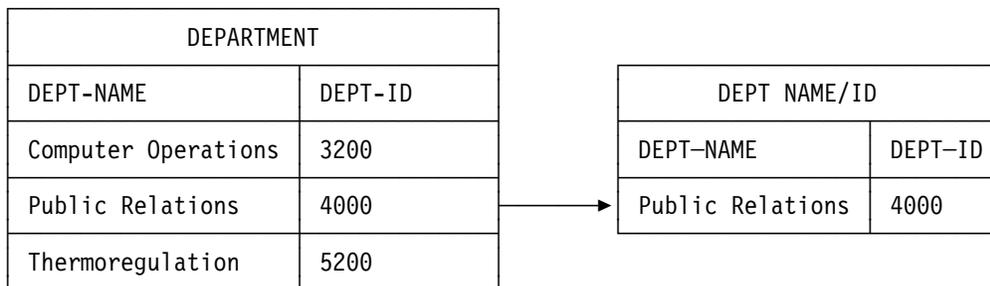


Figure 4-1. Selecting rows

- You **projected** which columns you want displayed in your report.

**Project**

```
select emp-last-name, dept-id from employee
```

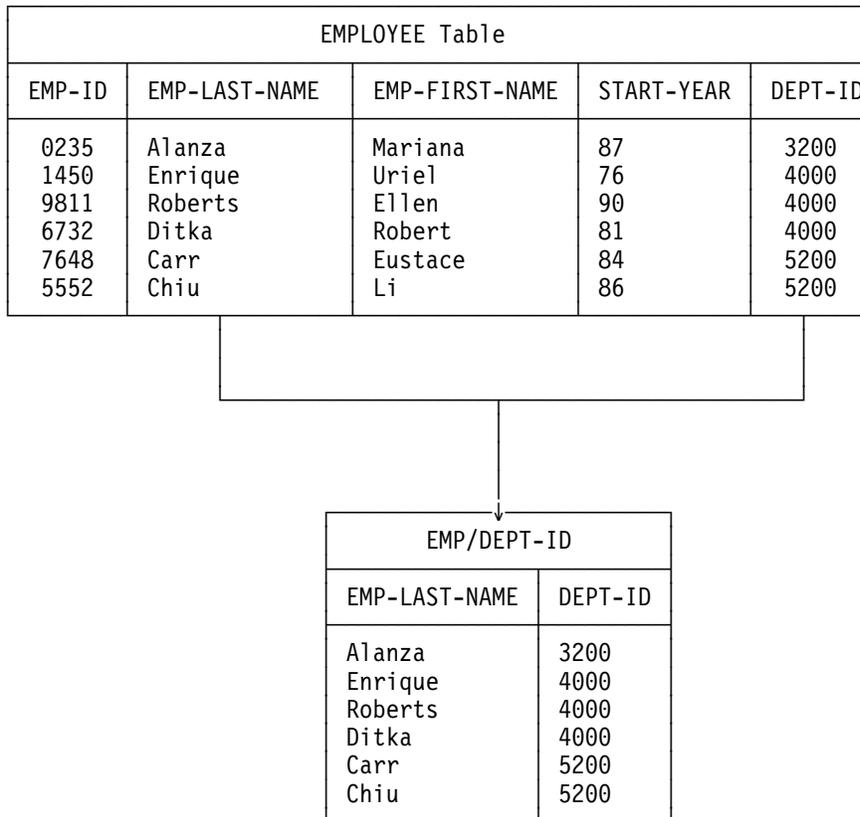


Figure 4-2. Projecting Columns

In this chapter you specify **join** criteria to combine data from the EMPLOYEE and DEPARTMENT tables into a report.

**What are join criteria?:** Join criteria are logical expressions that equate a column in one table with equivalent columns in additional tables. You **must** specify join criteria if you are reporting on more than one table at a time.

Joining tells CA-OLQ which columns the tables have in common. By comparing the values in these columns, CA-OLQ can match the rows in the tables and retrieve only those rows that the tables share.

**Join**

```
select depart.dept-name, department.dept-id, employee.emp-last-name
from employee, department where department.dept-id = employee.dept-id
```

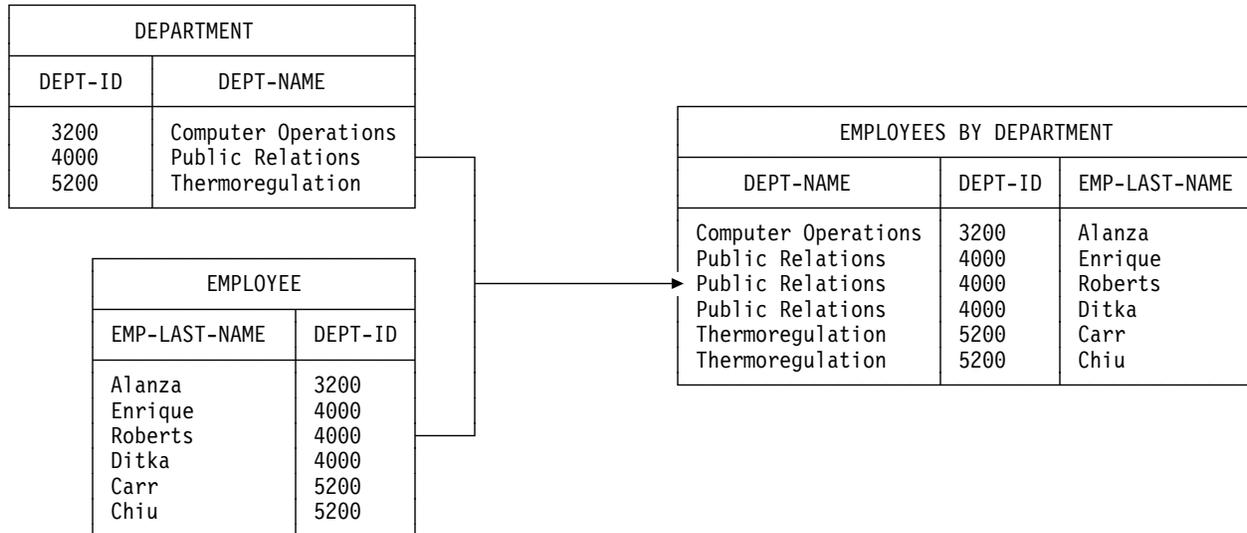


Figure 4-3. Joining the EMPLOYEE and DEPARTMENT tables

**How do you specify join criteria?:** To join two tables, find a column that the two tables have in common. The columns do not have to have the same name, but they should:

- Have the same internal picture
- Have the same data type (for example, numeric)
- Contain some data that matches (in order to display data from both tables)

**Where do you specify join criteria?:** You specify join criteria in one of two places — on the Column Select screen, or on the Selection Criteria screen:

- On the **Column Select** screen, in the **Selection criteria** field next to the join column: For example, these join criteria join TABLE1 and TABLE2 based on common values of the ID and NUMBER fields:

```
Columns Currently Selected:  0   Selection Criteria   Distinct N Y/N
TABLE1
X 03 ID
X 03 NAME
X 03 PHONE
TABLE2
- 03 NUMBER           eq ID
X 03 SALARY
Additional Selection Criteria:
```

Proceed to Selection Criteria Screen? N Y/N

(Note that you could also specify the join criteria, **eq ID**, next to the TABLE1 ID column.)

- On the **Column Select** screen, under **Additional Selection Criteria**:

```
Columns Currently Selected:  0      Selection Criteria      Distinct N Y/N
TABLE1
X 03 ID
X 03 NAME
X 03 PHONE
TABLE2
- 03 NUMBER                      eq id
X 03 SALARY
Additional Selection Criteria:
name eq 'george'
```

Proceed to Selection Criteria Screen? N Y/N

- On the **Selection Criteria** screen, under **Additional Selection Criteria**:

146000 Type in selection criteria, and press the ENTER key.  
Please Enter Additional Selection Criteria:

```
id eq number and (phone matches '617*****') and (salary gt
30000 and salary lt 50000)
```

**Example:** You can join the EMPLOYEE and JOB tables because they both have columns that represent employee ID numbers (column ID in EMPLOYEE and column EMP-NUMBER in JOB). To join them, specify the following:

```
Columns Currently Selected:  0      Selection Criteria      Distinct N Y/N
EMPLOYEE
X 03 ID
X 03 NAME
X 03 PHONE
JOB
- 03 EMP-NUMBER                  eq ID
X 03 SALARY
Additional Selection Criteria:
```

Proceed to Selection Criteria Screen? N Y/N

Note that you do not have to select the EMP-NUMBER column from JOB. If you did, the report would list the employee ID twice, once for ID and once for EMP-NUMBER.

**What if columns have the same name?:** If your common columns have the same name, you must include the table name in the join criteria. The table names and the column names are separated by a period (.).

For example, if both EMPLOYEE and JOB contain the ID field, specify:

```
Columns Currently Selected:  0      Selection Criteria      Distinct N Y/N
EMPLOYEE
X 03 ID
X 03 NAME
X 03 PHONE
JOB
- 03 ID                          eq employee.id
X 03 SALARY
```

**What happens if you don't specify join criteria?:** When the access mode is set to **olq**, CA-OLQ automatically prevents you from leaving out your join criteria. If you select two tables and don't specify how to join them, CA-OLQ issues a message reminding you to do so.

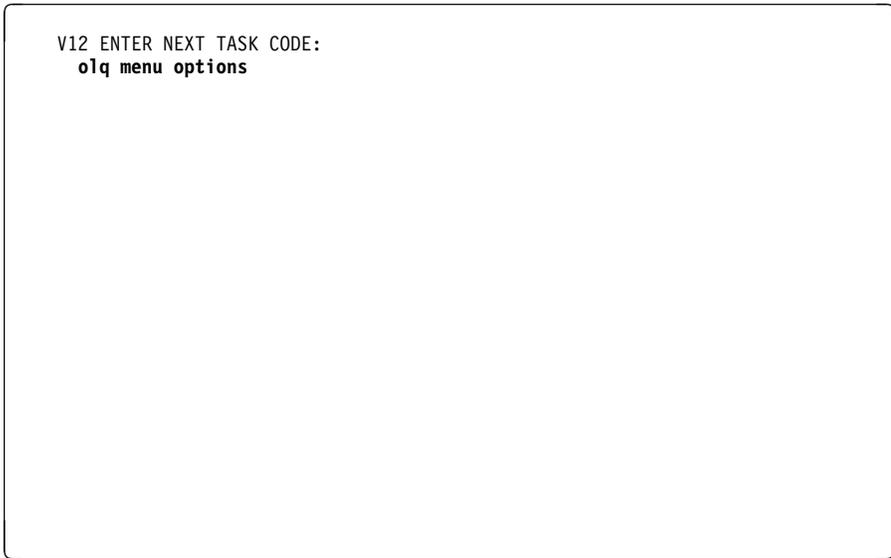
## 4.3 Creating your report

In this example, you create a report from two tables using the following steps:

1. Decide what kind of table you want to report on, a ASF table or an SQL table.
2. Choose two tables.
3. Specify selection criteria that **select** which rows of data are retrieved for your report.
4. **Project** which columns you want to appear in your report.
5. Specify **join** criteria that relate the two tables based on a common column.
6. Retrieve the data for your report.
7. Display your report.

### 4.3.1 Step 1 — Select the type of table

When you sign on to CA-OLQ, select the Session Options screen:



```
V12 ENTER NEXT TASK CODE:  
olq menu options
```

For this example, select **Y** to access SQL tables:

```

CA-OLQ Release 15.0                                     *** Session Options ***
->                                                    Page 1 of 2
107017 CA-OLQ Release 15.0
107019 Copyright(C) 1972,2000 Computer Associates International,Inc.
Current interrupt count: 100      Current underline character: -
Access IDMS SQL tables: N (Y/N)   Current SQL NULL data value: .

User options:                                         Page Columns Spread: (L-Left,E-Even,M-Max,nn)
  Help      Change Option      Current option      Alternate option
  -         -                 -                 -
  -         -                 -                 -
  -         -                 -                 -

-> Report Processing Options <-
      NOFiller      FILLer
      FULL          SPARse
      HEAdEr       NOHeader

-> Column Processing Options <-
      OLQheader    NOOLqheader
      PICTure      NOPIcture
      CODetable    NOCODetable

1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD

```

### 4.3.2 Step 2 — Select tables

When you sign on to CA-OLQ, the first screen you see is the Menu screen. Chapter 2 describes how to sign on to CA-OLQ.

For this example, select **Choose tables**.

```

Computer Associates Software
CA-OLQ Release 15.0                                     *** Menu ***
->                                                    Page 1 of 3
107017 CA-OLQ Release 15.0
107019 Copyright(C) 1972,2000 Computer Associates International,Inc.
122000 Select an option and press the ENTER key
Select
Pfkey Option Description      Command/      Show
      Option Description      Screen Name   Help
      -
      X ---> Data Source for Report <---
      Choose tables          TABLE
      - Choose subschema      SUBSchema    -
      -
      - ---> Retrieval Activity <---
      - Choose records from selected subschema  RECOrd      -
      - Choose columns for report              COLUmN      -
      - Retrieve data to build report          RETrievE    -
      - Alter database access strategy         LINkage     -
      -
      - ---> Processing Mode <---
      - Execute or create a predefined routine  QFILE      -
      - View existing or save current report   SAVe       -
      - Submit batch report request           BATch     -
      -
1=HELP      2=GLOBAL HELP      3=QUIT      4=MESSAGE      8=FWD

```

Specify **SELECT** and select the DEPARTMENT and EMPLOYEE tables.

```

CA-OLQ Release 15.0                               *** Table Processing ***
->                                                    Page    1 of    2
138000 Select function, table(s) and press the ENTER key

  Owner:  DOC1
  Catalog: ASFDICT      Location:
  Function: s Select      _ Create      _ Delete
             _ Add          _ Replace

Enter table:
-or-
Select table
_ ACCOUNTING
_ BUDGET
s DEPARTMENT
_ EMP-TABLE
s EMPLOYEE
_ EMPLOYEE TABLE
_ EMPLOYEE-DATA
_ JOB SALARIES
_ MELROSE EMPLOYEES
_ OLQ EXAMPLE
_ PERSONNEL
I=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD

```

### 4.3.3 Step 3 — Select, project, and join

In this step, you perform all three relational operations: select, project, and join:

- **Select** by restricting the rows of the report to those employees hired before 1990.
- **Project** by displaying only the DEPT-NAME, EMP-ID, EMP-LAST-NAME, and START-YEAR columns.
- **Join** by linking the DEPARTMENT and EMPLOYEE tables based on common values of the DEPT-ID field.

Select which columns you want to list in your report, specify that you want to include only those employees hired before 1990, and join the two tables based on common values in the DEPT-ID fields.

```

CA-OLQ Release 15.0                               *** Column Select ***
->                                                  Page 1 of 1
124000 Select columns, specify selection criteria and press the ENTER key

Columns Currently Selected: 4 Selection Criteria Distinct N Y/N
DEPARTMENT
X 03 DEPT-NAME
- 03 DEPT-ID
- 03 DEPT-HEAD-ID
- EMPLOYEE
X 03 EMP-ID
X 03 EMP-LAST-NAME
- 03 EMP-FIRST-NAME
X 03 START-YEAR 1t 90
- 03 DEPT-HEAD-ID
- 03 DEPT-ID eq department.dept-id
- 03 SALARY-AMOUNT
- 03 PROJECT
- 03 OFFICE-CODE
Additional Selection Criteria:

Proceed to Selection Criteria Screen? N Y/N

1=HELP 3=QUIT 4=MESSAGE 6=MENU PA2=REFRESH

```

#### 4.3.4 Step 4 — Retrieve the data

Depending on how high the interrupt count at your site is set, CA-OLQ may bypass the Retrieval Interrupted screen and proceed directly to the Retrieval Completed screen.

```

CA-OLQ Release 15.0                               *** Retrieval Completed ***
->
130000 Select activity and press the ENTER key.

Number of whole rows. . . . . 16 Total displayable cols . 20
Total number of records read. . . . 16 Formatted line length. . 372
Total number of records selected. . 16
Number of data errors . . . . . 0

Select Command/
Option ----> Display/Format Activity <---- Screen Name

X Display report DISplay
- Save report SAVE
- Choose the sort sequence of report SORT
- Change column headers HEAder
- Change page header and footer PAGE HEAder
- Change display format of data ($,commas) PICTure
- Format columns (Alignment, sparse) EDIT
- Specify summary computations (Totals) GROUp BY
- Send the report to a printer PRInt

1=HELP 3=QUIT 4=MESSAGE 6=MENU

```

### 4.3.5 Step 5 — Display your report

Your report displays information from both the EMPLOYEE and DEPARTMENT tables.

```
CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page    1 Line    1
125004 press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

                EMPLOYEE/DEPARTMENT REPORT
                05/04/99

EMP-ID      EMP-LAST-NAME      START-YEAR      DEPT-NAME
-----
0007      BANK                          78      PUBLIC RELATIONS
0120      ANGELO                          79      PUBLIC RELATIONS
0149      PENMAN                          77      PUBLIC RELATIONS
0158      JACKSON                         77      PUBLIC RELATIONS
0329      FINN                           79      THERMOREGULATION
0349      WILCO                          79      THERMOREGULATION
0476      ZEDI                           76      PUBLIC RELATIONS
0479      CLOTH                          79      THERMOREGULATION
END OF REPORT

                                - 1 -
1=HELP      3=QUIT      4=MESSAGE      6=MENU      10=LEFT      11=RIGHT
```

# Chapter 5. How to Format Your Report

---

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---

**In this chapter** Using CA-OLQ, you can format your report by:

- Sorting your report rows
- Changing the external picture of your data columns
- Modifying how data columns are displayed
- Changing your column headers
- Making page headers and footers

```
CA-OLQ Release 15.0                      *** Display Report ***
->                                         Page      1 Line    1
125000 Press the ENTER key to go to the next page of the report.

                SALARY REPORT FOR CENTRAL DIVISION
                                                03/23/99

      DEPARTMENT ID      NAME      SALARY
      -----
      1000      FITZHUGH      $13,000.00
                JOHNSON      $13,500.00
                ORGRATZI     $39,000.00
                PEOPLES      $80,000.00
      2000      BLOOMER      $15,000.00
                HUTTON      $44,000.00
                JENSON      $82,000.00
                KIMBALL     $45,000.00
                KING      $14,500.00
                NICEMAN     $14,000.00
      3100      DOUGH      $33,000.00

                        - 1 -
CREATED BY:SYB
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      10=LEFT      11=RIGHT
```

In this chapter, you will:

1. Create a current report listing employee salary information
2. Sort your report rows by department ID, and within each department by employee name
3. Edit your report columns to enhance your report's appearance
4. Modify the relative positions of your columns
5. Change the external pictures for some of the data columns
6. Change the column headers
7. Change the page headers and footers

## 5.1 Key terms

**Code table:** A table that is defined in the data dictionary and that contains corresponding pairs of values. For example:

Internal Code	Displayed Value
01	Alabama
02	Alaska
03	Arizona
:	:
:	:

Internal codes are used to efficiently store the data in the database. External values are used to display data in programs or reports.

**Column alignment:** A way to specify how report data columns align under the column headers. Options are left-justified, right-justified, and centered.

**Column header:** A header at the top of each column of report data.

**Display sequence:** Determines the order in which report columns are displayed.

**External picture:** A code that defines the way your column value is formatted in your report. The external picture is used to add punctuation (for example, commas) and special characters (for example, dollar signs) to your column data display.

**Page header:** A title at the top of each page of your report.

**Page footer:** A title at the bottom of each page of your report.

**Sort:** A way to order report rows. CA-OLQ sorts the rows in your report based on the value of the sort fields that you specify. Rows can be sorted in ascending or descending order.

**Sparse/Full option:** A CA-OLQ editing feature that determines how column values that repeat in consecutive rows are displayed:

- **Sparse** displays only the first of a repeating set of column values.
- **Full** displays all occurrences of the repeating value.

## 5.2 Creating a report

Before you can apply any report formatting features, you must have a current report. In this example you build a current report with records from a subschema using the following steps:

**Note:** Before you begin, make certain the access switch is set to *olq*.

►► For more information about setting the access switch, see 3.3.1, “Step 1 — Select the type of table” on page 3-15.

1. Select a subschema.
2. Select the records you want to include in your report.
3. Select which columns you want to display.
4. Retrieve the data from the database and display your report.

### 5.2.1 Step 1 — Select a subschema

Select the EMPSS01 subschema.

```

CA-OLQ Release 15.0                               *** Signon Database View ***
->                                                    Page    1  OF    1
121000 Select a subschema and press the ENTER key

Dictionary name . . : ASFDICT           Dictionary node name . . :
Database name . . . :                   Database node name . . . :

Specify Subschema :           of Schema . . . :           Version :
-or-
Select subschema:           Description:
x EMPSS01 OF EMPSCHM VER 1 EMPLOYEE DATA
- FINANC01 OF EMPSCHM VER 1 4Q87
- SALES01 OF EMPSCHM VER 1 SALES QUOTAS

1=HELP           3=QUIT           4=MESSAGE           6=MENU           PA2=REFRESH

```

## 5.2.2 Step 2 — Select records

Select the DEPARTMENT, EMPLOYEE, and EMPOSITION records.

```

CA-OLQ Release 15.0                               *** Record Select ***
->                                                    Page 1 of 1
123000 Select records and press the ENTER key

Records currently selected: 0

Enter records :

-and/or-
Select records :
- COVERAGE
- DENTAL-CLAIM
z DEPARTMENT
z EMPLOYEE
z EMPOSITION
- EXPERTISE
- HOSPITAL-CLAIM
- INSURANCE-PLAN
- JOB
- NON-HOSP-CLAIM
- OFFICE
- SKILL
- STRUCTURE

1=HELP      3=QUIT      4=MESSAGE      6=MENU      PA2=REFRESH

```

## 5.2.3 Step 3 — Choose columns

Select DEPT-ID-0410, EMP-LAST-NAME-0415, and SALARY-AMOUNT-0420. Then press [PF8] to scroll through pages of the screen.

```

CA-OLQ Release 15.0                               *** Column Select ***
->                                                    Page 1 of 4
124000 Select columns, specify selection criteria and press the ENTER key

Columns Currently Selected: 0      Selection Criteria  Distinct N Y/N
- DEPARTMENT
s 02 DEPT-ID-0410                    *
- 02 DEPT-NAME-0410
- 02 DEPT-HEAD-ID-0410
- EMPLOYEE
- 02 EMP-ID-0415                      *
- 02 EMP-NAME-0415
- 03 EMP-FIRST-NAME-0415              *
s 03 EMP-LAST-NAME-0415              *
- 02 EMP-ADDRESS-0415
- 03 EMP-STREET-0415
- 03 EMP-CITY-0415
- 03 EMP-STATE-0415
- 03 EMP-ZIP-0415

Enter additional criteria:

Proceed to Selection Criteria Screen? N Y/N
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      PA2=REFRESH

```

## 5.2.4 Step 4 — Retrieve the data

Specify **Yes** to continue data retrieval.

```

CA-OLQ Release 15.0                               *** Retrieval Interrupted ***
->
131000 Select YES or NO and press the ENTER key

      Retrieval interrupted due to excessive data base accesses.

Number of whole rows. . . . .                46
Total number of records read. . . . .       100
Total number of records selected. . . . .    90
Number of data errors . . . . .              0

      Continue execution      x Yes
                              _ No

      Current interrupt interval is      100 data base accesses.

1=HELP                               3=QUIT                               4=MESSAGE

```

Depending on how high the interrupt count at your site is set, CA-OLQ may bypass the Retrieval Interrupted screen and proceed directly to the Retrieval Completed screen.

```

CA-OLQ Release 15.0                               *** Retrieval Completed ***
->
130000 Select activity and press the ENTER key.

Number of whole rows. . . . .                68  Total displayable cols .    20
Total number of records read. . . . .       143  Formatted line length. .   372
Total number of records selected. . . . .    133
Number of data errors . . . . .              0

      Select          ---> Display/Format Activity <---          Command/
      Option          ---> Display/Format Activity <---          Screen Name

      X      Display report          DISplay
      _      Save report             SAVe
      _      Choose the sort sequence of report          SORT
      _      Change column headers          HEAder
      _      Change page header and footer          PAGE HEAder
      _      Change display format of data ($,commas)    PICTure
      _      Format columns (Alignment, sparse)          EDIt
      _      Specify summary computations (Totals)      GROup BY
      _      Send the report to a printer              PRInt

1=HELP                               3=QUIT                               4=MESSAGE                               6=MENU

```

### 5.2.5 Step 5 — Display your report

Your report displays the data as it is retrieved from the database.

```
CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page    1 Line    1
125000 Press the ENTER key to go to the next page of the report.

                DEPARTMENT/EMPLOYEE/EMPOSITION REPORT
                07/29/99

                DEPT-ID-0410      EMP-LAST-NAME-0415      SALARY-AMOUNT-0420
                -----
                6666      HENDON      240000.00
                6666      PAPAZEUS    100000.00
                6666      PAPAZEUS    90000.00
                6666      RUPEE      80000.00
                6666      RUPEE      76000.00
                6666      WILDER    90000.00
                2000      BLOOMER    15000.00
                2000      HUTTON     44000.00
                2000      JENSON     82000.00
                2000      KIMBALL    45000.00
                2000      KING      14500.00
                2000      NICEMAN    14000.00

                - 1 -
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      10=LEFT      11=RIGHT
```

## 5.3 Sorting your report rows

In this example, you use the Report Format - Sort screen to sort your report rows. To get there, type **sort** in the command line.

### 5.3.1 Step 1 - Specify your sort criteria

To sort the rows in ascending order by department ID, specify **1** in the Sort Priority column and **a** in the Order (A/D) column next to DEPT-ID-0410. And to sort each department's employees in ascending order by employee name, specify **2** in the Sort Priority column and an **a** in the Order (A/D) column next to EMP-LAST-NAME-0415.

```

CA-OLQ Release 15.0                               *** Report Format - Sort ***
->                                                    Page 1 of 1
133000 Specify sort or group by request and press the ENTER key

DEPARTMENT                                         Disp  Sort  Order  Group By
X DEPT-ID-0410                                     Seq   Priority (A/D) Level #
EMPLOYEE                                           1      1      a      -
X EMP-LAST-NAME-0415                               2      2      a      -
EMPOSITION                                         3      -      -      -
X SALARY-AMOUNT-0420

Display lines: Detail X and/or Summary X      Group by all _
Compute:
1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      11=HEADER

```

### 5.3.2 Step 2 - Display your report

The rows are sorted in ascending order by department ID, and within each department by employee last name.

### 5.3 Sorting your report rows

```
CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page      1 Line    1
105022 Sort successfully completed. 68 records in. 68 records out.
125000 Press the ENTER key to go to the next page of the report.
                DEPARTMENT/EMPLOYEE/EMPOSITION REPORT
                07/29/99

                DEPT-ID-0410      EMP-LAST-NAME-0415      SALARY-AMOUNT-0420
                -----
                1000      FITZHUGH                13000.00
                1000      JOHNSON                13500.00
                1000      ORGRATZI               39000.00
                1000      PEOPLES                80000.00
                2000      BLOOMER                15000.00
                2000      HUTTON                 44000.00
                2000      JENSON                 82000.00
                2000      KIMBALL                45000.00
                2000      KING                   14500.00
                2000      NICEMAN                14000.00
                3100      DOUGH                  33000.00
                3100      GALLWAY                33000.00

                - 1 -
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      10=LEFT      11=RIGHT
```

## 5.4 Editing your report values

In this example, you use the Report Format - Edit screen to:

- Suppress the display of repeating values in a given column
- Align the data under a column header (left-justified, center, right-justified)
- Change the order in which your columns are displayed

```

CA-OLQ Release 15.0                               *** Report Format - Edit ***
->                                                    Page    1 of    1
135000 Specify edit options and press the ENTER key.

                Disp
                Seq Sparse Hex  Align  Code   Disp
                Seq Sparse Hex  Align  Table  Ver Len
DEPARTMENT
X DEPT-ID-0410          1   _   _   RIGHT
EMPLOYEE
X EMP-LAST-NAME-0415   2   _   _   LEFT
EMPOSITION
X SALARY-AMOUNT-0420   3   _   _   RIGHT

Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  10=HEADER  11=PICTURE

```

Start on the Report Format - Edit screen. To get there, type **EDIT** in the command line of any screen and press [Enter].

**Suppressing repeating values:** When a column displays the same value for many consecutive rows, the report can become hard to read. To suppress repeating values in a column, use the **Sparse** option on the Report Format - Edit screen:

If you don't use Sparse:

DEPT	EMPLOYEE	PHONE
003	Sam	1250
003	Elmer	3000
003	Leo	4110
005	Jack	3092
005	Gus	5555

If you use Sparse:

DEPT	EMPLOYEE	PHONE
003	Sam	1250
	Elmer	3000
	Leo	4110
005	Jack	3092
	Gus	5555

To restore a column to full display, type a space under **Sparse** next to that column.

**Sparse/Full:** Another way to suppress repeating values is to use the Sparse and Full options on the Session Options screen.

- **Sparse** displays only the first of a repeating set of column values.

- **Full** displays all occurrences of the repeating value.

To get to the Session Options screen, type **OPTIONS** in the command line and press [Enter].

**Note:** When you select the sparse option on the **Report Format - Edit screen**, the display of repeating values is suppressed only for the column you specify.

When you specify the Sparse/Full option on the **Session Options screen**, the display of repeating values is suppressed throughout the entire report.

**Aligning columns:** You can modify how the columns of data align under their headers by using the **Align** field. For example:

Using LEFT:	Using CENTER:	Using RIGHT:
BONUS-PERCENT -----	BONUS-PERCENT -----	BONUS-PERCENT -----
03	03	03
02	02	02
06	06	06

To specify how you want data to align under the column headings, type **LEFT**, **CENTER**, or **RIGHT** under **Align** next to that column.

**Changing the column order:** Use the **Display Sequence** field to specify the order in which columns are to appear. For each column, type a number to indicate the new position for that column. For example:

	Disp
	Seq
NAME	3
ID	1
PHONE	2
SALARY	4

### 5.4.1 Step 1 - Specify your edit criteria

Select **Sparse** next to DEPT-ID-0410. And to center a column's data under its header, specify **center** for that column under Align.

```

CA-OLQ Release 15.0                *** Report Format - Edit ***
->                                     Page 1 of 1
135000 Specify edit options and press the ENTER key.

                Disp
                Seq Sparse Hex  Align  Code      Disp
                Seq Sparse Hex  Align  Table   Ver Len
DEPARTMENT
X DEPT-ID-0410      1   x   -   center
EMPLOYEE
X EMP-LAST-NAME-0415 2   -   -   LEFT
EMPOSITION
X SALARY-AMOUNT-0420 3   -   -   center

Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  10=HEADER  11=PICTURE

```

## 5.4.2 Step 2 - Display your report

Each department ID number is listed only once. Data in the DEPT-ID-0410 and SALARY-AMOUNT-0420 are centered under their headers.

```

CA-OLQ Release 15.0                *** Display Report ***
->                                     Page 1 Line 1
125000 Press the ENTER key to go to the next page of the report.

                DEPARTMENT/EMPLOYEE/EMPOSITION REPORT
                07/29/99

                DEPT-ID-0410      EMP-LAST-NAME-0415      SALARY-AMOUNT-0420
                -----
                1000      FITZHUGH      13000.00
                JOHNSON      13500.00
                ORGRATZI      39000.00
                PEOPLES      80000.00
                2000      BLOOMER      15000.00
                HUTTON      44000.00
                JENSON      82000.00
                KIMBALL      45000.00
                KING      14500.00
                NICEMAN      14000.00
                3100      DOUGH      33000.00
                GALLWAY      33000.00

                - 1 -
1=HELP  3=QUIT  4=MESSAGE  6=MENU  8=FWD  10=LEFT  11=RIGHT

```

### 5.4.3 Additional editing features

Using the Report Format - Edit screen, you can also:

- Display a column in hexadecimal notation
- Specify a code table used to edit a column
- Remove columns from the report (or bring back columns that you have removed)
- Assign fixed column positions in your report

**Using hexadecimal notation:** When you see an at sign (@) in a column value, that means that invalid data has been retrieved from the database. To see the actual value of the bad data, you can display the column in hexadecimal form. Once you have done this, report the value of the column to your support staff.

To display a column in hexadecimal form, type any character under **Hex** next to that column:

Normal Display	Hexadecimal Form
JOE@	X'D1D6C5AC'

To change the column from hexadecimal format back to normal display, type a space under **hex** next to that column.

**Editing with code tables:** Code tables are tables of values that have been defined in the data dictionary. CA-OLQ uses these tables to translate internal codes from the database into a more meaningful external expression of the data.

Here's how the Credit Rating code table looks in the dictionary:

Encoded Value	Decoded Value
01	Credit O.K.
02	Rejected
03	Review
etc.	etc.

**What to do:** If your report contains a column of encoded values, you can tell CA-OLQ to edit that column with a code table. Type the name of the appropriate code table under **Code Table** next to that column. You may also need to type a version number for that code table in the **Ver** entry. If you are unsure of the code table name (or version number) ask your support staff or database administrator (DBA).

**Built-in code tables for columns:** Some columns have code tables built into them. CA-OLQ indicates these columns by displaying the following under **Code Table**:

**\*\*DICT\*\***

If you want to use a different code table, you can type the name of the other code table over **\*\*DICT\*\***.

If you don't want to use any code table, type spaces over **\*\*DICT\*\***.

**Removing columns from your report:** To remove a column from your report, type a space or the letter **d** (for delete) in front of that column. For example, to remove the PHONE and BONUS columns from your report, specify:

```
X NAME
X ID
d PHONE
X SALARY
d BONUS
```

**Bringing a column back:** To redisplay a column that you have removed, type any character (other than the letter d) in front of that column.

**Note:** You cannot redisplay computed columns. Once you have removed them from the report, they cannot be restored.

**Fixing columns in place:** You can also use the display sequence field to fix one or more columns in position on the Display Report screen. A fixed column always remains on the screen when you scroll right or left.

For example, you can fix the display of EMP-ID so that it always displays at the left margin of your report, no matter how many times you page right or left.

```

CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page   1 Line   1
104009 DISPLAY RIGHT to see more report columns
125000 Press the ENTER key to go to the next page of the report.
                DEPARTMENT/EMPLOYEE/EMPOSITION REPORT
                07/29/99

EMP-ID-0415 EMP-FIRST-NAME-0415      NAME      EMP-CITY-0415  SS-NUMBER-0415
0030 HENRIETTA      HENDON      WELLESLEY      011334444
0471 IAN             VALIODIS    SOMERVILLE     022887770
0471 THEMIS         PAPAZEUS    NORTHBORO      022887770
0001 JUAN           GARCIA      BOSTON         013445656
0001 JOHN           RUPEE       METHUEN        013445656
0472 ROBBY          WILDER      SOUTHBORO      038779010
0069 JUNE           BLOOMER     LEXINGTON      039557818
0100 EDWARD         HUTTON      MELROSE        011223333
0011 RUPERT         JENSON      MELROSE        022347891
0067 MARIANNE       KIMBALL     LITTLETON      022778878
0106 DORIS          KING        MELROSE        067845516
0101 BRIAN          NICEMAN     MELROSE        033456110

- 1 -
1=HELP   3=QUIT   4=MESSAGE  6=MENU   8=FWD    10=LEFT   11=RIGHT

```

The EMP-ID column always appears at the left margin of the report.

## 5.4 Editing your report values

---

```
CA-OLQ Release 15.0                      *** Display Report ***
->                                         Page      1 Line    1
125000 Press the ENTER key to go to the next page of the report.

                DEPARTMENT/EMPLOYEE/EMPOSITION REPORT
                07/29/99

EMP-ID-0415  START-YEAR-0415  SALARY-GRADE-0420    SALARY    BONUS-PERCENT-0420

    0030             73             93  $240,000.00          .010
    0471             78             82  $100,000.00          .010
    0471             78             72   $90,000.00          .010
    0001             75             81   $80,000.00          .010
    0001             75             72   $76,000.00          .010
    0472             79             81   $90,000.00          .010
    0069             80             13   $15,000.00          .004
    0100             77             62   $44,000.00          .007
    0011             80             72   $82,000.00          .010
    0067             78             62   $45,000.00          .007
    0106             80             12   $14,500.00          .004
    0101             80             12   $14,000.00          .004

- 1 -
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      10=LEFT      11=RIGHT
```

On your report, fixed columns always appear first (before the regular numbered columns). If you have more than one fixed column, you can switch their positions by typing F1, F2, and so on.

## 5.5 Changing your column relative positions

You can change how your columns are placed relative to one another by using the **Page columns spread** option on the Session Options screen.

```

CA-OLQ Release 15.0                               *** Session Options ***
->                                                    Page 1 of 2
141000 Select options to be changed and press the ENTER key

Current interrupt count: 100      Current underline character:
User options:                    Page columns spread: (L-Left,E-Even,M-Max,nn)

      Help      Change      Current option  Alternate option
      Option

-> Report Processing Options <-
      -         -         NOFiller       FILLer
      -         -         FULL          SPARse
      -         -         HEAder       NOHeader

-> Column Processing Options <-
      -         -         OLQheader     NOOLqheader
      -         -         PICTure     NOPIcture
      -         -         CODetable   NOCODetable

1=HELP      3=QUIT      4=MESSAGE     6=MENU      8=FWD

```

**Even:** To evenly distribute the space between your report columns, specify **E** (for even):

```

Employee/Emposition Report
April 17, 1999

First      Last      Salary
Name       Name       Amount
-----
DOUGLAS    KAHALLY    20000.00
THEMIS     PAPAZEUS   100000.00
HARRY      ARM         46000.00
DORIS      KING       14500.00
BETH       CLOUD      52750.00
HENRIETTA  HENDON     240000.00

```

**Left:** To group your columns to the left of the page, specify **L** (for left):

## 5.5 Changing your column relative positions

---

Employee/Emposition Report April 17, 1999		
First Name	Last Name	Salary Amount
DOUGLAS	KAHALLY	20000.00
THEMIS	PAPAZEUS	100000.00
HARRY	ARM	46000.00
DORIS	KING	14500.00
BETH	CLOUD	52750.00
HENRIETTA	HENDON	240000.00

**Max:** To display the maximum amount of space between your report columns, specify **M** (for max):

Employee/Emposition Report April 17, 1999		
First Name	Last Name	Salary Amount
DOUGLAS	KAHALLY	20000.00
THEMIS	PAPAZEUS	100000.00
HARRY	ARM	46000.00
DORIS	KING	14500.00
BETH	CLOUD	52750.00
HENRIETTA	HENDON	240000.00

**Number of spaces:** To display a specific number of spaces between your report columns, specify that number. For example, if you specify a **4**, CA-OLQ spaces the columns four spaces apart:

Employee/Emposition Report April 17, 1999		
First Name	Last Name	Salary Amount
DOUGLAS	KAHALLY	20000.00
THEMIS	PAPAZEUS	100000.00
HARRY	ARM	46000.00
DORIS	KING	14500.00
BETH	CLOUD	52750.00
HENRIETTA	HENDON	240000.00

## 5.6 Changing your column pictures

In this example, you use the Report Format - Picture screen to change the format of data in your report columns.

```

CA-OLQ Release 15.0                               *** Report Format - Picture ***
->                                                  Page 1 of 1
137002 The command you have specified is invalid for this screen

                Disp  Select Options  or  Alter
                Seq   $    ,    0      Picture
DEPARTMENT
X DEPT-ID-0410      1    -    -    -    9999
EMPLOYEE
X EMP-LAST-NAME-0415  2                X(15)
EMPOSITION
X SALARY-AMOUNT-0420  3    -    -    -    -ZZZZZ9.99

Compute:
1=HELP    3=QUIT    4=MESSAGE    5=DISPLAY    6=MENU    10=EDIT    11=GROUP BY

```

**What is a picture?:** A picture is a code that represents how the data in a column is displayed. You can format your column data by defining a picture for that column.

For example, when numeric data appears on the report, you create different pictures to display it in different ways:

```

With a dollar sign:  $500      Or without:  500
With commas:        65,000    Or without: 65000
With leading zeros: 001229    Or without: 1229

```

You can also combine these formats:

```

                $65,000                001,229

```

**How do you specify a picture?:** To specify a column picture, use either of the following fields (but not both):

- **Select Options** — If you want a fast, easy way to format numeric data.
- **Alter Picture** — If you require more complex formatting for your data.

**Select Options:** These three columns let you do basic formatting of numeric data. In most cases, these columns are all you need to define pictures for your report columns. You can choose one or more of these options:

**\$** displays a floating dollar sign

**,** displays a comma between every three digits (left of the decimal)

**0** displays leading zeros

**Alter picture:** This option lets you format a column by changing its picture. To change a picture, type over the default value that appears in the **Alter Picture** entry. For example, suppose you have a column whose picture currently looks like this:

```
Alter
Picture
9999.99
```

To display a fixed dollar sign in this column, you could change the picture to this:

```
Alter
Picture
$9999.99
```

### Picture symbols

Symbol	What it Does
X	Stands for a single alphanumeric character
A	Stands for a single alphabetic character
9	Stands for a single numeric character
Z	Stands for a numeric character and suppresses leading zeros
\$	Stands for a numeric character and displays a floating dollar sign
.	Displays the decimal point in that position
+	Stands for a numeric character and displays + for positive values
-	Stands for a numeric character and displays - for negative values
B	Displays a blank character (a space) in that position
*	Requests check protection. Leading zeros are displayed as asterisks.

### Examples

If you want your column to look like ...	and the data is stored in the database as ...	then specify this picture ...
123400M	123400M	X(7)
1 23400 M	123400M	XBXXXXXB
JOHN	JOHNSON	A(4)
TWO WORDS	TWOWORDS	A(3)BA(5)
2350000	2350000	9(7)
2350000.00	2350000	9(7).99
\$2,350,000.00	2350000	\$\$\$,\$\$\$,\$\$9.99
23/50/000	2350000	99/99/999
120	00120	ZZZZZZ
+9876	9876	+++99

### 5.6.1 Step 1 - Modify a column picture

To add a leading dollar sign, select the \$ option for SALARY-AMOUNT-0420. To insert commas, select the , option for SALARY-AMOUNT-0420.

```

CA-OLQ Release 15.0                               *** Report Format - Picture ***
->                                                    Page 1 of 1
137000 Specify pictures and press the ENTER key

DEPARTMENT                                         Disp  Select Options  or  Alter
X DEPT-ID-0410                                     1    -  -  -          9999
EMPLOYEE
X EMP-LAST-NAME-0415                               2                                X(15)
EMPOSITION
X SALARY-AMOUNT-0420                               3    x  x  -    -ZZZZZ9.99

Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  10=EDIT  11=GROUP BY
    
```

### 5.6.2 Step 2 - Display your report

```
CA-OLQ Release 15.0                      *** Display Report ***
->                                         Page      1 Line    1
125000 Press the ENTER key to go to the next page of the report.

                DEPARTMENT/EMPLOYEE/EMPOSITION REPORT
                07/29/99

                DEPT-ID-0410      EMP-LAST-NAME-0415      SALARY-AMOUNT-0420

                1000      FITZHUGH      $13,000.00
                        JOHNSON      $13,500.00
                        ORGRATZI      $39,000.00
                        PEOPLES      $80,000.00
                2000      BLOOMER      $15,000.00
                        HUTTON      $44,000.00
                        JENSON      $82,000.00
                        KIMBALL      $45,000.00
                        KING      $14,500.00
                        NICEMAN      $14,000.00
                3100      DOUGH      $33,000.00
                        GALLWAY      $33,000.00

                - 1 -
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      10=LEFT      11=RIGHT
```

## 5.7 Changing column headers

In this step, you use the Report Format - Header screen to:

- Change the text of the column headers that appear on the report
- Underline column headers

To get to the Report Format – Header screen, type **header** in the command line of any screen.

```

CA-OLQ Release 15.0                               *** Report Format - Header ***
->header                                           Page    1 of    1
134000 Specify column headers and press the ENTER key

Underline character:                               Disp
                                                    Seq           Header
DEPARTMENT
X DEPT-ID-0410                                     1 DEPT-ID-0410
EMPLOYEE
X EMP-LAST-NAME-0415                               2 EMP-LAST-NAME-0415
EMPOSITION
X SALARY-AMOUNT-0420                               3 SALARY-AMOUNT-0420

Compute:
1=HELP    3=QUIT    4=MESSAGE    5=DISPLAY    6=MENU    10=SORT    11=EDIT

```

**Default column headers:** When you build a report, CA-OLQ automatically creates column headers for you. These default headers come from the names of the columns in the database or from CA-OLQ headers defined in the dictionary.

**Changing the defaults:** To change the default column headers, type over the text in the **Header** entry. You can change any or all of the headers in the report. Each header you type can be from 1 to 37 characters long.

**Typing multiword headers:** You can type headers that contain more than one word. To make a multiword header appear on a single line, type quotes around it. Otherwise, each word of the header appears on a separate line of the report. For example:



```

CA-OLQ Release 15.0                               *** Report Format - Header ***
->                                                    Page 1 of 1
134000 Specify column headers and press the ENTER key

Underline character:                               Disp
                                                    Seq           Header
DEPARTMENT
X DEPT-ID-0410                                   1 'Department Id'
EMPLOYEE
X EMP-LAST-NAME-0415                             2 Name
EMPOSITION
X SALARY-AMOUNT-0420                             3 Salary

Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  10=SORT  11=EDIT

```

## 5.7.2 Step 2 - Display your report

```

CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page 1 Line 1
125000 Press the ENTER key to go to the next page of the report.

DEPARTMENT/EMPLOYEE/EMPOSITION REPORT
07/29/99

DEPARTMENT ID      NAME              SALARY
1000              FITZHUGH          $13,000.00
                  JOHNSON           $13,500.00
                  ORGRATZI         $39,000.00
                  PEOPLES          $80,000.00
2000              BLOOMER           $15,000.00
                  HUTTON           $44,000.00
                  JENSON           $82,000.00
                  KIMBALL          $45,000.00
                  KING             $14,500.00
                  NICEMAN          $14,000.00
3100              DOUGH             $33,000.00
                  GALLWAY          $33,000.00

- 1 -
1=HELP  3=QUIT  4=MESSAGE  6=MENU  8=FWD  10=LEFT  11=RIGHT

```

## 5.8 Making page headers and Footers

This example shows you how to use the Page Header/Footer screen to:

- Specify page header or footer text
- Include variable values (for example, the report date)
- Specify the alignment of page header or footer elements (right-justified, left-justified, or centered)
- Skip lines before and after the page header or footer
- Put more than one heading element on a line

To get to the Page Header/Footer screen, type **page** in the command line and press [Enter].

```

CA-OLQ Release 15.0                               *** Page Header/Footer ***
->                                               Page 1 OF 1
152000 Specify page header(s), footer(s) and press the ENTER key

Format for $DATE: MM/DD/YY
Use variables: $DATE, $TIME, $PAGE, $LINE, $USER...
Skip lines before heading: 0           Skip lines after heading: 1

Line  Page heading text                               Align
1     DEPARTMENT/EMPLOYEE/EMPOSITION REPORT          CENTER
2     $DATE                                           CENTER
3                                           CENTER
4                                           CENTER
5                                           CENTER

Skip lines before footing: 1           Skip lines after footing: 0

Line  Page footing text                               Align
1     - $PAGE -                                       CENTER
2                                           CENTER
3                                           CENTER
4                                           CENTER
5                                           CENTER
1=HELP          3=QUIT          4=MESSAGE          5=DISPLAY          6=MENU

```

**Default page headers and footers:** When you build a new report, CA-OLQ automatically adds a standard page header and page footer to each page of the report. The page header includes the names of the tables or records used and the current date:

```

EMPLOYEE REPORT
10/17/99

```

The page footer displays the number of each report page:

```
- 1 -
```

**Note:** You specify page headers and footers in the same way. In this discussion, the examples will illustrate only page headers.

**Specifying text:** To change the text in your header, type your text over the default text under **Page heading text:**

**Input:**

Line	Page heading text	Align
1	Widget Inventory	center
2	\$date	center
3		center
4		center
5		center

**Output:**

Widget Inventory  
10/17/99

**Using variables:** CA-OLQ provides variables that you can include in your headers. These variables are placeholders for which CA-OLQ substitutes real values (such as a page number).

Variable	Description	Example
\$DATE	Displays the current date using the user-specified date format	10/24/99
\$EDATE	Displays the current date (European format)	24/10/99
\$JDATE	Displays the current date (Julian format)	99297
\$TIME	Displays the current time	10:30:59
\$PAGE	Displays the current page number	- 12 -
\$USER	Displays the user ID (of the report's creator)	JFK
\$LINE	Displays the current line number	33

**Changing text alignment:** To change how your header is aligned, specify LEFT, RIGHT, or CENTER under **Align:**

- **Left** left-justifies the heading text.
- **Right** right-justifies the heading text.
- **Center** centers the heading text.

For example:

**Input:**

Line	Page footing text	Align
1	Agricultural Budget Report	right
2	Central Region	right
3		CENTER
4	Page \$page	right
5		CENTER

**Output:**

Agricultural Budget Report  
Central Region  
  
Page 22

**Leaving blank lines before your text:** To add to the top margin of your report, enter a number next to **Skip lines before heading**. If you type 0, CA-OLQ will leave no blank lines before it prints the page header. To leave one or more blank lines, type a number from 1 through 9.

**Leaving blank lines after your text:** To provide space after your page header, enter a number next to **Skip Lines After Heading**. If you type 0, CA-OLQ will leave no blank lines after it prints the page header. To leave one or more blank lines, type a number from 1 through 9.

**Putting more than one text element on a line:** To list more than one text element on a line, specify the same number in the **Line** entry for both elements. For example:

**Input:**

Line	Page heading text	Align
1	Industrial Gizmos Inventory	CENTER
1	\$date	right
3		CENTER
4		CENTER
5		CENTER

**Output:**

Industrial Gizmos Inventory      10/17/99

Table 5-2. Session Options That Affect Page Headers and Footers

<b>Session Option</b>	<b>Function</b>
Header	CA-OLQ displays page headers on your report.
Noheader	CA-OLQ displays the report without page headers (even if you've created new headers on the Report Format - Page Header/Footer screen).
Olqheader	CA-OLQ uses any headers you've typed on the Report Format - Header screen (or that have been created in the data dictionary).
Noolqheader	CA-OLQ ignores your headers and uses the column names from the database as the headers on the report.

To get to the Session Options screen, type **options** on the command line of any screen and press [Enter].

**Specifying the date:** The **Format for \$DATE:** field displays the report date format. Valid date formats are listed in Table 5-3 on page 5-30.

Table 5-3. Specifying a Date Format on the Page Header/Footer Screen

<b>Format</b>	<b>Explanation</b>	<b>Example</b>
MONTH	Displays the full month name in uppercase.	JANUARY
Month	Displays the first letter of the month name in uppercase and the rest of the month name in lowercase.	January
month	Displays the full month name in lowercase.	january
MON	Displays the first three letters of the month name in uppercase.	JAN
Mon	Displays the first three letters of the month name. The first letter is uppercase; the last two letters are lowercase.	Jan
mon	Displays the first three letters of the month name in lowercase.	jan
MM	Displays a zero-significant numeric representation of the month.	January is represented as 01.
ZM	Displays a zero-suppressed numeric representation of the month.	January is represented as 1.
DD	Displays a zero-significant numeric representation of the day.	The 3rd is represented as 03.
ZD	Displays a zero-suppressed numeric representation of the month.	The 3rd is represented as 3.
YY	Displays a two-digit representation of the year.	1999 is represented as 99.
YYYY	Displays a four-digit representation of the year.	1999 is represented as 1999.
CC	Displays a two-digit representation of the century.	20

### 5.8.1 Step 1 - Specify page headers and footers

Specify the text you want displayed at the top of each page of your report and the alignment that you prefer. Add **Created by** as part of your report footer. Include the **\$user** variable to display the user ID of the person who created the report.

```

CA-OLQ Release 15.0                               *** Page Header/Footer ***
->                                           Page 1 OF 1
152000 Specify page header(s), footer(s) and press the ENTER key

Format for $DATE: MM/DD/YY
Use variables: $DATE, $TIME, $PAGE, $LINE, $USER...
Skip lines before heading: 0           Skip lines after heading: 1

Line  Page heading text                               Align
1     Salary Report For Central Division           CENTER
2     $DATE                                           right
3                                           CENTER
4                                           CENTER
5                                           CENTER

Skip lines before footing: 1           Skip lines after footing: 0

Line  Page footing text                               Align
1     - $PAGE -                                       CENTER
2     Created by:$user                               left
3                                           CENTER
4                                           CENTER
5                                           CENTER
1=HELP           3=QUIT           4=MESSAGE           5=DISPLAY           6=MENU

```

### 5.8.2 Step 2 - Display your report

```

CA-OLQ Release 15.0                               *** Display Report ***
->                                           Page 1 Line 1
125000 Press the ENTER key to go to the next page of the report.

                SALARY REPORT FOR CENTRAL DIVISION
                                                    07/29/99

DEPARTMENT ID      NAME                SALARY
1000              FITZHUGH                $13,000.00
                  JOHNSON                 $13,500.00
                  ORGRATZI                $39,000.00
                  PEOPLES                 $80,000.00
2000              BLOOMER                 $15,000.00
                  HUTTON                 $44,000.00
                  JENSON                 $82,000.00
                  KIMBALL                $45,000.00
                  KING                  $14,500.00
                  NICEMAN                $14,000.00
3100              DOUGH                  $33,000.00

                - 1 -
CREATED BY:RMG
1=HELP   3=QUIT   4=MESSAGE   6=MENU   8=FWD   10=LEFT   11=RIGHT

```



# Chapter 6. How to Create Report Totals and Subtotals

---

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## 6.1 What's in this chapter

This chapter shows you how to create report subtotals. The discussion is broken up into the following parts:

- **A list of key terms** used to describe report groups and subtotals
- **A quick example** of how to use CA-OLQ to create subtotals
- **A step-by-step example** that walks you through the process of creating a report containing subtotals

## 6.2 Key terms

Here are a few terms used to discuss report subtotals and totals:

**Aggregate function:** A function that performs a predefined operation on a group of report rows. You can apply aggregate functions to report groups. Examples of aggregate functions are: average, high value, low value, count, and total.

**Built-in function:** A function that performs a predefined string, arithmetic, date/time, or trigonometric calculation on your report rows. You can apply built-in functions to report groups by including them in a COMPUTE statement. Examples of built-in functions are: gregorian date, cosine, and square root.

**COMPUTE statement:** A CA-OLQ syntax statement used to perform calculations in the menu facility. You can apply the COMPUTE statement to report groups. Any time you specify a built-in or aggregate function, CA-OLQ creates a COMPUTE statement. You can also specify your own COMPUTE statements.

**Group by all:** A report total including all rows in your report. Group by all means the same thing as report total.

**Group field:** A report column whose value is used to divide your report rows into groups. For example, you could list all of the company's employees grouped according to which department they work in. In this case, DEPARTMENT-NAME is the group field.

**Report group:** A set of report rows where each row contains the same value of the group field. For example, the personnel department is a report group with DEPARTMENT NAME as the group field. Each row in this group contains PERSONNEL in the DEPARTMENT NAME field.

**Report subtotal:** A computation applied to a report group. For example, if you grouped your employees by department, you can create report subtotals that apply to that group, computing the average salary in each department.

**Report total:** A computation that includes all of the rows in your report. For example, you can compute the total sales revenue earned by all of your employees. Note that a report total does not have to be a sum. It can also be an average, a counter, a high value, or a low value.

## 6.3 A quick example: Creating a subtotal

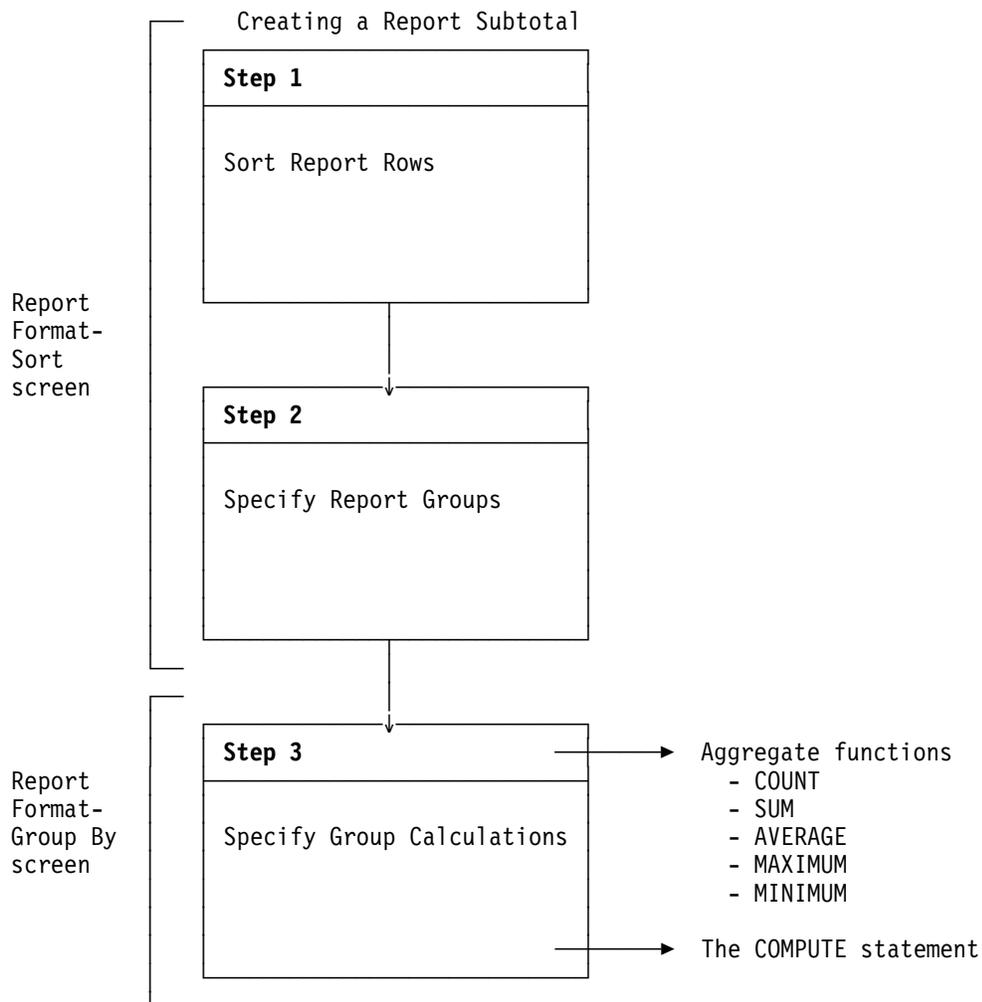


Figure 6-1. Creating a Report Containing Subtotals

**The Boston Marathon:** Suppose you were put in charge of keeping statistics for the Boston Marathon. The marathon database lists information on each of the 7,000 runners, including their name, country, time, sex, etc..

This is what your report looks like when you start out:

## 6.3 A quick example: Creating a subtotal

BOSTON MARATHON 04/23/99			
LAST NAME	SEX	FINISH TIME	COUNTRY
GUERRIERI	M	2:19:30	ITALY
PARSONS	M	3:00:04	USA
VANDER WYK	F	2:54:12	BELGIUM
BJORNSEN	F	2:59:12	SWEDEN
BARBADO	M	2:40:12	ITALY
KEEFE	M	2:40:19	USA
KLEIN	F	3:09:23	USA
YAMADA	M	2:30:41	JAPAN
MARTIN	M	3:10:29	FRANCE
FRECETTE	F	3:10:01	BELGIUM
FUCCI	F	3:40:37	ITALY
BENOTTI	F	3:12:42	ITALY

**What you're looking for:** You want to create a subtotal that lists the time of the fastest female runner from each country. A portion of your report (one subtotal) would look something like this:

LAST NAME	SEX	COUNTRY	FINISH TIME
VANDER WYK	F	BELGIUM	2:54:12
FRECETTE	F	BELGIUM	3:10:01
HELFGOTT	F	BELGIUM	3:24:31
			-----
			FASTEST IN BELGIUM :2:54:12

**What To Do:** You need to perform three steps to create this subtotal:

- On the Report Format - Sort screen:
  - **Step 1** - Sort your report rows.
  - **Step 2** - Create report groups.
- On the Report Format - Group By screen:
  - **Step 3** - Specify your group calculations.

### 6.3.1 The Report Format - Sort screen

#### 6.3.1.1 Step 1 - Sort your report rows

You specify how you want to sort your report rows on the Report Format - Sort screen. Your Report Format - Sort screen looks like this:

```

CA-OLQ Release 15.0                               *** Report Format - Sort ***
->                                                  Page      1 of      1
133000 Specify sort or group by request and press the ENTER key

              Disp   Sort   Order   Group By
              Seq   Priority (A/D)   Level #
OLQ-EXAMPLE
X LAST-NAME           1           -           -           -
X COUNTRY             6           2           a           -
X FINISH-TIME        5           3           a           -
X SEX                 4           1           a           -

              Display lines: Detail X and/or Summary X      Group by all _
Compute:
1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      11=HEADER

```

**Sort Priority** is used to specify the sort level. **Order (A/D)** is used to specify the sort order (ascending or descending).

6.3 A quick example: Creating a subtotal

BOSTON MARATHON 4/21/99				
	LAST NAME	SEX	COUNTRY	FINISH TIME
<b>Sort Level 3</b> Sort Field = FINISH-TIME Sort Priority = 3 Sort Order = Ascending	VANDER WYK	F	BELGIUM	2:54:12
	FRECETTE	F	BELGIUM	3:10:01
	HELFGOTT	F	BELGIUM	3:24:31
<b>Sort Level 2</b> Sort Field = COUNTRY Sort Priority = 2 Sort Order = Ascending	DECRE	F	FRANCE	3:11:09
	BENOTTI	F	ITALY	3:12:42
	FUCCI	F	ITALY	3:40:37
	BJORNSEN	F	SWEDEN	2:59:12
	KLEIN	F	USA	3:09:24
<b>Sort Level 1</b> Sort Field = SEX Sort Priority = 1 Sort Order = Ascending	VANPRAAG	M	BELGIUM	2:45:60
	MARTIN	M	FRANCE	3:10:29
	GUERRIERI	M	ITALY	2:19:30
	BARBADO	M	ITALY	2:40:12
	YAMADA	M	JAPAN	2:30:41
	KEEFE	M	USA	2:40:19
	SIMON	M	USA	2:52:48
	PARSONS	M	USA	3:00:04

Figure 6-2. Sort Levels and Sort Order. In this report, you want to sort your report rows by sex (to group all of the women together), by country, and within each country by race time. You must sort before you can specify any report groups.

If You Do Sort First				
Your report accurately reflects the fastest time for each country.				
BOSTON MARATHON 4/21/99				
LAST NAME	SEX	COUNTRY	FINISH TIME	
VANDER WYK	F	BELGIUM	2:54:12	
FRECETTE	F	BELGIUM	3:10:01	
HELFGOTT	F	BELGIUM	3:24:31	
DECRE	F	FRANCE	3:11:09	FASTEST FROM BELGIUM :2:54:12
BENOTTI	F	ITALY	3:12:42	FASTEST FROM FRANCE :3:11:09
FUCCI	F	ITALY	3:40:37	
BJORNSEN	F	SWEDEN	2:59:12	FASTEST FROM ITALY :3:12:42
KLEIN	F	USA	3:09:24	FASTEST FROM SWEDEN :2:59:12
				FASTEST FROM USA :3:09:24
If You Don't Sort First				
If you sort by SEX, but forget to sort by COUNTRY, CA-OLQ creates a group whenever it encounters a change in the COUNTRY column. This causes inaccurate results when you try to calculate the fastest time for each country.				
BOSTON MARATHON 4/21/99				
LAST NAME	SEX	COUNTRY	FINISH TIME	
BENOTTI	F	ITALY	3:12:42	
FUCCI	F	ITALY	3:40:37	
VANDER WYK	F	BELGIUM	2:54:12	FASTEST FROM ITALY :3:12:42
BJORNSEN	F	SWEDEN	2:59:12	FASTEST FROM BELGIUM :2:54:12
FRECETTE	F	BELGIUM	3:10:01	FASTEST FROM SWEDEN :2:59:12
KLEIN	F	USA	3:09:24	FASTEST FROM BELGIUM :3:10:01
DECRE	F	FRANCE	3:11:09	FASTEST FROM USA :3:09:24
HELFGOTT	F	BELGIUM	3:24:31	FASTEST FROM FRANCE :3:11:09
				FASTEST FROM BELGIUM :3:24:31

Figure 6-3. Why You Have to Sort First. CA-OLQ groups data by looking for a change in the value of the group field (COUNTRY). If the data is not sorted in order by the group field, the changes can occur at random and produce subtotals other than the ones you intended.

### 6.3.1.2 Step 2 - Create report groups

You also specify your group levels on the Report Format - Sort screen. Your Report Format - Sort screen looks like this:

```
CA-OLQ Release 15.0                *** Report Format - Sort ***
->                                Page 1 of 1
133000 Specify sort or group by request and press the ENTER key

                                Disp  Sort  Order  Group By
                                Seq  Priority (A/D) Level #
CA-OLQ-EXAMPLE
X LAST-NAME                      1
X COUNTRY                        6      2      a      2
X FINISH-TIME                    5      3      a
X SEX                            4      1      a      1

                                Display lines: Detail X and/or Summary X      Group by all _
Compute:
1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      11=HEADER
```

**Group By Level #** is used to specify group levels.

---

BOSTON MARATHON  
4/21/99

	LAST NAME	SEX	COUNTRY	FINISH TIME
<b>Group Level 2</b> Group field = COUNTRY	VANDER WYK	F	BELGIUM	2:54:12
	FRECETTE	F	BELGIUM	3:10:01
	HELFGOTT	F	BELGIUM	3:24:31
<b>Group Level 1</b> Group field = SEX	DECRE	F	FRANCE	3:11:09
	BENOTTI	F	ITALY	3:12:42
	FUCCI	F	ITALY	3:40:37
	BJORNSEN	F	SWEDEN	2:59:12
	KLEIN	F	USA	3:09:24
	VANPRAAG	M	BELGIUM	2:45:60
	MARTIN	M	FRANCE	3:10:29
GUERRIERI	M	ITALY	2:19:30	
BARBADO	M	ITALY	2:40:12	
YAMADA	M	JAPAN	2:30:41	
KEEFE	M	USA	2:40:19	
SIMON	M	USA	2:52:48	
PARSONS	M	USA	3:00:04	

Figure 6-4. Group Levels. This report is grouped at two levels: by SEX (level 1) and by COUNTRY (level 2).

### 6.3.2 The Report Format - Group By screen

You specify your group calculations on the Report Format - Group By screen. The Report Format - Group By screen looks like this:

## 6.3 A quick example: Creating a subtotal

```
CA-OLQ Release 15.0                *** Report Format - Group By ***
->                                     Page   1  OF   1
136000 Specify summary computations and press the ENTER key

Group by: OLQ-EXAMPLE.COUNTRY
           NEXT -
           OLQ-EXAMPLE -
X LAST-NAME           1
X COUNTRY             6
X FINISH-TIME        5
X SEX                 4
                               Seq  Sum  Avg  Max  Min  Level# 2
                               Count -

Compute:      Skip lines after group 1   Separator character -

1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      10=PICTURE
```

**Group by** displays the current group field. **Level #** displays the current group level. **Sum**, **Avg**, **Max**, **Min**, and **Count** are mathematical functions that you can apply to any report column. These functions apply to the extent of the current group level.

### 6.3.2.1 Step 3 - Specify your group calculations

To find the fastest time for women from each country, you need to compute the lowest race score in each country's group. You specify this calculation by selecting the **Min** (minimum) function in the row across from FINISH TIME. CA-OLQ automatically calculates which woman in each country has the fastest time, and lists each group's top time.

BOSTON MARATHON 4/21/99					
Group Calculation (subgroup) Group Level = 2 Current Group Field = COUNTRY Aggregate Function = MIN					
LAST NAME	SEX	COUNTRY	FINISH TIME		
VANDER WYK	F	BELGIUM	2:54:12		
FRECETTE	F	BELGIUM	3:10:01		
HELFGOTT	F	BELGIUM	3:24:31		
			FASTEST FROM BELGIUM :2:54:12		
DECRE	F	FRANCE	3:11:09		
			FASTEST FROM FRANCE :3:11:09		
BENOTTI	F	ITALY	3:12:42		
FUCCI	F	ITALY	3:40:37		
			FASTEST FROM ITALY :3:12:42		
BJORNSEN	F	SWEDEN	2:59:12		
			FASTEST FROM SWEDEN :2:59:12		
KLEIN	F	USA	3:09:24		
			FASTEST FROM USA :3:09:24		

Figure 6-5. Group Calculations. This report uses the MIN (minimum) aggregate function to calculate the lowest time in each country's group.

When you're done, your report looks like this:

BOSTON MARATHON 05/19/99					
LAST NAME	SEX	COUNTRY	FINISH TIME		
VANDER WYK	F	BELGIUM	2:54:12		
FRECETTE	F	BELGIUM	3:10:01		
HELFGOTT	F	BELGIUM	3:24:31		
			FASTEST IN BELGIUM :2:54:12		
DECRE	F	FRANCE	3:11:09		
			FASTEST IN FRANCE :3:11:09		
BENOTTI	F	ITALY	3:12:42		
FUCCI	F	ITALY	3:40:37		
			FASTEST IN ITALY :3:12:42		
BJORNSEN	F	SWEDEN	2:59:12		
			FASTEST IN SWEDEN :2:59:12		
KLEIN	F	USA	3:09:23		
			FASTEST IN USA :3:09:23		

**Aggregate functions:** CA-OLQ provides five predefined calculations that you can apply to your report groups. These calculations are called **aggregate functions**. They are:

- **Count** counts the number of rows in the report group.
- **Total** adds up occurrences of numeric columns in the report group.

- **Average** finds the average of the specified column in the report group.
- **Maximum** finds the highest value of the specified column in the report group.
- **Minimum** finds the lowest value of the specified column in the report group.

**How to use aggregate functions:** Aggregate functions are listed on the Report Format - Group By screen. To use them:

1. Make sure that the current group field is the one you want. The current group field is listed in the **Group by** field.
2. Select an aggregate function corresponding to the appropriate report column.

## 6.4 A step-by-step example: Creating a report with subtotals

In the rest of this chapter, you will create a series of reports that contain subtotals. Each report uses an additional CA-OLQ grouping feature to enhance the original report.

You will first:

1. **Create the original report**, using the EMPLOYEE data table.

Your enhancements will then:

2. **Sort** the rows of the report.
3. Specify **report groups**, arranging the employees according to which department they work in.
4. Compute a **report subtotal**, finding the average salary of each department.
5. Compute a **report total**, finding the total amount of money paid in employee salaries.
6. Create **nested subtotals**, listing the number of employees working on each project within each department.

This is how your final report looks after you have added all of the grouping enhancements:

```

CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page    3 Line   25
125004 Press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

                EMPLOYEE REPORT
                06/16/99

                PROJECT                SALARY-AMOUNT                EMP-LAST-NAME
                -----                -
RESEARCH
                45000.00  FINN
                80000.00  WILCO

COUNT FOR RESEARCH:                3

                AVE FOR 5200 : 45400.00
                -----
                453000.00

                END OF REPORT

1=HELP    3=QUIT    4=MESSAGE    - 3 -    6=MENU    7=BWD    10=LEFT    11=RIGHT

```

Report rows are sorted by DEPT-ID, PROJECT, and SALARY-AMOUNT. Within each department, employees are grouped by which project they work on. The average

salary for each department is listed. The total amount paid in employee salaries is listed at the bottom of the report.

## 6.5 Creating your report

### 6.5.1 Step 1 - Set your session options

Specify **N**. In this example, you will use ASF tables. Change the **Full/Sparse** option to Sparse. This option makes reports containing groups easier to read.

```

CA-OLQ Release 15.0                                     *** Session Options ***
->                                                    Page 1 of 2
141000 Select options to be changed and press the ENTER key
Current interrupt count: 100      Current underline character: -
Access IDMS SQL tables: N (Y/N)  Current SQL NULL data value: .

User options:                Page columns spread: E (L-Left,E-Even,M-Max,nn)

      Help      Change
              Option
              Current option  Alternate option
              -> Report Processing Options <-
              NOFiller      FILLer
              -      x      FULL      SPARse
              -      -      HEAder      NOHeader

              -> Column Processing Options <-
              OLQheader      NOOLqheader
              -      -      PICTure      NOPIcture
              -      -      CODetable      NOCODetable

1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD

```

### 6.5.2 Step 2 - Select your table

Specify **SELECT**. Select the EMPLOYEE data table.

```

CA-OLQ Release 15.0                               *** Data Table Processing ***
->                                                Page      1 of      2
138000 Select function, data table(s) and press the ENTER key

  Owner:  DOC1
  Catalog: ASFDICT      Location:
  Function: s Select      _ Create      _ Delete
            _ Add          _ Replace

Enter table:
-or-
Select table
_ ACCOUNTING
_ BUDGET
_ DEPARTMENT
_ EMP-TABLE
s EMPLOYEE
_ EMPLOYEE TABLE
_ EMPLOYEE-DATA
_ JOB SALARIES
_ MELROSE EMPLOYEES
_ OLQ EXAMPLE
_ PERSONNEL
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD

```

### 6.5.3 Step 3 - Select columns

Select EMP-LAST-NAME, DEPT-ID, SALARY-AMOUNT, and PROJECT.

```

CA-OLQ Release 15.0                               *** Column Select ***
->                                                Page      1 of      1
124000 Select columns, specify selection criteria and press the ENTER key

Columns Currently Selected:  0      Selection Criteria      Distinct N Y/N
_ EMPLOYEE
_ 03 EMP-ID
s 03 EMP-LAST-NAME
_ 03 EMP-FIRST-NAME
_ 03 START-YEAR
_ 03 DEPT-HEAD-ID
s 03 DEPT-ID
s 03 SALARY-AMOUNT
s 03 PROJECT
_ 03 OFFICE-CODE

Additional selection criteria:

Proceed to Selection Criteria Screen? N Y/N
1=HELP      3=QUIT      4=MESSAGE      6=MENU      PA2=REFRESH

```

## 6.5.4 Step 4 - Retrieve your data

Depending on how high the interrupt count at your site is set, CA-OLQ may bypass the Retrieval Interrupted screen and proceed directly to the Retrieval Completed screen.

```

CA-OLQ Release 15.0                *** Retrieval Completed ***
->
130000 Select activity and press the ENTER key

Number of whole rows. . . . .      11 Total displayable cols .    20
Total number of records read. . . . 11 Formatted line length. .  372
Total number of records selected. .  11
Number of data errors . . . . .      0

Select                               Command/
Option    ---> Display/Format Activity <--- Screen Name

  X      Display report                DISplay
  -      Save report                   SAVE
  -      Choose the sort sequence of report  SORT
  -      Change column headers          HEAders
  -      Change page header and footer     PAGE HEAders
  -      Change display format of data ($,commas) PICTure
  -      Format columns (Alignment, sparse) EDIt
  -      Specify summary computations (Totals) GROup BY
  -      Send the report to a printer     PRInt

1=HELP          3=QUIT          4=MESSAGE          6=MENU

```

## 6.5.5 Step 5 - Display your report

At this point, the data in your report is listed in the order in which it has been retrieved from the database.

## 6.5 Creating your report

---

```
CA-OLQ Release 15.0                               *** Display Report ***
1 *                                                Page      1 Line    1
125004 Press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

                          EMPLOYEE REPORT
                          06/16/99

      EMP-LAST-NAME      DEPT-ID      SALARY-AMOUNT      PROJECT
      -----
      BANK                4000                80000.00          TESTING
      ANGELO              4000                18000.00          PLANNING
      MCDUGALL            4000                18000.00          PLANNING
      PENMAN              4000                39000.00          PLANNING
      JACKSON             4000                34000.00          PLANNING
      FINN                5200                45000.00          RESEARCH
      WILCO               5200                80000.00          RESEARCH
      TIME               5200                33000.00          RESEARCH
      KASPAR              5200                31000.00          EVALUATE
      ZEDI                4000                37000.00          EVALUATE
      CLOTH               5200                38000.00          EVALUATE
      END OF REPORT

1=HELP      3=QUIT      4=MESSAGE      - 1 -      6=MENU      10=LEFT      11=RIGHT
```

## 6.6 Sorting your report rows

In this step, you sort the rows of the report on three different levels:

- By DEPT-ID
- Within each department group, by PROJECT
- Within each project group, by EMP-LAST-NAME

### 6.6.1 Step 1 - Sort your report

Start on the Report Format - Sort screen. To get there, type SORT in the command line.

Use **Disp Seq** to change the column order to reflect the sort priority. Use **Sort Priority** to specify that you want to sort the report rows by DEPT-ID (level 1), within each department by PROJECT (level 2), and within each project by SALARY-AMOUNT (level 3). Use **Order (A/D)** to specify that you want all of the sorts to be in ascending order. Press [PF5] to display your report.

```

CA-OLQ Release 15.0                               *** Report Format - Sort ***
->                                                    Page 1 of 1
133000 Specify sort or group by request and press the ENTER key

EMPLOYEE
X EMP-LAST-NAME          4      1      a      -
X DEPT-ID                1      1      a      -
X SALARY-AMOUNT          3      3      a      -
X PROJECT                2      2      a      -

Display lines: Detail X and/or Summary X      Group by all _
Compute:
1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      11=HEADER

```

### 6.6.2 Step 2 - Display your report

The rows are sorted by DEPT-ID, within each department by PROJECT, and within each project by SALARY-AMOUNT.

## 6.6 Sorting your report rows

```
CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page      1 Line    1
105022 Sort successfully completed. 11 records in. 11 records out.
125004 Press the ENTER key for DISPLAY/FORMAT ACTIVITY selections
                                EMPLOYEE REPORT
                                06/16/99

      DEPT-ID      PROJECT      SALARY-AMOUNT      EMP-LAST-NAME
      -----      -
      4000          EVALUATE          37000.00          ZEDI
                   PLANNING          18000.00          MCDOUGALL
                   25000.00          ANGELO
                   34000.00          JACKSON
                   39000.00          PENMAN
                   80000.00          BANK
      5200          TESTING          80000.00          BANK
                   EVALUATE          31000.00          KASPAR
                   38000.00          CLOTH
                   RESEARCH          33000.00          TIME
                   45000.00          FINN
                   80000.00          WILCO

      END OF REPORT

1=HELP      3=QUIT      4=MESSAGE      - 1 -      6=MENU      10=LEFT      11=RIGHT
```

## 6.7 Creating groups and specifying subtotals

In this step, you find the average salary of each department by specifying DEPT-ID as a group field and applying a calculation to that group. To do this:

1. **Sort** the rows of your report by department. You just did this in the last step of this example.
2. **Group** the employees according to which department they work in.
3. **Calculate** the average salary amount for that group.

### 6.7.1 Step 1 - Specify your group level

In this step, you calculate the average salary in each department.

Start on the Report Format - Sort screen. To get there, type SORT in the command line.

Specify that you want to group your employees by department by entering a 1 next to **Group By Level #**. Specifying 1 means that DEPT-ID is the highest level group field. You may later create subgroups within each department.

```

CA-OLQ Release 15.0                                *** Report Format - Sort ***
->                                                    Page 1 of 1
133000 Specify sort or group by request and press the ENTER key

EMPLOYEE
X EMP-LAST-NAME          4          -          -          -
X DEPT-ID                1          1          A          1
X SALARY-AMOUNT         3          3          A          -
X PROJECT                2          2          A          -

Display lines: Detail X and/or Summary X      Group by all _
Compute:
1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      11=HEADER

```

## 6.7.2 Step 2 - Specify your subtotal

**Group by** displays EMPLOYEE.DEPT-ID as the current group field. **Level#** displays 1 as the current group level. Use **Avg** to specify that you want CA-OLQ to compute the average salary for each department.

```

CA-OLQ Release 15.0                *** Report Format - Group By ***
->                                Page 1 of 1
136000 Specify summary computations and press the ENTER key

Group by: EMPLOYEE.DEPT-ID

EMPLOYEE                               Seq  Sum  Avg  Max  Min  Level# 1
X EMP-LAST-NAME                        4    -   -   -   -   Count  _
X DEPT-ID                              1    -   -   -   -
X SALARY AMOUNT                        3    -   x   -   -
X PROJECT                              2    -   -   -   -

Compute:                               Skip lines after group 1   Separator character -
1=HELP   3=QUIT   4=MESSAGE   5=DISPLAY   6=MENU   10=PICTURE

```

CA-OLQ generates this COMPUTE statement to calculate the average salary for each department.

```

CA-OLQ Release 15.0                *** Report Format - Sort ***
->                                Page 1 of 1
133000 Specify sort or group by request and press the ENTER key

EMPLOYEE                               Disp  Sort  Order  Group By
X EMP-LAST-NAME                        Seq   Priority (A/D) Level #
X DEPT-ID                              1     1     A     1
X SALARY-AMOUNT                        3     3     A     -
X PROJECT                              2     2     A     -

COMPUTE FIELDS:
X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(E
EMPLOYEE.SALARY-AMOUNT) GROUP BY
EMPLOYEE.DEPT-ID LEVEL 1

Compute:                               Display lines: Detail X and/or Summary X   Group by all _
1=HELP   3=QUIT   4=MESSAGE   5=DISPLAY   6=MENU   11=HEADER

```

### 6.7.3 Step 3 - Display your report

CA-OLQ displays the average salary for each department.

```

CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page    1 Line    1
125000 Press the ENTER key to go to the next page of the report.

                EMPLOYEE REPORT
                06/16/99

DEPT-ID  PROJECT          SALARY-AMOUNT          EMP-LAST-NAME
-----  -
4000     EVALUATE          37000.00          ZEDI
         PLANNING          18000.00          MCDOUGALL
                                         34000.00          ANGELO
                                         39000.00          JACKSON
         TESTING          80000.00          PENMAN
                                         80000.00          BANK
                                         -----
                AVE FOR 4000 :  37666.66

5200     EVALUATE          31000.00          KASPAR
         RESEARCH          38000.00          CLOTH
                                         33000.00          TIME

1=HELP    3=QUIT    4=MESSAGE    - 1 -    6=MENU    8=FWD    10=LEFT    11=RIGHT

```

## 6.8 Creating report totals

In this step, you find the total amount of money paid in employee salaries. Because this sum includes **all** of the rows in the report, you use the **Group by all** field.

### 6.8.1 Step 1 - Specify your group level

Start on the Report Format - Sort screen. To get there, type SORT in the command line.

Select **Group by all** to include all of the rows in your report in a group computation.

```

CA-OLQ Release 15.0                               *** Report Format - Sort ***
->                                                  Page 1 of 1
133000 Specify sort or group by request and press the ENTER key

                Disp      Sort      Order      Group By
                Seq      Priority  (A/D)      Level #
EMPLOYEE
X EMP-LAST-NAME      4
X DEPT-ID            1      1      A      1
X SALARY-AMOUNT      3      3      A      -
X PROJECT            2      2      A      -

COMPUTE FIELDS:
X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(E
MPLOYEE.SALARY-AMOUNT) GROUP BY
EMPLOYEE.DEPT-ID LEVEL 1

                Display lines: Detail X and/or Summary X      Group by all x
Compute:

1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      11=HEADER

```

### 6.8.2 Step 2 - Specify your report total

**Group by** shows you that you are including all of the rows in the report in your computation. Specify that you want to know the sum of all the employee salaries in the report. Use **Seq** to specify the column under which you want the computed field displayed.

```

CA-OLQ Release 15.0                               *** Report Format - Group By ***
->                                                Page 1 of 1
133000 Specify summary computations and press the ENTER key

Group by: ALL

EMPLOYEE
X EMP-LAST-NAME          4  -  -  -  -
X DEPT-ID                1  -  -  -  -
X SALARY-AMOUNT          3  x  -  -  -
X PROJECT                2  -  -  -  -

COMPUTE FIELDS:
X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(E  3
  MPLOYEE.SALARY-AMOUNT) GROUP BY
  EMPLOYEE.DEPT-ID LEVEL 1

Skip lines after group 1      Separator character =

Compute:
1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      10=PICTURE

```

CA-OLQ generates this COMPUTE statement to calculate the report total.

```

CA-OLQ Release 15.0                               *** Report Format - Sort ***
->                                                Page 1 of 1
133000 Specify sort or group by request and press the ENTER key

EMPLOYEE
X EMP-LAST-NAME          4  -  -  -  -
X DEPT-ID                1  1  A  1
X SALARY-AMOUNT          3  3  A  -
X PROJECT                2  2  A  -

COMPUTE FIELDS:
X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(E
  MPLOYEE.SALARY-AMOUNT) GROUP BY
  EMPLOYEE.DEPT-ID LEVEL 1

X TOTAL-3-ALL=TOTAL(EMPLOYEE.SALARY-AM
  OUNT) GROUP BY ALL LEVEL 1

Display lines: Detail X and/or Summary X      Group by all X
Compute:
1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      11=HEADER

```

### 6.8.3 Step 3 - Display your report

CA-OLQ displays the total amount spent in employee salaries.

## 6.8 Creating report totals

```
CA-OLQ Release 15.0                *** Display Report ***
->                                Page      1 Line   10
125004 Press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

                EMPLOYEE REPORT
                06/16/99

DEPT-ID   PROJECT      SALARY-AMOUNT      EMP-LAST-NAME
-----   -
5200     EVALUATE      31000.00          KASPAR
                38000.00          CLOTH
                RESEARCH  33000.00          TIME
                45000.00          FINN
                80000.00          WILCO
                -----
                AVE FOR 5200 :  45400.00
                =====
                453000.00

END OF REPORT

1=HELP      3=QUIT      4=MESSAGE      - 1 -      6=MENU      10=LEFT      11=RIGHT
```

## 6.9 Creating levels of nested subtotals

In this step, you list the number of employees in each project group. For example, you can find out how many people are currently on your department's planning committee.

Because each department has a planning committee, this kind of calculation requires two group levels:

- **Group level 1** groups the employees according to which department they work in. DEPT-ID is the group field.
- **Group level 2** groups the employees within each department according to which project they are currently assigned to. PROJECT is the group field.

### 6.9.1 Step 1 - Specify your group level

Start on the Report Format - Sort screen. To get there, type **Sort** in the command line.

Specify that you want to group by PROJECT within each department group.

```

CA-OLQ Release 15.0                                     *** Report Format - Sort ***
->                                                       Page      1 of      1
133000 Specify sort or group by request and press the ENTER key

EMPLOYEE
X EMP-LAST-NAME           Disp  Sort  Order  Group By
X DEPT-ID                 Seq   Priority (A/D)  Level #
X SALARY-AMOUNT          4     1     A     1
X PROJECT                 3     3     A     2
                          2     2     A     2

Display lines: Detail X and/or Summary X      Group by all X
Compute:
1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      11=HEADER

```

## 6.9.2 Step 2 - Specify your subtotal

**Group by** displays EMPLOYEE.PROJECT as the current group level. **Level#** displays 2 as the current group level. Specify that you want to count the number of employees within each project.

```

CA-OLQ Release 15.0                *** Report Format - Group By ***
->                                Page    1  OF    1
136000 Specify summary computations and press the ENTER key

Group by: EMPLOYEE.PROJECT                                Level# 2
EMPLOYEE                               Seq  Sum  Avg  Max  Min  Count X
X EMP-LAST-NAME                        4   -   -   -   -
X DEPT-ID                               1   -   -   -   -
X SALARY-AMOUNT                        3   -   -   -   -
X PROJECT                              2   -   -   -   -

COMPUTE FIELDS:
X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(E
  MPLOYEE.SALARY-AMOUNT) GROUP BY
  EMPLOYEE.DEPT-ID LEVEL 1

X TOTAL-3-ALL=TOTAL(EMPLOYEE.SALARY-AM
  OUNT) GROUP BY ALL LEVEL 1

          Skip lines after group 1   Separator character -
Compute:
1=HELP    3=QUIT    4=MESSAGE    5=DISPLAY    6=MENU    10=PICTURE

```

CA-OLQ generates this COMPUTE statement to count the total number of employees working on each project.

```

CA-OLQ Release 15.0                *** Report Format - Group By ***
->                                Page    2  OF    2
136000 Specify summary computations and press the ENTER key

Group by: EMPLOYEE.PROJECT                                Level# 2
COMPUTE FIELDS:
X 'EMPLOYEE.PROJECT-COUNT-2'=COUNT
GROUP BY EMPLOYEE.PROJECT LEVEL 2

          Skip lines after group 1   Separator character -
Compute:
1=HELP    3=QUIT    4=MESSAGE    5=DISPLAY    6=MENU    7=BWD    10=PICTURE

```

### 6.9.3 Step 3 - Display your report

CA-OLQ lists the number of employees assigned to each project.

```

CA-OLQ Release 15.0                      *** Display Report ***
->                                         Page      3 Line   25
125004 Press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

                                EMPLOYEE REPORT
                                06/16/99

-----
PROJECT                          SALARY-AMOUNT                      EMP-LAST-NAME
-----
RESEARCH                          45000.00  FINN
                                   80000.00  WILCO

COUNT FOR RESEARCH:  -----
                                   3

                                AVE FOR 5200 :  -----
                                                45400.00
                                                =====
                                                453000.00

                                END OF REPORT

1=HELP    3=QUIT    4=MESSAGE    - 3 -
                                6=MENU      7=BWD      10=LEFT    11=RIGHT

```



# Chapter 7. How to Format Reports Containing Calculations

---

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---

**In this chapter** This chapter shows you how to enhance the appearance of groups and group calculations in your CA-OLQ report. Using CA-OLQ, you can:

- Specify how many lines you want to skip after a group
- Specify which character you want to use to set apart computations
- Tailor your computation headings
- Display only lines containing computations
- Display all lines except those containing computations
- Skip pages after a group

The report shown below illustrates some of the ways you can format your computations using CA-OLQ.

```
CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page 2 Line 13
125004 Press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

                EMPLOYEE REPORT
                06/11/99

      EMP-LAST-NAME      SALARY-AMOUNT
      -----
      CLOTH                38000.00
      KASPAR                31000.00

      FINN                  45000.00
      TIME                  33000.00
      WILCO                  80000.00
      -----
                AVERAGE SALARY:  45400.00

                TOTAL SPENT IN SALARIES: 453000.00

      - 2 -
1=HELP   3=QUIT   4=MESSAGE   6=MENU   7=BWD   10=LEFT   11=RIGHT
```

## 7.1 Key terms

Here are a few terms used to discuss formatting report groups and calculations:

**Detail line:** A report line that displays a row of data retrieved from the database. A detail line can contain a computed column, but does not contain a group computation.

**Group computation:** A calculation that CA-OLQ performs on a report group.

**Separator character:** A character used to separate group computations from the rest of the report.

**Summary computation:** Another term for group computation.

**Summary line:** A report line that displays a group computation.

## 7.2 Creating your report

In this sample, you format the report you created in Chapter 6, “How to Create Report Totals and Subtotals” on page 6-1. To build your current report, follow the steps outlined in Chapter 6.

```

CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page    1 Line    1
125000 Press the ENTER key to go to the next page of the report.

                EMPLOYEE REPORT
                06/11/99

DEPT-ID      PROJECT      EMP-LAST-NAME
-----      -
4000      EVALUATE      ZEDI
          COUNT FOR EVALUATE:      1
          PLANNING      ANGELO
          JACKSON
          MCDUGALL
          PENMAN
          COUNT FOR PLANNING:      4
          TESTING      BANK

1=HELP      3=QUIT      4=MESSAGE      - 1 -
                6=MENU      8=FWD      10=LEFT      11=RIGHT

```

## 7.3 Skipping lines after groups

In this step, you specify how many blank lines you want CA-OLQ to display between report groups.

You can indicate a different spacing for each group level. If your report contains more than one group level, you must establish the current group field and group level before you can indicate how many lines you want to skip.

Step	What To Do	How To Do It
1	Proceed to the Report Format - Group By screen.	Type <b>GROUP BY</b> in the command line of any screen.
2	Establish the current group field and level.	<ul style="list-style-type: none"> <li>■ Type the group field next to <b>Group by</b>:</li> <li>■ Type the corresponding level number in the Level# field.</li> <li>■ Press [Enter].</li> </ul>
3	Specify how many lines you want displayed after the current group.	Enter the number next to <b>Skip lines after group</b> .

If you're not sure how to specify your group field and level, they are listed in the COMPUTE statement on the Report Format - Group By screen. For example:

**If your COMPUTE statement reads:**

```
'EMPLOYEE.PROJECT-COUNT'=COUNT
GROUP BY EMPLOYEE.PROJECT LEVEL 2'
```

**Your group field is:**

```
EMPLOYEE.PROJECT
```

**Your group level is:**

```
2
```

Specify **employee.project** as the current group field. Specify **2** as the current group level.

```

CA-OLQ Release 15.0                *** Report Format - Group By ***
->                                Page 1 OF 2
136000 Specify summary computations and press the ENTER key

Group by: employee.project

EMPLOYEE
X EMP-LAST-NAME          3      -      -      -      -
X DEPT-ID                1      -      -      -      -
X SALARY-AMOUNT         4      -      -      -      -
X PROJECT               2      -      -      -      -

COMPUTE FIELDS:
X TOTAL-3-ALL=TOTAL(EMPLOYEE.SALARY-AMOUNT) GROUP BY ALL LEVEL 1

X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(EMPLOYEE.SALARY-AMOUNT) GROUP BY
EMPLOYEE.DEPT-ID LEVEL 1

Skip lines after group 1      Separator character -
Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  8=FWD  10=PICTURE

```

CA-OLQ echoes the screen, listing the current group field and level. Specify that you want to skip **0** lines after each project group.

```

CA-OLQ Release 15.0                *** Report Format - Group By ***
->                                Page 1 OF 2
136000 Specify summary computations and press the ENTER key

Group by: EMPLOYEE.PROJECT

EMPLOYEE
X EMP-LAST-NAME          3      -      -      -      -
X DEPT-ID                1      -      -      -      -
X SALARY-AMOUNT         4      -      -      -      -
X PROJECT               2      -      -      -      -

COMPUTE FIELDS:
X TOTAL-3-ALL=TOTAL(EMPLOYEE.SALARY-AMOUNT) GROUP BY ALL LEVEL 1

X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(EMPLOYEE.SALARY-AMOUNT) GROUP BY
EMPLOYEE.DEPT-ID LEVEL 1

Skip lines after group 0      Separator character -
Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  8=FWD  10=PICTURE

```

CA-OLQ doesn't insert any blank lines between project groups.

### 7.3 Skipping lines after groups

---

```
CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page    1 Line    1
104009 DISPLAY RIGHT to see more report columns
125000 Press the ENTER key to go to the next page of the report.
                EMPLOYEE REPORT
                06/11/99

DEPT-ID      PROJECT      EMP-LAST-NAME
-----      -
4000         EVALUATE      ZEDI
                COUNT FOR EVALUATE:      1
                PLANNING
                COUNT FOR PLANNING:      4
                TESTING
                COUNT FOR TESTING :      1
                BANK

- 1 -
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      10=LEFT      11=RIGHT
```

## 7.4 Specifying a separator character

In this step, you specify which character you want to use to set your group calculations apart from the rest of your report.

CA-OLQ provides lines separating your group calculations from the detail lines in your report. The default **separator characters** that make up these lines are:

- A hyphen (-) for subtotals
- An equal sign (=) for report totals

You can change these default separator characters to modify your report's appearance.

Each group level's separator character is modified individually. Before you can specify a separation character, you must establish a current group field and level.

Step	What To Do	How To Do It
1	Go to the Report Format - Group By screen.	Type <b>group by</b> in the command line of any screen.
2	Establish the current group field and level.	<ul style="list-style-type: none"> <li>▪ Type the group field in the Group by entry.</li> <li>▪ Type the corresponding level number in the Level # field.</li> <li>▪ Press [Enter].</li> </ul>
3	Specify your separator character.	Type the character you want in the Separator character field.

Specify **all** as your current group field. Specify **1** as the current group level.

## 7.4 Specifying a separator character

```

CA-OLQ Release 15.0                *** Report Format - Group By ***
->                                Page 1 OF 2
136000 Specify summary computations and press the ENTER key

Group by: all

      EMPLOYEE
X EMP-LAST-NAME          3      -      -      -      -
X DEPT-ID                1      -      -      -      -
X SALARY-AMOUNT         4      -      -      -      -
X PROJECT               2      -      -      -      -

      COMPUTE FIELDS:
X TOTAL-3-ALL=TOTAL(EMPLOYEE.SALARY-AMOUNT) GROUP BY ALL LEVEL 1

X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(EMPLOYEE.SALARY-AMOUNT) GROUP BY
EMPLOYEE.DEPT-ID LEVEL 1

      Skip lines after group 1      Separator character -
Compute:

1=HELP   3=QUIT   4=MESSAGE   5=DISPLAY   6=MENU   8=FWD   10=PICTURE

```

CA-OLQ echoes the screen, listing the current group field and level. Specify that you want the underscore (   ) to set apart the report total.

```

CA-OLQ Release 15.0                *** Report Format - Group By ***
->                                Page 1 OF 2
136000 Specify summary computations and press the ENTER key

Group by: ALL

      EMPLOYEE
X EMP-LAST-NAME          3      -      -      -      -
X DEPT-ID                1      -      -      -      -
X SALARY-AMOUNT         4      X      -      -      -
X PROJECT               2      -      -      -      -

      COMPUTE FIELDS:
X TOTAL-3-ALL=TOTAL(EMPLOYEE.SALARY-AMOUNT) GROUP BY ALL LEVEL 1

X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(EMPLOYEE.SALARY-AMOUNT) GROUP BY
EMPLOYEE.DEPT-ID LEVEL 1

      Skip lines after group 1      Separator character _
Compute:

1=HELP   3=QUIT   4=MESSAGE   5=DISPLAY   6=MENU   8=FWD   10=PICTURE

```

You may have to scroll forward (PF8) to view this computation. Underscores separate the report total computation from the preceding detail lines.

```

CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page    2 Line   13
125004 Press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

```

EMPLOYEE REPORT		
06/11/99		
PROJECT	EMP-LAST-NAME	SALARY-AMOUNT
EVALUATE	CLOTH	38000.00
	KASPAR	31000.00
COUNT FOR EVALUATE:	2	
RESEARCH	FINN	45000.00
	TIME	33000.00
	WILCO	80000.00
COUNT FOR RESEARCH:	3	
		AVE FOR 5200 : 45400.00
		453000.00

- 2 -

1=HELP    3=QUIT    4=MESSAGE    6=MENU    7=BWD    10=LEFT    11=RIGHT

## 7.5 Giving your computation a heading

In this step, you modify the default headers for your group computations.

Computations with ALL as the group field are not assigned a default header. All other group computations are assigned default headers. These headers include:

- A literal that labels the report group, consisting of a dollar sign (\$) plus the group field name
- Any built-in or aggregate functions included in that group computation

For example, the default header for the average salary for each department is:

```
'AVE FOR $EMPLOYEE.DEPT-ID'
```

This header would look like this for department 5200:

```
AVE FOR 5200 :
```

The default headers are listed on the Report Format - Header screen. To get there, type **header** in the command line of any screen.

```

CA-OLQ Release 15.0                               *** Report Format - Header ***
->                                                    Page 1 of 2
134000 Specify column headers and press the ENTER key

Underline character: -                               Disp
                                                    Seq           Header
EMPLOYEE
X EMP-LAST-NAME                                     3 EMP-LAST-NAME
X DEPT-ID                                           1 DEPT-ID
X SALARY-AMOUNT                                     4 SALARY-AMOUNT
X PROJECT                                           2 PROJECT

COMPUTE FIELDS:
X TOTAL-3-ALL=TOTAL(EMPLOYEE.SALARY-AMOUNT) GROUP BY ALL LEVEL 1

X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(EMPLOYEE.SALARY-AMOUNT) GROUP BY
EMPLOYEE.DEPT-ID LEVEL 1                               'AVE FOR $EMPLOYEE.DEPT-ID:'

Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  8=FWD  10=SORT  11=EDIT

```

```

CA-OLQ Release 15.0                               *** Report Format - Header ***
->                                                    Page 2 of 2
134000 Specify column headers and press the ENTER key

Underline character: -           Disp
                               Seq           Header

COMPUTE FIELDS:
X 'EMPLOYEE.PROJECT-COUNT'=COUNT           'COUNT FOR $EMPLOYEE.PROJECT:'
GROUP BY EMPLOYEE.PROJECT LEVEL 2

Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  7=BWD  10=SORT  11=EDIT

```

Specify more legible labels for your report total and department computations.

```

CA-OLQ Release 15.0                               *** Report Format - Header ***
->                                                    Page 1 of 2
134000 Specify column headers and press the ENTER key

Underline character: -           Disp
                               Seq           Header

EMPLOYEE
X EMP-LAST-NAME           3 EMP-LAST-NAME
X DEPT-ID                 1 DEPT-ID
X SALARY-AMOUNT           4 SALARY-AMOUNT
X PROJECT                 2 PROJECT

COMPUTE FIELDS:
X TOTAL-3-ALL=TOTAL(EMPLOYEE.SALARY-AMOUNT) GROUP BY ALL LEVEL 1 'TOTAL SPENT IN SALARIES:'
X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(EMPLOYEE.SALARY-AMOUNT) GROUP BY EMPLOYEE.DEPT-ID LEVEL 1 'AVERAGE SALARY:'

Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  8=FWD  10=SORT  11=EDIT

```

Specify a more legible label for your project computation. In this example, the label contains a variable field (\$EMPLOYEE.PROJECT) for the project name.

## 7.5 Giving your computation a heading

```
CA-OLQ Release 15.0                *** Report Format - Header ***
->                                Page      2 of      2
134000 Specify column headers and press the ENTER key

Underline character: -            Disp      Header
                               Seq
COMPUTE FIELDS:
X 'EMPLOYEE.PROJECT-COUNT'=COUNT  'WORKING ON $EMPLOYEE.PROJECT:'
GROUP BY EMPLOYEE.PROJECT LEVEL 2

Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  7=BWD  10=SORT  11=EDIT
```

CA-OLQ displays a new label for your project groups.

```
CA-OLQ Release 15.0                *** Display Report ***
->                                Page      1 Line      1
125000 Press the ENTER key to go to the next page of the report.

                                EMPLOYEE REPORT
                                06/11/99

DEPT-ID      PROJECT              EMP-LAST-NAME
-----      -
4000         EVALUATE              ZEDI
                                WORKING ON EVALUATE:      1
                                PLANNING
                                ANGELO
                                JACKSON
                                MCDOUGALL
                                PENMAN

                                WORKING ON PLANNING:      4
                                TESTING
                                BANK

                                WORKING ON TESTING :      1

                                - 1 -
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      10=LEFT      11=RIGHT
```

CA-OLQ displays a new label for your department computations and for your report total.

```
CA-OLQ Release 15.0                *** Display Report ***
->                                  Page      2 Line   13
125004 Press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

                                EMPLOYEE REPORT
                                06/11/99

EMP-LAST-NAME                    SALARY-AMOUNT
-----
CLOTH                            38000.00
KASPAR                            31000.00

FINN                              45000.00
TIME                              33000.00
WILCO                             80000.00

                                AVERAGE SALARY:  45400.00

                                TOTAL SPENT IN SALARIES: 453000.00

                                - 2 -
1=HELP    3=QUIT    4=MESSAGE    6=MENU    7=BWD    10=LEFT    11=RIGHT
```

Note that if you lengthen your header, the column width lengthens accordingly. If you make your headers too long, this can make your report difficult to read.

## 7.6 Displaying only summary computations

In this step, you modify your report definition so that it displays only those report rows that contain summary computations.

Start on the Report Format - Sort screen. To get there, type **sort** on the command line of any screen.

Type a blank next to **Detail** to suppress the display of detail lines.

```

CA-OLQ Release 15.0                               *** Report Format - Sort ***
->                                                    Page 1 of 2
133000 Specify sort or group by request and press the ENTER key

EMPLOYEE
X EMP-LAST-NAME           3           3           A           |
X DEPT-ID                 1           1           A           |1
X SALARY-AMOUNT          4           |           |
X PROJECT                 2           2           A           |2

COMPUTE FIELDS:
X TOTAL-3-ALL=TOTAL(EMPLOYEE.SALARY-AMOUNT) GROUP BY ALL LEVEL 1

X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(EMPLOYEE.SALARY-AMOUNT) GROUP BY
EMPLOYEE.DEPT-ID LEVEL 1

Display lines: Detail and/or Summary X Group by all X
Compute:
1=HELP 3=QUIT 4=MESSAGE 5=DISPLAY 6=MENU 8=FWD 11=HEADER

```

CA-OLQ displays only rows containing summary computations. Page right (PF11) to see the entire report.

```
CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page    1 Line    1
125004 Press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

                EMPLOYEE REPORT
                06/11/99

                DEPT-ID                SALARY-AMOUNT
                -----                -
                4000                37000.00
                4000                39000.00
                4000                AVERAGE SALARY: 37666.66

                5200                31000.00
                5200                AVERAGE SALARY: 45400.00

                TOTAL SPENT IN SALARIES: 453000.00

                END OF REPORT

1=HELP      3=QUIT      4=MESSAGE      - 1 -      6=MENU      10=LEFT      11=RIGHT
```

## 7.7 Displaying only detail lines

In this step, you modify your report definition so that it displays only detail lines (those lines that do not contain any summary computations).

Start on the Report Format - Sort screen. To get there, type **sort** on the command line of any screen. Type a character next to **Detail** to restore the display of detail lines. Type a blank next to **Summary** to suppress the display of rows containing summary computations.

```

CA-OLQ Release 15.0                               *** Report Format - Sort ***
->                                                    Page 1 of 2
133000 Specify sort or group by request and press the ENTER key

      EMPLOYEE
      EMP-LAST-NAME
  X DEPT-ID
  X SALARY-AMOUNT
  - PROJECT

      Disp   Sort   Order   Group By
      Seq   Priority (A/D)   Level #

      EMPLOYEE
      EMP-LAST-NAME
  X DEPT-ID           1       1       A       1
  X SALARY-AMOUNT    4       4       A       1
  - PROJECT          2       2       A       2

COMPUTE FIELDS:
X TOTAL-3-ALL=TOTAL(EMPLOYEE.SALARY-AMOUNT) GROUP BY ALL LEVEL 1

X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(EMPLOYEE.SALARY-AMOUNT) GROUP BY
EMPLOYEE.DEPT-ID LEVEL 1

      Display lines: Detail x and/or Summary           Group by all X
Compute:

1=HELP   3=QUIT   4=MESSAGE   5=DISPLAY   6=MENU   8=FWD   11=HEADER

```

CA-OLQ displays only detail lines.

```
CA-OLQ Release 15.0                *** Display Report ***
->                                Page      1 Line    1
104009 DISPLAY RIGHT to see more report columns
125004 Press the ENTER key for DISPLAY/FORMAT ACTIVITY selections
                                EMPLOYEE REPORT
                                06/11/99

DEPT-ID          SALARY-AMOUNT          EMP-LAST-NAME
-----          -
4000              37000.00              ZEDI
                   18000.00              ANGELO
                   34000.00              JACKSON
                   18000.00              MCDUGALL
                   39000.00              PENMAN
                   80000.00              BANK
5200              38000.00              CLOTH
                   31000.00              KASPAR
                   45000.00              FINN
                   33000.00              TIME
                   80000.00              WILCO

END OF REPORT

1=HELP      3=QUIT      4=MESSAGE      - 1 -      6=MENU      10=LEFT      11=RIGHT
```

## 7.8 Skipping to a new page after computations

In this step, you request that CA-OLQ skip to a new page after each change in the group field.

Before you specify this option, you must establish a current group field and group level.

Step	What To Do	How To Do It
1	Go to the Report Format - Group By screen.	Type <b>group by</b> in the command line of any screen.
2	Establish the current group field and level.	<ul style="list-style-type: none"> <li>▪ Type the group field in the <b>Group by</b> field.</li> <li>▪ Type the corresponding level number in the <b>Level#</b> field.</li> <li>▪ Press [Enter].</li> </ul>
3	Ask CA-OLQ to skip to a new page after a computation.	Enter <b>pg</b> in the <b>Skip lines after group</b> field.

Specify **employee.dept-id** as your current group field. Specify **1** as the current group level.

```

CA-OLQ Release 15.0                *** Report Format - Group By ***
->                                Page 1 OF 2
136000 Specify summary computations and press the ENTER key

Group by: employee.dept-id                                Level# 1
EMPLOYEE                               Seq  Sum  Avg  Max  Min  Count _
X EMP-LAST-NAME                         1   -   -   -   -   -
X DEPT-ID                               4   -   -   -   -   -
X SALARY-AMOUNT                          -   -   -   -   -   -
X PROJECT                                -   -   -   -   -   -

COMPUTE FIELDS:
X TOTAL-3-ALL=TOTAL(EMPLOYEE.SALARY-AMOUNT) GROUP BY ALL LEVEL 1

X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(EMPLOYEE.SALARY-AMOUNT) GROUP BY
EMPLOYEE.DEPT-ID LEVEL 1

          Skip lines after group 1      Separator character -
Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  8=FWD  10=PICTURE

```

Type **sort** in the command line. CA-OLQ echoes the screen, listing the current group field and level. Type **pg** next to **Skip lines after group** to specify that you want CA-OLQ to skip a page after each change in the current group field (DEPT-ID).

```

CA-OLQ Release 15.0                *** Report Format - Group By ***
-> sort                            Page 1 OF 2
136000 Specify summary computations and press the ENTER key

Group by: EMPLOYEE.DEPT-ID                                Level# 1
                               Seq  Sum  Avg  Max  Min  Count _
EMPLOYEE
X EMP-LAST-NAME
X DEPT-ID                      1    -   -   -   -
X SALARY-AMOUNT                4    -   X   -   -
X PROJECT                      -    -   -   -   -

COMPUTE FIELDS:
X TOTAL-3-ALL=TOTAL(EMPLOYEE.SALARY-AMOUNT) GROUP BY ALL LEVEL 1

X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(EMPLOYEE.SALARY-AMOUNT) GROUP BY
EMPLOYEE.DEPT-ID LEVEL 1

Skip lines after group pg      Separator character -
Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  8=FWD  10=PICTURE

```

Type a character next to **Summary** to restore the display of lines containing summary computations.

```

CA-OLQ Release 15.0                *** Report Format - Sort ***
->                                Page 1 of 2
133000 Specify sort or group by request and press the ENTER key

                               Disp  Sort  Order  Group By
                               Seq  Priority (A/D) Level #
EMPLOYEE
X EMP-LAST-NAME                3    A
X DEPT-ID                      1    1    A    1
X SALARY-AMOUNT                4    2    A    2
X PROJECT                      2    A    2

COMPUTE FIELDS:
X TOTAL-3-ALL=TOTAL(EMPLOYEE.SALARY-AMOUNT) GROUP BY ALL LEVEL 1

X 'EMPLOYEE.SALARY-AMOUNT-AVE-2'=AVE(EMPLOYEE.SALARY-AMOUNT) GROUP BY
EMPLOYEE.DEPT-ID LEVEL 1

Display lines: Detail X and/or Summary x      Group by all X
Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  8=FWD  11=HEADER

```

CA-OLQ displays each department's statistics on a separate page. Press [PF8] to page through the whole report.

7.8 Skipping to a new page after computations

```

CA-OLQ Release 15.0                                     *** Display Report ***
->                                                    Page      1 Line    1
104009 DISPLAY RIGHT to see more report columns
125000 Press the ENTER key to go to the next page of the report.
                EMPLOYEE REPORT
                06/11/99

DEPT-ID          SALARY-AMOUNT          EMP-LAST-NAME
-----          -
4000              37000.00          ZEDI
                   18000.00          ANGELO
                   34000.00          JACKSON
                   18000.00          MCDUGALL
                   39000.00          PENMAN
                   80000.00          BANK
AVERAGE SALARY: 37666.66

- 1 -
1=HELP  3=QUIT  4=MESSAGE  6=MENU  8=FWD  10=LEFT  11=RIGHT

```

```

CA-OLQ Release 15.0                                     *** Display Report ***
->                                                    Page      2 Line   13
125000 Press the ENTER key to go to the next page of the report.
                EMPLOYEE REPORT
                06/11/99

DEPT-ID          SALARY-AMOUNT          EMP-LAST-NAME
-----          -
5200              38000.00          CLOTH
                   31000.00          KASPAR
                   45000.00          FINN
                   33000.00          TIME
                   80000.00          WILCO
AVERAGE SALARY: 45400.00

- 2 -
1=HELP  3=QUIT  4=MESSAGE  6=MENU  7=BWD  8=FWD  10=LEFT  11=RIGHT

```

# Chapter 8. How to Save Your Report

---

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---

**In this chapter** This chapter shows you how to save your current report. Saved reports differ from other CA-OLQ functions in that they:

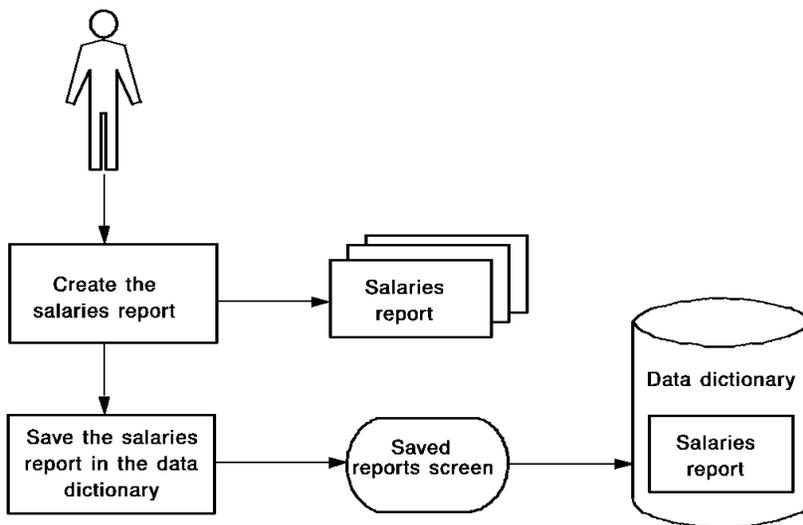
- **Reflect a static picture of the data** in the database when the report is created.
- **Retain all of the editing and formatting features** you have built into your report, such as pictures, headers, and column spacing.
- **Retain any group calculations or calculated columns.**
- **Can be accessed by any other CA-OLQ user**, given the proper security.

Once you have saved a report, you cannot change it by:

- Changing your selection of rows and columns
- Reaccessing the database to include more recent data

However, you can change it by modifying how columns or rows are displayed.

**Report retention period:** When you save your report, you specify how long you want to keep the report available online. The Saved Report screen has a **Retention period** field, in which you can specify how many days you want to keep the report file.



---

Figure 8-1. Creating a Saved Report

Saved reports are contrasted with other CA-OLQ functions in the following table.

<b>What You Want To Do</b>	<b>Which CA-OLQ Function To Use</b>	<b>Formatting Retained?</b>	<b>Calculations Reexecuted?</b>
Save the set of commands used to build a report	<p><b>Qfile</b></p> <p>The report created by a qfile reflects the data that is in the database when the qfile is executed. The contents of the report change as the data changes.</p>	Retained	Reexecuted each time the report is built
Save a copy of a report for later use	<p><b>Saved report</b></p> <p>The report reflects the data as it was when the report was executed. The data doesn't change.</p>	Retained	Executed at report definition
Create a table from your report	<p><b>Saved table</b></p> <p>The table can later be used to create other reports, or can be joined with other tables</p>	Not retained	Retained as they are computed when the table is saved

## 8.1 Key terms

Some terms used to discuss saved reports are:

**Current report:** The report you're working on in an active CA-OLQ session. If you retrieve a saved report, CA-OLQ clears out the current report.

**Retention period:** The number of days your saved report file is kept in your directory. After the retention period has expired, the report file is deleted.

**Saved report:** A report file maintained in your user directory that contains a copy of a CA-OLQ report.

## 8.2 Creating a report

In this example, you create a report using the following steps:

1. Build a **Salaries** report containing employee names, social security numbers, and salary information.
2. Modify your report headers.
3. Format the numeric values in the report.
4. Sort the report rows by salary grade.
5. Group the report rows by salary grade and calculate the average salary in each group.

### 8.2.1 Step 1 - Create a Current Report

When you save a report CA-OLQ takes the set of commands you used to build your current report and saves them in the data dictionary. In this step, you build a current report.

This report uses the EMPLOYEE and EMPOSITION records from the sample employee database. These records reside in the EMPSS01 subschema.

Start on the Signon Database View screen. To get there, type **subschema** (or sub) in the command line of any screen.

Select the EMPSS01 subschema.

```

CA-OLQ Release 15.0                                     *** Signon Database View ***
->                                                    Page      3 OF      4
121000 Select a subschema and press the ENTER key

Dictionary name . . : TSTDICT           Dictionary node name . . :
Database name . . . :                   Database node name . . . :

Specify Subschema :                       of Schema . . . :           Version :
-or-
Select subschema:                          Description:
s  EMPSS01 OF EMPSCHM VER 100 DEPARTMENT AND EMPLOYEE INFORMATION
_  FINANC01 OF EMPSCHM VER 100 4Q87
_  SALES01 OF EMPSCHM VER 100 SALES QUOTAS

1=HELP      3=QUIT      4=MESSAGE      6=MENU      7=BWD      8=FWD      PA2=REFRESH

```

Select the EMPLOYEE and EMPOSITION records.

```

CA-OLQ Release 15.0                               *** Record Select ***
->                                                    Page 1 of 1
123000 Select records and press the ENTER key

Enter records :                                Records currently selected: 0

-and/or-
Select records :
- COVERAGE
- DENTAL-CLAIM
- DEPARTMENT
s EMPLOYEE
s EMPPOSITION
- EXPERTISE
- HOSPITAL-CLAIM
- INSURANCE-PLAN
- JOB
- NON-HOSP-CLAIM
- OFFICE
- SKILL
- STRUCTURE

1=HELP      3=QUIT      4=MESSAGE      6=MENU      PA2=REFRESH

```

Select EMP-LAST-NAME-0415, SS-NUMBER-0415, SALARY-GRADE-0420, and SALARY-AMOUNT-0420. Press [PF8] to scroll through the screen.

```

CA-OLQ Release 15.0                               *** Column Select ***
->                                                    Page 1 of 3
124000 Select columns, specify selection criteria and press the ENTER key

Columns Currently Selected: 0      Selection Criteria      Distinct N Y/N
- EMPLOYEE
- 02 EMP-ID-0415                    *
- 02 EMP-NAME-0415
- 03 EMP-FIRST-NAME-0415            *
s 03 EMP-LAST-NAME-0415            *
- 02 EMP-ADDRESS-0415
- 03 EMP-STREET-0415
- 03 EMP-CITY-0415
- 03 EMP-STATE-0415
- 03 EMP-ZIP-0415
- 04 EMP-ZIP-FIRST-FIVE-0415
- 04 EMP-ZIP-LAST-FOUR-0415
- 02 EMP-PHONE-0415
- 02 STATUS-0415
Additional selection criteria:

Proceed to Selection Criteria Screen? N Y/N
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      PA2=REFRESH

```

Select **Yes** to continue data retrieval.

```

CA-OLQ Release 15.0                                     *** Retrieval Interrupted ***
->
131000 Select YES or NO and press the ENTER key

      Retrieval interrupted due to excessive data base accesses.

Number of whole rows. . . . .                54
Total number of records read. . . . .       100
Total number of records selected. . . . .   99
Number of data errors . . . . .             0

      Continue execution      x Yes
                              X No

      Current interrupt interval is      100 data base accesses.

1=HELP                                     3=QUIT                                     4=MESSAGE

```

```

CA-OLQ Release 15.0                                     *** Retrieval Completed ***
->
130000 Select activity and press the ENTER key

Number of whole rows. . . . .                68  Total displayable cols .   20
Total number of records read. . . . .       125  Formatted line length. .  372
Total number of records selected. . . . .   124
Number of data errors . . . . .             0

      Select
      Option      ---> Display/Format Activity <---      Command/
                                                           Screen Name

      X          Display report                          DISplay
      -          Save report                             SAVe
      -          Choose the sort sequence of report      SORT
      -          Change column headers                   HEAdEr
      -          Change page header and footer           PAGE HEAdEr
      -          Change display format of data ($,commas) PICTure
      -          Format columns (Alignment, sparse)       EDIt
      -          Specify summary computations (Totals)   GROUp BY
      -          Send the report to a printer            PRInt

1=HELP                                     3=QUIT                                     4=MESSAGE                                     6=MENU

```

This is how your report looks before you add any formatting features.

```

CA-OLQ Release 15.0                *** Display Report ***
->                                Page 1 Line 1
125000 Press the ENTER key to go to the next page of the report.

EMPLOYEE/EMPOSITION REPORT
06/15/99

EMP-LAST-NAME-0415 SS-NUMBER-0415 SALARY-GRADE-0420 SALARY-AMOUNT-0420
-----
LINGER                092345812                33                38500.00
TERNER                045672222                11                13000.00
BROWN                019556712                44                42500.00
CHARLES              019556712                43                38000.00
PENMAN               014593186                33                39000.00
DUNCAN              010673343                72                85000.00
EVERETT             010673343                71                75000.00
LITERATA            023567831                43                37500.00
WILCO               111000023                72                80000.00
HEAROWITZ          031896154                42                33000.00
TYRO                019893456                21                20000.00
KAHALLY            029661234                21                20000.00

1=HELP    3=QUIT    4=MESSAGE    - 1 -    6=MENU    8=FWD    10=LEFT    11=RIGHT

```

## 8.2.2 Step 2 - Modify Your Report Headers

In this step, you modify your report headers. Start on the Report Format - Header screen. To get there, type **header** in the command line.

Change your report headers to make them more legible.

```

CA-OLQ Release 15.0                *** Report Format - Header ***
->                                Page 1 of 1
134000 Specify column headers and press the ENTER key

Underline character: -            Disp
                                Seq      Header
EMPLOYEE
X EMP-LAST-NAME-0415            1 name
X SS-NUMBER-0415                2 social security number
EMPOSITION
X SALARY-GRADE-0420            3 salary grade
X SALARY-AMOUNT-0420          4 salary

Compute:

1=HELP    3=QUIT    4=MESSAGE    5=DISPLAY    6=MENU    10=SORT    11=EDIT

```

CA-OLQ displays your new report headers.

```

CA-OLQ Release 15.0                               *** Display Report ***
->                                                Page    1 Line    1
125000 Press the ENTER key to go to the next page of the report.

                EMPLOYEE/EMPOSITION REPORT
                06/15/99

                SOCIAL
                SECURITY
                NUMBER          SALARY
                GRADE          SALARY

LINGER          092345812          33          38500.00
TURNER          045672222          11          13000.00
BROWN          019556712          44          42500.00
CHARLES        019556712          43          38000.00
PENMAN         014593186          33          39000.00
DUNCAN         010673343          72          85000.00
EVERETT        010673343          71          75000.00
LITERATA       023567831          43          37500.00
WILCO          111000023          72          80000.00
HEAROWITZ     031896154          42          33000.00

- 1 -
1=HELP    3=QUIT    4=MESSAGE    6=MENU    8=FWD    10=LEFT    11=RIGHT
    
```

### 8.2.3 Step 3 - Change Your Report Column Pictures

In this step, you modify the display of the social security and salary columns to make them more legible. Start on the Report Format - Picture screen. To get there, type **picture** in the command line.

Change the picture for SS-NUMBER-0415 to include hyphens.

```

CA-OLQ Release 15.0                               *** Report Format - Picture ***
->                                                Page    1 of    1
137000 Specify pictures and press the ENTER key

                Disp  Select Options  or  Alter
                Seq   $ , 0      Picture

EMPLOYEE
X EMP-LAST-NAME-0415          1          X(15)
X SS-NUMBER-0415             2          99-999-9999
EMPOSITION
X SALARY-GRADE-0420          3          99
X SALARY-AMOUNT-0420         4          -ZZZZZ9.99

Compute:
1=HELP    3=QUIT    4=MESSAGE    5=DISPLAY    6=MENU    10=EDIT    11=GROUP BY
    
```

CA-OLQ displays your new picture.

```

CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page 1 Line 1
125000 Press the ENTER key to go to the next page of the report.

EMPLOYEE/EMPOSITION REPORT
06/15/99

      NAME                SOCIAL SECURITY NUMBER    SALARY GRADE    SALARY
-----
LINGER                   09-234-5812             33             38500.00
TERNER                   04-567-2222             11             13000.00
BROWN                   01-955-6712             44             42500.00
CHARLES                 01-955-6712             43             38000.00
PENMAN                  01-459-3186             33             39000.00
DUNCAN                  01-067-3343             72             85000.00
EVERETT                 01-067-3343             71             75000.00
LITERATA                02-356-7831             43             37500.00
WILCO                   11-100-0023             72             80000.00
HEAROWITZ               03-189-6154             42             33000.00

- 1 -
1=HELP    3=QUIT    4=MESSAGE    6=MENU    8=FWD    10=LEFT    11=RIGHT

```

## 8.2.4 Step 4 - Sort Your Report Rows and Specify Group Calculations

In this step, you sort your report rows by salary grade, and compute the average salary in each salary grade. Start on the Report Format - Sort screen. To get there, type **sort** in the command line.

Sort your rows in ascending order by salary grade; group your report rows by salary grade. Sort within salary grade by salary amount.

```

CA-OLQ Release 15.0                               *** Report Format - Sort ***
->                                                    Page 1 of 1
133000 Specify sort or group by request and press the ENTER key

      EMPLOYEE
X EMP-LAST-NAME-0415      1      -      -      -
X SS-NUMBER-0415         2      -      -      -
EMPOSITION
X SALARY-GRADE-0420      3      1      a      1
X SALARY-AMOUNT-0420     4      2      a      -

      Display lines: Detail X and/or Summary X      Group by all _
Compute:
1=HELP    3=QUIT    4=MESSAGE    5=DISPLAY    6=MENU    11=HEADER

```

## 8.2 Creating a report

For each salary grade group, calculate the average salary amount.

```

CA-OLQ Release 15.0                *** Report Format - Group By ***
->                                Page 1 OF 1
136000 Specify summary computations and press the ENTER key

Group by: SALARY-GRADE-0420

EMPLOYEE
X EMP-LAST-NAME-0415              1  -  -  -  -
X SS-NUMBER-0415                  2  -  -  -  -
EMPOSITION
X SALARY-GRADE-0420               3  -  -  -  -
X SALARY-AMOUNT-0420             4  -  x  -  -

Compute:      Skip lines after group 1  Separator character -

1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      10=PICTURE

```

CA-OLQ displays the average salary for each salary grade group.

```

CA-OLQ Release 15.0                *** Display Report ***
->                                Page 1 Line 1
125000 Press the ENTER key to go to the next page of the report.

EMPLOYEE/EMPOSITION REPORT
06/15/99

NAME                SOCIAL SECURITY NUMBER  SALARY GRADE  SALARY
-----
FITZHUGH            11-234-5678           11            13000.00
TERNER              04-567-2222           11            13000.00
JOHNSON             01-134-7878           11            13500.00
                   AVE FOR 11: 13166.66

NICEMAN             03-345-6110           12            14000.00
GARDNER             02-233-4444           12            14000.00
KRAAMER            02-378-6666           12            14000.00
KING                06-784-5516           12            14500.00

- 1 -
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      10=LEFT      11=RIGHT

```

## 8.3 Saving the report

In this example, you save the current report in a saved report file.

From the Display Report screen, proceed to the Saved Reports screen by typing **save** in the command line.

Specify **Create**. Name your report **salaries** and specify that you want to retain the report for 5 days.

```
CA-OLQ Release 15.0                               *** Saved Reports ***
->                                                    Page 1 of 1
120000 Select report function, report name, and press the ENTER key

Saved reports for user: DOC1
Function:  _ Select          x Create          _ Replace
          _ Delete          _ Delete all

Enter report name: salaries          Retention period: 5
Report Name          Time          Date          Retention

No saved reports are available

1=HELP          3=QUIT          4=MESSAGE          6=MENU          PA2=REFRESH
```

Specify that you want to view an existing report.

### 8.3 Saving the report

```
Computer Associates Software
CA-OLQ Release 15.0          *** Menu ***
->                          Page 1 of 3
107001 The SALARIES report has been saved successfully
122000 Select an option and press the ENTER key
Select
Pfkey  Option  Description          Command/  Show
       Option  Description          Screen Name  Help
-----
      ---> Data Source for Report <---
      - Choose tables          TABLE
      - Choose subschema       SUBSchema
      -
      ---> Retrieval Activity <---
      - Choose records from selected subschema  RECord
      - Choose columns for report              COLumn
      - Retrieve data to build report          RETrieve
      - Alter database access strategy        LINKage
      -
      ---> Processing Mode <---
      - Execute or create a predefined routine  QFile
      x View existing or save current report   SAVE
      - Submit batch report request           BATch
      -
1=HELP          2=GLOBAL HELP      3=QUIT          4=MESSAGE       8=FWD
```

CA-OLQ lists the SALARIES report and its retention period.

```
CA-OLQ Release 15.0          *** Saved Reports ***
->                          Page 1 of 1
120000 Select report function, report name, and press the ENTER key
                                DOC1
Saved reports for user: DOC1
Function:  _ Select              _ Create          _ Replace
           _ Delete              _ Delete all
Enter report name:
Report Name          Time          Retention period: 1
SALARIES          10:01:52:17    6/15/99        5 Days
1=HELP          3=QUIT          4=MESSAGE       6=MENU          PA2=REFRESH
```

## 8.4 Using a saved report

In this example, you retrieve a saved report. Remember that when you retrieve a saved report, it overrides your current report.

Start on the Saved Reports screen. To get there, type **save** in the command line.

Choose **Select**. Select the SALARIES report.

```

CA-OLQ Release 15.0                               *** Saved Reports ***
->                                                    Page 1 of 1
120000 Select report function, report name, and press the ENTER key

Saved reports for user: DOC1
Function: c Select          _ Create          _ Replace
          _ Delete          _ Delete all

Enter report name:
Report Name          Time          Retention period: 1
c SALARIES          13:46:23:21    6/15/99          1 Days

1=HELP          3=QUIT          4=MESSAGE          6=MENU          PA2=REFRESH

```

CA-OLQ displays the SALARIES report. Note that all of your formatting and grouping features have been retained in the report definition.

## 8.4 Using a saved report

CA-OLQ Release 15.0 \*\*\* Display Report \*\*\*  
-> Page 1 Line 1  
125000 Press the ENTER key to go to the next page of the report.

EMPLOYEE/EMPOSITION REPORT  
06/15/99

NAME	SOCIAL SECURITY NUMBER	SALARY GRADE	SALARY
FITZHUGH	11-234-5678	11	13000.00
TERNER	04-567-2222	11	13000.00
JOHNSON	01-134-7878	11	13500.00
AVE FOR 11:			13166.66
NICEMAN	03-345-6110	12	14000.00
GARDNER	02-233-4444	12	14000.00
KRAAMER	02-378-6666	12	14000.00
KING	06-784-5516	12	14500.00

- 1 -

1=HELP    3=QUIT    4=MESSAGE    6=MENU    8=FWD    10=LEFT    11=RIGHT

## 8.5 Modifying a saved report

In this example, you:

- Retrieve the SALARIES report
- Change the report to display only those rows containing summary computations
- Replace the report file

Start on the Saved Reports screen. To get there, type **save** in the command line.

Choose **Select**. Select the SALARIES report.

```
CA-OLQ Release 15.0                               *** Saved Reports ***
->                                                    Page 1 of 1
120000 Select report function, report name, and press the ENTER key

Saved reports for user: DOC1
Function:  c Select          _ Create          _ Replace
           _ Delete          _ Delete all

Enter report name:
Report Name      Time      Retention period: 1
c  SALARIES      13:46:23:21      Date      Retention
                        6/15/99      1 Days

1=HELP      3=QUIT      4=MESSAGE      6=MENU      PA2=REFRESH
```

Specify **picture** on the command line. CA-OLQ displays the SALARIES report.

## 8.5 Modifying a saved report

```

CA-OLQ Release 15.0                               *** Display Report ***
-> picture                                         Page 1 Line 1
125000 Press the ENTER key to go to the next page of the report.

EMPLOYEE/EMPOSITION REPORT
06/15/99

NAME          SOCIAL SECURITY NUMBER  SALARY GRADE  SALARY
-----
FITZHUGH      11-234-5678      11            13000.00
TERNER        04-567-2222      11            13000.00
JOHNSON       01-134-7878      11            13500.00
                                     AVE FOR 11:  13166.66

NICEMAN       03-345-6110      12            14000.00
GARDNER       02-233-4444      12            14000.00
KRAAMER       02-378-6666      12            14000.00
KING          06-784-5516      12            14500.00

- 1 -
1=HELP      3=QUIT      4=MESSAGE    6=MENU      8=FWD      10=LEFT     11=RIGHT

```

Add a leading dollar sign and commas to your computation by selecting the \$ and , options next to the listing of the computation syntax.

```

CA-OLQ Release 15.0                               *** Report Format - Picture ***
->                                               Page 1 of 1
137000 Specify pictures and press the ENTER key

EMPLOYEE
X EMP-LAST-NAME-0415      1      X(15)
X SS-NUMBER-0415         2      - - - 99-999-9999
EMPOSITION
X SALARY-GRADE-0420      3      - - - 99
X SALARY-AMOUNT-0420     4      - - - -ZZZZZ9.99

COMPUTE FIELDS:
X SALARY-AMOUNT-0420-AVE-3=AVE(SALARY-
AMOUNT-0420) GROUP BY
SALARY-GRADE-0420 LEVEL 1

Compute:
1=HELP      3=QUIT      4=MESSAGE    5=DISPLAY    6=MENU      10=EDIT     11=GROUP BY

```

Your summary computation is listed with a leading dollar sign and separating commas.

```

CA-OLQ Release 15.0                               *** Display Report ***
->                                                    Page 1 Line 1
125000 Press the ENTER key to go to the next page of the report.

                EMPLOYEE/EMPOSITION REPORT
                06/15/99

                SOCIAL
                SECURITY
                NUMBER      SALARY
                GRADE      SALARY
-----
FITZHUGH        11-234-5678      11      13000.00
TERNER          04-567-2222      11      13000.00
JOHNSON        01-134-7878      11      13500.00
                AVE FOR 11:  $13,166.66

NICEMAN        03-345-6110      12      14000.00
GARDNER        02-233-4444      12      14000.00
KRAAMER        02-378-6666      12      14000.00
KING           06-784-5516      12      14500.00

                - 1 -
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      10=LEFT      11=RIGHT

```

Select **Replace**. Select the SALARIES saved report.

```

CA-OLQ Release 15.0                               *** Saved Reports ***
->                                                    Page 1 of 1
120000 Select report function, report name, and press the ENTER key

                DOC1
Saved reports for user: DOC1
Function:  _ Select      _ Create      x Replace
           _ Delete      _ Delete all

Enter report name:
Report Name      Time      Retention period: 1
x SALARIES      13:46:23:21      6/15/99      1 Days

1=HELP      3=QUIT      4=MESSAGE      6=MENU      PA2=REFRESH

```

CA-OLQ returns you to the Menu screen and issues a message indicating that your report has been saved.

## 8.5 Modifying a saved report

---

```

                                Computer Associates Software
      CA-OLQ Release 15.0          *** Menu ***
->                               Page 1 of 3
107001 The SALARIES report has been saved successfully
122000 Select an option and press the ENTER key
      Select
      Pfkey  Option  Description                                Command/  Show
                                                    Screen Name  Help
      -----
      ---> Data Source for Report <---
      -      Choose tables                                TABle      -
      -      Choose subschema                            SUBSchema  -
      -----
      ---> Retrieval Activity <---
      -      Choose records from selected subschema      RECord      -
      -      Choose columns for report                    COLumn      -
      -      Retrieve data to build report                RETrieve    -
      -      Alter database access strategy               LINKage     -
      -----
      ---> Processing Mode <---
      -      Execute or create a predefined routine       QFile       -
      -      View existing or save current report         SAVe        -
      -      Submit batch report request                 BATch       -
      -----
1=HELP      2=GLOBAL HELP      3=QUIT      4=MESSAGE      8=FWD
```

## 8.6 Deleting saved reports

In this example, you delete the SALARIES saved report. Start on the Saved Reports screen. To get there, type **save** in the command line.

Select **Delete**. Select the SALARIES saved report.

```

CA-OLQ Release 15.0                *** Saved Reports ***
->                                Page 1 of 1
120000 Select report function, report name, and press the ENTER key

          DOC1
Saved reports for user: DOC1
Function:  _ Select          _ Create          _ Replace
           s Delete          _ Delete all

Enter report name:
Report Name          Time          Date          Retention
x SALARIES          13:52:11:03    6/15/99        1 Days

1=HELP          3=QUIT          4=MESSAGE          6=MENU          PA2=REFRESH

```

CA-OLQ issues a message indicating that your report has been deleted.

```

                                Computer Associates Software
CA-OLQ Release 15.0                *** Menu ***
->                                Page 1 of 3
107014 The report SALARIES has been successfully deleted
122000 Select an option and press the ENTER key
Select
Pfkey Option Description          Command/Screen Name          Show Help
-----
    ---> Data Source for Report <---
    - Choose tables                TABLE                      -
    - Choose subschema             SUBSchema                  -
    ---> Retrieval Activity <---
    - Choose records from selected subschema  RECOrd                      -
    - Choose columns for report             COLumn                      -
    - Retrieve data to build report         RETrieve                    -
    - Alter database access strategy        LINKage                      -
    ---> Processing Mode <---
    - Execute or create a predefined routine  QFIle                       -
    - View existing or save current report   SAVe                        -
    - Submit batch report request           BATch                       -
1=HELP          2=GLOBAL HELP          3=QUIT          4=MESSAGE          8=FWD

```

### 8.6.1 Deleting All Saved Reports

The **Delete all** function enables you to delete all of the reports that were created under a given user ID. To delete all of the reports that belong to you:

1. Go to the Saved Reports screen by typing **save** in the command line
2. Specify your user ID (for example, JTE) in the **Saved reports for user** field
3. Select **Delete all**
4. Press [Enter]

# Chapter 9. How to Save a Set of Commands as a Qfile

---

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---

**What is a qfile?** A qfile is a way to save a set of CA-OLQ commands in a file.

**What do you do with qfiles?** You can execute a qfile to retrieve data from the database and create a report. The qfile formats the report the same way each time it is executed, but the data in the report changes to reflect the current data in the database.

**Example:** You could create a qfile that displays quarterly financial information. When you execute the routine at the end of each fiscal quarter, the report looks the same each time, but the financial information changes.

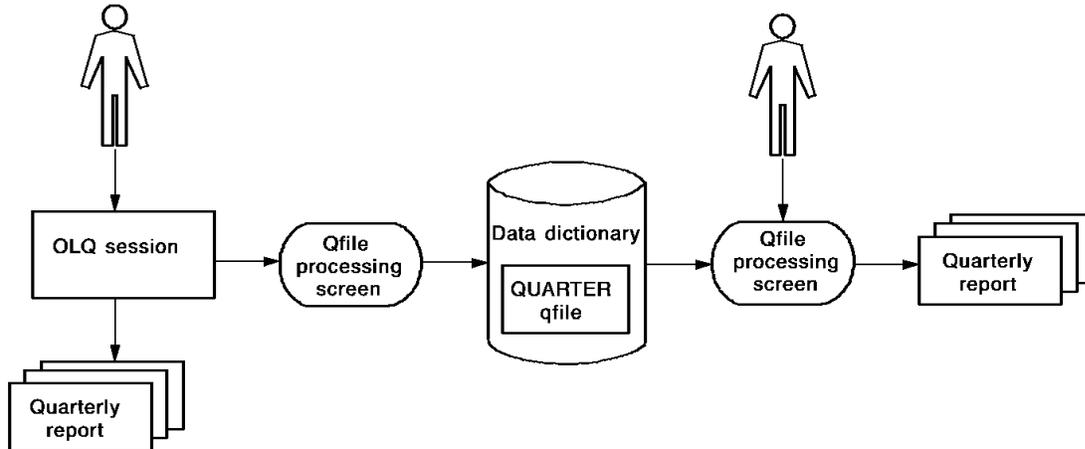
---

**Create:**

1. Use OLQ to create a quarterly qfile.
2. Use the qfile processing screen to save these commands in IDD as the QUARTER qfile.

**Execute:**

Each fiscal quarter execute the QUARTER qfile to create a new report.



---

Figure 9-1. Creating and Executing the QUARTER Qfile

Qfiles differ from other CA-OLQ functions in that they:

- Reflect the changing nature of data in the database
- Retain any formatting enhancements you have made to your report
- Reexecute any report calculations each time the qfile is executed

---

<b>What You Want to Do</b>	<b>Which CA-OLQ Function to Use</b>	<b>Formatting Retained?</b>	<b>Calculations Reexecuted?</b>
Save the set of commands used to build a report	<p><b>Qfile</b></p> <p>The report created by a qfile reflects the data that is in the database when the qfile is executed. The contents of the report change as the data changes.</p>	Retained	Reexecuted each time the report is built
Save a copy of a report for later use	<p><b>Saved report</b></p> <p>The report reflects the data as it was when the report was executed. The data doesn't change.</p>	Retained	Executed at report definition
Create a table from your report	<p><b>Saved table</b></p> <p>The table can later be used to create other reports, or it can be joined with other tables</p>	Not retained	Retained as they are executed when the table is saved

---

## 9.1 Key terms

Here are some terms used to discuss qfiles and reports:

**Current report:** The report you're working on in an active CA-OLQ session. If you retrieve a saved report, CA-OLQ clears out the current report.

**Data dictionary:** The storage facility used by CA products as a central source for data definitions, modules, and run-time information. Qfile definitions are stored in the data dictionary.

**Integrated Data Dictionary (IDD):** The CA product used to access definitions stored in the dictionary.

**Qfile definition:** The CA-OLQ syntax statements stored in the data dictionary when you create your qfile.

## 9.2 Creating a Qfile

In this example, you create a qfile using the following steps:

1. Build a SALARY report containing employee salary information.
2. Add formatting enhancements you want kept in the qfile.
3. Save the report definition as a qfile.

1. Use OLQ to create the SALARY report.
2. Save these comments as the SALARY qfile.

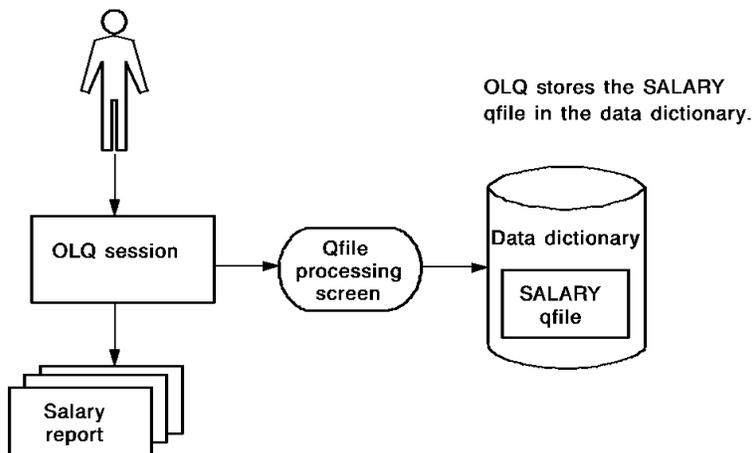


Figure 9-2. Creating a Qfile

### 9.2.1 Step 1 - Build the salary report

When you create a qfile, CA-OLQ takes the set of commands you used to build your current report and saves them as the qfile definition. In this step, you build your current Salary report.

This report uses the EMPLOYEE and EMPOSITION records from the sample database. These records reside in the EMPSS01 subschema.

Start on the Signon Database View screen. To get there, type **sub** in the command line of any screen.

Select the EMPSS01 subschema.

```

CA-OLQ Release 15.0                               *** Signon Database View ***
->                                                Page    3  OF    3
121000 Select a subschema and press the ENTER key

Dictionary name . . : TSTDICT           Dictionary node name . . :
Database name . . . :                   Database node name . . . :

Specify Subschema :                       of Schema . . . :           Version :
-or-
Select subschema:                          Description:
x EMPSS01 OF EMPSCHM VER 100 DEPARTMENT AND EMPLOYEE INFORMATION
- FINAN01 OF EMPSCHM VER 100 3Q91
- SALES01 OF EMPSCHM VER 100 SALES QUOTAS

1=HELP      3=QUIT      4=MESSAGE      6=MENU      7=BWD      PA2=REFRESH

```

Select the EMPLOYEE and EMPOSITION records.

```

CA-OLQ Release 15.0                               *** Record Select ***
->                                                Page    1  of    1
123000 Select records and press the ENTER key

Enter records :                                Records currently selected:    0
-and/or-
Select records :
- COVERAGE
- DENTAL-CLAIM
- DEPARTMENT
x EMPLOYEE
x EMPOSITION
- EXPERTISE
- HOSPITAL-CLAIM
- INSURANCE-PLAN
- JOB
- NON-HOSP-CLAIM
- OFFICE
- SKILL
- STRUCTURE

1=HELP      3=QUIT      4=MESSAGE      6=MENU      PA2=REFRESH

```

Select EMP-NAME-0415, START-YEAR-0415, START-MONTH-0415, START-DAY-0415, SALARY-GRADE-0420, SALARY-AMOUNT-0420, and BONUS-PERCENT-0420. Page forward (PF8) to view all of the columns you need.

```

CA-OLQ Release 15.0                               *** Column Select ***
->                                                Page 1 of 3
124000 Select columns, specify selection criteria and press the ENTER key

Columns Currently Selected:  0      Selection Criteria  Distinct N Y/N
- EMPLOYEE
- 02 EMP-ID-0415                *
x 02 EMP-NAME-0415
- 03 EMP-FIRST-NAME-0415        *
- 03 EMP-LAST-NAME-0415        *
- 02 EMP-ADDRESS-0415
- 03 EMP-STREET-0415
- 03 EMP-CITY-0415
- 03 EMP-STATE-0415
- 03 EMP-ZIP-0415
- 04 EMP-ZIP-FIRST-FIVE-0415
- 04 EMP-ZIP-LAST-FOUR-0415
- 02 EMP-PHONE-0415
- 02 STATUS-0415

Enter additional criteria:

Proceed to Selection Criteria Screen? N Y/N
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      PA2=REFRESH

```

Select **Yes** to continue data retrieval.

```

CA-OLQ Release 15.0                               *** Retrieval Interrupted ***
->
131000 Select YES or NO and press the ENTER key

Retrieval interrupted due to excessive data base accesses.

Number of whole rows. . . . . 54
Total number of records read. . . . 100
Total number of records selected. . . 99
Number of data errors . . . . . 0

Continue execution      x Yes
                       X No

Current interrupt interval is 100 data base accesses.

1=HELP      3=QUIT      4=MESSAGE

```

Depending on how high the interrupt count at your site is set, CA-OLQ may bypass the Retrieval Interrupted screen and proceed directly to the Retrieval Completed screen. Specify that you want to proceed to the Report Format – Sort screen.

```

CA-OLQ Release 15.0                      *** Retrieval Completed ***
->
130000 Select activity and press the ENTER key

Number of whole rows. . . . .           68 Total displayable cols .      20
Total number of records read. . . . .   125 Formatted line length. .   372
Total number of records selected. . . .  124
Number of data errors . . . . .         0

Select      Command/
Option      ---> Display/Format Activity <--- Screen Name

  X         Display report                DISplay
  _         Save report                  SAVe
  x         Choose the sort sequence of report  SORt
  _         Change column headers        HEAdEr
  _         Change page header and footer PAGE HEAdEr
  _         Change display format of data ($,commas) PICTure
  _         Format columns (Alignment, sparse) EDIT
  _         Specify summary computations (Totals) GROUp BY
  _         Send the report to a printer  PRInt

1=HELP          3=QUIT          4=MESSAGE          6=MENU

```

## 9.2.2 Step 2 - Add formatting enhancements

Your qfile definition saves all of the formatting enhancements you have included in your report. Enhancements include sorts, break processing, external pictures, headings, and report titles.

►► See Chapter 5, “How to Format Your Report” on page 5-1 for more information on how to format your report.

In this step, you enhance your qfile definition by:

- Sorting the report rows by salary grade
- Grouping the report rows according to salary grade
- Changing the report headers

Start on the Report Format - Sort screen. To get there, type **sort** on the command line of any screen.

To sort the rows by salary grade, specify **1** in the **Sort Priority** column next to SALARY-GRADE-0420. Specify **a** (for ascending) in the **Order (A/D)** column next to SALARY-GRADE-0420.

To group your report rows by salary grade, specify **1** in the **Group By Level #** column next to SALARY-GRADE-0420.

```

CA-OLQ Release 15.0                *** Report Format - Sort ***
->                                Page 1 of 1
133000 Specify sort or group by request and press the ENTER key

      Disp      Sort      Order      Group By
      Seq      Priority  (A/D)    Level #
EMPLOYEE
X EMP-FIRST-NAME-0415             1      -      -      -
X EMP-LAST-NAME-0415             2      -      -      -
X START-YEAR-0415                 3      -      -      -
X START-MONTH-0415               4      -      -      -
X START-DAY-0415                 5      -      -      -
EMPOSITION
X SALARY-GRADE-0420              6      1      a      1
X SALARY-AMOUNT-0420            7      -      -      -
X BONUS-PERCENT-0420            8      -      -      -

      Display lines: Detail X and/or Summary X      Group by all _
Compute:
1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      11=HEADER

```

Type **header** on the command line.

```

CA-OLQ Release 15.0                *** Report Format - Group By ***
-> header                        Page 1 OF 1
136000 Specify summary computations and press the ENTER key

Group by COLUMN: SALARY-GRADE-0420
      Seq Total  Avg  Hival  Loval  Level# 1
      Count _
EMPLOYEE
X EMP-FIRST-NAME-0415             1      -      -      -      -
X EMP-LAST-NAME-0415             2      -      -      -      -
X START-YEAR-0415                 3      -      -      -      -
X START-MONTH-0415               4      -      -      -      -
X START-DAY-0415                 5      -      -      -      -
EMPOSITION
X SALARY-GRADE-0420              6      -      -      -      -
X SALARY-AMOUNT-0420            7      -      x      -      -
X BONUS-PERCENT-0420            8      -      -      -      -

      Skip lines after group 1      Separator character -
Compute:
1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      10=PICTURE

```

Change the display of the date columns to list them in order of month, day, and year.  
Change your headers to make them more legible.

```

CA-OLQ Release 15.0                               *** Report Format - Header ***
->                                                Page      1 of      2
134000 Specify column headers and press the ENTER key

Underline character: -                Disp      Header
                                      Seq
EMPLOYEE
X EMP-FIRST-NAME-0415                1 First Name
X EMP-LAST-NAME-0415                2 Last Name
X START-YEAR-0415                    5 ' '
X START-MONTH-0415                  3 Start
X START-DAY-0415                     4 ' '
EMPOSITION
X SALARY-GRADE-0420                  6 Grade
X SALARY-AMOUNT-0420                7 Salary Amount
X BONUS-PERCENT-0420                8 Bonus %

Compute:
1=HELP  3=QUIT  4=MESSAGE  5=DISPLAY  6=MENU  8=FWD  10=SORT  11=EDIT

```

```

CA-OLQ Release 15.0                               *** Display Report ***
->                                                Page      1 Line      1
105022 Sort successfully completed.  68 records in.  68 records out.
125000 Press the ENTER key to go to the next page of the report.
EMPLOYEE/EMPOSITION REPORT
                                02/20/99

FIRST NAME      LAST NAME      START      GRADE      SALARY AMOUNT      BONUS %
-----
TOM             FITZHUGH       09 19 81   11          13000.00          .004
NANCY           TERNER         05 26 82   11          13000.00          .004
CYNTHIA         JOHNSON        03 23 77   11          13500.00          .004
                                     AVE FOR 11:      13166.66

ROBIN           GARDNER        06 15 81   12          14000.00          .004
BRIAN           NICEMAN        05 06 80   12          14000.00          .004
DORIS           KING           08 16 80   12          14500.00          .004
SANDY           KRAAMER        04 04 81   12          14000.00          .004

- 1 -
1=HELP  3=QUIT  4=MESSAGE  6=MENU  8=FWD  10=LEFT  11=RIGHT

```

### 9.2.3 Step 3 - Save the report as a Qfile

You now save your report as a qfile. CA-OLQ takes all of the commands used to build the current report and saves them in a qfile definition in the data dictionary.

Start on the Qfile Processing screen. To get there, type **qfile** in the command line.

Select **Create**. Specify **salary** next to **Routine name**. Add any descriptive comments you would like to be shown on the screen.

```

CA-OLQ Release 15.0                                     *** QFILE Processing ***
->                                                    Page 1 of 1
140000 Select function and press the ENTER key

User: SYB
Dictionary name: TSTDICT                               Dictionary node:

Function:  _ Execute      x Create      _ Replace      _ Delete
           _ Execute with new criteria  _ List         _ Edit
           _ Execute batch

Routine name: salary                                  Version:
Comments: example

SELECT ROUTINE          VERSION  COMMENTS
- DEPARTMENT            1
- MANAGERS              1
- NEW EMPLOYEES        1
- SALARY GRADE         1

1=HELP                3=QUIT                4=MESSAGE                6=MENU
    
```

CA-OLQ returns a message indicating that your current report definition has been saved as a qfile. And CA-OLQ lists the SALARY qfile.

```

CA-OLQ Release 15.0                                     *** QFILE Processing ***
->                                                    Page 1 of 1
109017 Requested operation for SALARY(1) has been successfully completed
140000 Select function and press the ENTER key

User: SYB
Dictionary name: TSTDICT                               Dictionary node:

Function:  _ Execute      _ Create      _ Replace      _ Delete
           _ Execute with new criteria  _ List         _ Edit
           _ Execute batch

Routine name:
Comments:

SELECT ROUTINE          VERSION  COMMENTS
- DEPARTMENT            1
- MANAGERS              1
- NEW EMPLOYEES        1
- SALARY GRADE         1 SALARY SUMMARY COMPUTATIONS
- SALARY                1 EXAMPLE

1=HELP                3=QUIT                4=MESSAGE                6=MENU
    
```

## 9.3 Executing a Qfile

In this example, you execute a qfile to create a report.

1. On the qfile processing screen, select the EXECUTE activity and the SALARY qfile.
2. OLQ retrieves the SALARY qfile definition from the data dictionary and executes it, creating the salary report.

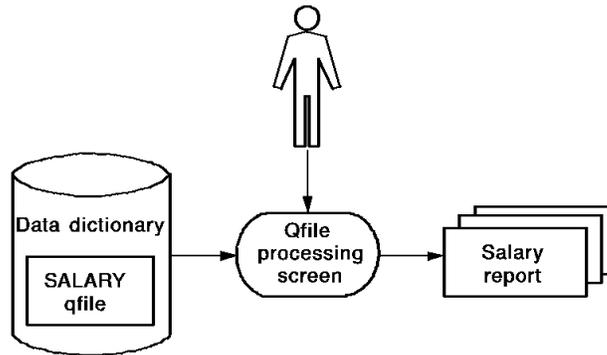


Figure 9-3. Executing a Qfile

Start on the Qfile Processing screen. To get there, type **qfile** in the top line of any screen.

Select **Execute**. Name the **SALARY** qfile.

```

CA-OLQ Release 15.0
->                                     *** QFILE Processing ***
                                         Page   1 of   1
                                         leted

140000 Select function and press the ENTER key
User: SYB
Dictionary name: TSTDICT                Dictionary node:

Function:  x Execute      _ Create      _ Replace      _ Delete
           _ Execute with new criteria  _ List         _ Edit
           _ Execute batch

Routine name:                          Version:
Comments:

SELECT ROUTINE          VERSION  COMMENTS
- DEPARTMENT            1
- MANAGERS              1
- NEW EMPLOYEES        1
- SALARY GRADE         1 SALARY SUMMARY COMPUTATIONS
x SALARY              1 EXAMPLE

1=HELP          3=QUIT          4=MESSAGE          6=MENU
  
```

Specify **Yes** to continue data retrieval.

```

CA-OLQ Release 15.0                                     *** Retrieval Interrupted ***
->
092018 The default DICTNAME value has been modified.
092027 Underline character has been modified to -
      Retrieval interrupted due to excessive data base accesses.

Number of whole rows. . . . .                    54
Total number of records read. . . . .           100
Total number of records selected. . . . .        99
Number of data errors . . . . .                  0

Continue execution      x Yes
                       X No

Current interrupt interval is      100 data base accesses.

1=HELP                      3=QUIT                      4=MESSAGE

```

Depending on how high the interrupt count at your site is set, CA-OLQ may bypass the Retrieval Interrupted screen and proceed directly to the Retrieval Completed screen.

```

CA-OLQ Release 15.0                                     *** Retrieval Completed ***
->
105022 Sort successfully completed. 68 records in. 68 records out.
092021 Execution has completed for q-file: SALARY

Number of whole rows. . . . .                    68
Total number of records read. . . . .           125
Total number of records selected. . . . .        124
Number of data errors . . . . .                  0

Select
Option      ---> Display/Format Activity <---      Command/
                                                Screen Name

X           Display report                          DISplay
-           Save report                             SAVe
-           Choose the sort sequence of report      SORT
-           Change column headers                   HEAdEr
-           Change page header and footer            PAGE HEAdEr
-           Change display format of data ($,commas) PICTure
-           Format columns (Alignment, sparse)        EDIt
-           Specify summary computations (Totals)    GROUp BY
-           Send the report to a printer             PRInt

1=HELP                      3=QUIT                      4=MESSAGE                      6=MENU

```

```
CA-OLQ Release 15.0                                     *** Display Report ***
->                                                       Page      1 Line    1
125000 Press the ENTER key to go to the next page of the report.
```

EMPLOYEE/EMPOSITION REPORT  
02/20/99

FIRST NAME	LAST NAME	START	GRADE	SAL. AMOUNT	BONUS %
TOM	FITZHUGH	09 19 81	11	13000.00	.004
NANCY	TERNER	05 26 82	11	13000.00	.004
CYNTHIA	JOHNSON	03 23 77	11	13500.00	.004
				AVE FOR 11:	13166.66
ROBIN	GARDNER	06 15 81	12	14000.00	.004
BRIAN	NICEMAN	05 06 80	12	14000.00	.004
DORIS	KING	08 16 80	12	14500.00	.004
SANDY	KRAAMER	04 04 81	12	14000.00	.004

- 1 -

1=HELP    3=QUIT    4=MESSAGE    6=MENU    8=FWD    10=LEFT    11=RIGHT

## 9.4 Using one Qfile to create different reports

In this example, you use the same qfile to create two or more reports that are nearly the same. Using **Execute with new criteria**, you can suspend qfile execution and change the retrieval selection criteria used to build the report.

**Example:** By executing the SALARY qfile and modifying the retrieval criteria, you can create two reports:

- One displays all salary grades above \$30,000.
- One displays all salary grades below \$30,000.

In this example, you execute the SALARY qfile using the following steps:

1. Execute the SALARY qfile using **Execute with new criteria**.
2. CA-OLQ starts to execute the qfile. Execution continues up to the first statement that would retrieve data from the database.
3. CA-OLQ suspends execution of the qfile and displays the Column Select screen.
4. You can change the retrieval criteria to display only those salary grades larger than 16.
5. When you press [Enter], CA-OLQ resumes execution of the qfile.

### 9.4.1 Step 1 - Use execute with new criteria

In this step, you use the Execute with new criteria option to suspend execution of the SALARY qfile before it retrieves any data from the database.

Start on the Qfile Processing screen. To get there, type **qfile** in the command line of any screen.

Select **Execute with new criteria** and select the **SALARY** qfile.

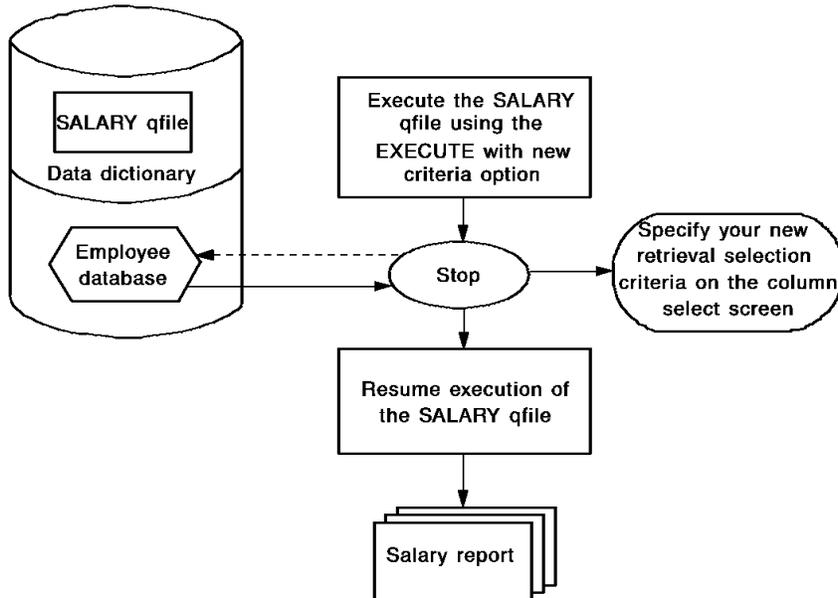


Figure 9-4. Using One Qfile to Make More Than One Report

```

CA-OLQ Release 15.0                                     *** QFILE Processing ***
->                                                         Page 1 of 1
140000 Select function and press the ENTER key

User: SYB
Dictionary name: TSTDICT                                Dictionary node:

Function:  _ Execute      _ Create      _ Replace      _ Delete
           x Execute with new criteria  _ List        _ Edit
           _ Execute batch

Routine name:                                           Version:
Comments:

SELECT ROUTINE          VERSION  COMMENTS
- DEPARTMENT            1
- MANAGERS              1
- NEW EMPLOYEES        1
- SALARY GRADE          1 SALARY SUMMARY COMPUTATIONS
x SALARY                1 EXAMPLE

1=HELP                3=QUIT                4=MESSAGE            6=MENU
  
```

## 9.4.2 Step 2 - Change the Selection criteria

In this step, you change the data retrieval selection criteria to retrieve only those employees in salary grades greater than 16.

Specify **greater than 16** in the **Selection criteria** column for the SALARY-GRADE-0420 field.

```
CA-OLQ Release 15.0                      *** Column Select ***
->                                         Page      3 of      3
124000 Select columns, specify selection criteria and press the ENTER key

Columns currently selected:   7           Selection criteria
EMPOSITION
- 02 START-DATE-0420
- 03 START-YEAR-0420
- 03 START-MONTH-0420
- 03 START-DAY-0420
- 02 FINISH-DATE-0420
- 03 FINISH-YEAR-0420
- 03 FINISH-MONTH-0420
- 03 FINISH-DAY-0420
X 02 SALARY-GRADE-0420                gt 16
X 02 SALARY-AMOUNT-0420
x 02 BONUS-PERCENT-0420
- 02 COMMISSION-PERCENT-0420
- 02 OVERTIME-RATE-0420
Additional selection criteria:

Proceed to Selection Criteria Screen? N Y/N
1=HELP      3=QUIT      4=MESSAGE      6=MENU      7=BWD      PA2=REFRESH
```

## 9.4.3 Step 3 - Resume Qfile execution

In this step, you resume execution of the qfile to apply new data retrieval selection criteria.

The final report displays only those employees in salary grades of 16 or higher.

Select **Yes** to continue data retrieval.

```

CA-OLQ Release 15.0                                     *** Retrieval Interrupted ***
->
131000 Select YES or NO and press the ENTER key

      Retrieval interrupted due to excessive data base accesses.

Number of whole rows. . . . .                48
Total number of records read. . . . .       100
Total number of records selected. . . . .    87
Number of data errors . . . . .             0

      Continue execution      x Yes
                              X No

      Current interrupt interval is      100 data base accesses.

1=HELP                                     3=QUIT                                     4=MESSAGE

```

Depending on how high the interrupt count at your site is set, CA-OLQ may bypass the Retrieval Interrupted screen and proceed directly to the Retrieval Completed screen.

```

CA-OLQ Release 15.0                                     *** Retrieval Completed ***
->
130000 Select activity and press the ENTER key

Number of whole rows. . . . .                59 Total displayable cols .      20
Total number of records read. . . . .       125 Formatted line length. .    372
Total number of records selected. . . . .    106
Number of data errors . . . . .             0

      Select
      Option      ----> Display/Format Activity <----      Command/
                                                           Screen Name

      X          Display report                               DISplay
      -          Save report                                 SAVE
      -          Choose the sort sequence of report          SORT
      -          Change column headers                       HEADER
      -          Change page header and footer               PAGE HEAder
      -          Change display format of data ($,commas)    PICTure
      -          Format columns (Alignment, sparse)          EDIt
      -          Specify summary computations (Totals)       GROUp BY
      -          Send the report to a printer                PRInt

1=HELP                                     3=QUIT                                     4=MESSAGE                                     6=MENU

```

## 9.4 Using one Qfile to create different reports

```
CA-OLQ Release 15.0                                     *** Display Report ***
->                                                       Page      1 Line    1
125000 Press the ENTER key to go to the next page of the report.
```

EMPLOYEE/EMPOSITION REPORT  
02/20/96

FIRST NAME	LAST NAME	START	GRADE	SAL. AMOUNT	BONUS %
HERBERT	LIPSICH	04 29 81	21	18500.00	.004
MICHAEL	ANGELO	09 08 79	21	18000.00	.004
RALPH	TYRO	12 21 80	21	20000.00	.004
MICHAEL	ANGELO	09 08 79	21	17000.00	.004
DOUGLAS	KAHALLY	09 29 79	21	20000.00	.004
CAROL	MCDUGALL	06 07 80	21	18000.00	.004
				AVE FOR 21:	18583.33
JANE	FERNDAL	09 09 79	22	22500.00	.004

- 1 -

1=HELP    3=QUIT    4=MESSAGE    6=MENU    8=FWD    10=LEFT    11=RIGHT

## 9.5 Modifying your Qfile definition

When you modify a qfile, CA-OLQ overlays your IDD qfile definition with the commands used to build your current report. Using this feature, you can:

- Execute an existing qfile, change the report, and replace the qfile
- Execute a qfile, change the report, and save it as a different qfile
- Create a new report from scratch and save it under the name of an existing qfile

In this example, you modify the SALARY qfile using the following steps:

1. Establish a current report by executing the SALARY qfile
2. Modify the report definition to suppress the display of detail lines (those not containing any summary calculations)
3. Replace the qfile, overriding the current SALARY qfile definition with the commands used to build the summary report

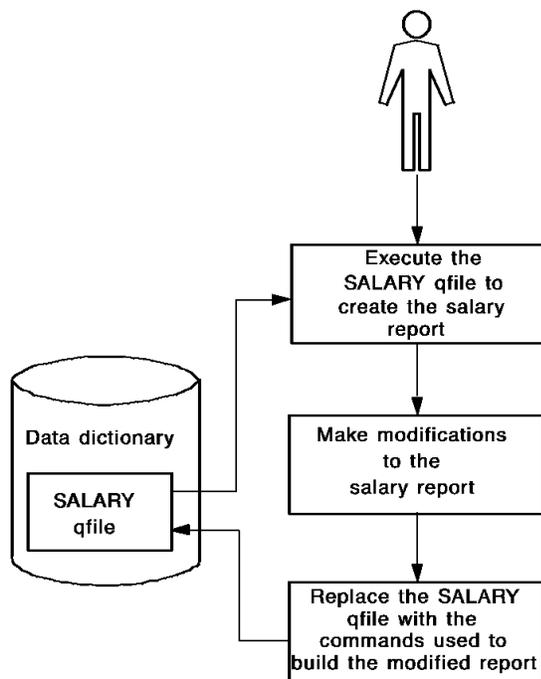


Figure 9-5. Modifying Your Qfile Definition

### 9.5.1 Step 1 - Establish a current report

In this step, you execute the SALARY qfile to create a current report. Start on the Qfile Processing screen. To get there type **qfile** in the command line of any screen.

Select **Execute** and select the **SALARY** qfile.

```

CA-OLQ Release 15.0                               *** QFILE Processing ***
->                                                Page 1 of 1
140000 Select function and press the ENTER key

User: SYB
Dictionary name: TSTDICT                          Dictionary node:

Function:  x Execute      _ Create      _ Replace      _ Delete
          _ Execute with new criteria  _ List        _ Edit
          _ Execute batch

Routine name:
Comments:

SELECT ROUTINE          VERSION  COMMENTS
- DEPARTMENT            1
- MANAGERS              1
- NEW EMPLOYEES        1
- SALARY GRADE         1 SALARY SUMMARY COMPUTATIONS
x SALARY              1 EXAMPLE

1=HELP                3=QUIT                4=MESSAGE                6=MENU
    
```

Specify **Yes** to continue data retrieval.

```

CA-OLQ Release 15.0                               *** Retrieval Interrupted ***
->
192018 The default DICTNAME value has been modified.
092027 Underline character has been modified to -
      Retrieval interrupted due to excessive data base accesses.

Number of whole rows. . . . . 54
Total number of records read. . . . 100
Total number of records selected. . . 99
Number of data errors . . . . . 0

Continue execution  x Yes
                   X No

Current interrupt interval is 100 data base accesses.

1=HELP                3=QUIT                4=MESSAGE
    
```

Specify that you want to proceed to the Report Format – Sort screen.

```

CA-OLQ Release 15.0                *** Retrieval Completed ***
->
105022 Sort successfully completed. 68 records in. 68 records out.
092021 Execution has completed for q-file: SALARY

Number of whole rows. . . . .      68
Total number of records read. . . . 125
Total number of records selected. . 124
Number of data errors . . . . .     0

Select      Command/
Option      ---> Display/Format Activity <--- Screen Name

   X        Display report                DISplay
   -        Save report                   SAVe
   x        Choose the sort sequence of report   SOrt
   -        Change column headers         HEAders
   -        Change page header and footer PAGE HEAders
   -        Change display format of data ($,commas) PICTure
   -        Format columns (Alignment, sparse) EDIT
   -        Specify summary computations (Totals) GROUp BY
   -        Send the report to a printer  PRINt

1=HELP          3=QUIT          4=MESSAGE          6=MENU

```

## 9.5.2 Step 2 - Modify the report definition

In this step, you modify the SALARY qfile to suppress the display of all detail lines (those not containing any summary calculations) in the report. Thus the report displays only the average salary for each salary grade.

Type a space next to **Detail** to suppress the display of detail lines.

```

CA-OLQ Release 15.0                *** Report Format - Sort ***
->                                Page 1 of 2
133000 Specify sort or group by request and press the ENTER key

Disp      Sort      Order      Group By
Seq       Priority   (A/D)     Level #

EMPLOYEE
X EMP-FIRST-NAME-0415             1           -           -           -
X EMP-LAST-NAME-0415             2           -           -           -
X START-YEAR-0415                 5           -           -           -
X START-MONTH-0415               3           -           -           -
X START-DAY-0415                 4           -           -           -
EMPOSITION
X SALARY-GRADE-0420              6           1           A           1
X SALARY-AMOUNT-0420             7           -           -           -
X BONUS-PERCENT-0420            8           -           -           -

Compute:  Display lines:  Detail   and/or  Summary X   Group by all _
1=HELP   3=QUIT   4=MESSAGE  5=DISPLAY  6=MENU   8=FWD   11=HEADER

```

Type **qfile** in the command line to proceed to the Qfile Processing screen.

```

CA-OLQ Release 15.0                                     *** Display Report ***
-> qfile                                               Page 1 Line 1
133015 Default SUMMARY report columns selected
125000 Press the ENTER key to go to the next page of the report.
EMPLOYEE/EMPOSITION REPORT
02/20/99

          GRADE                SAL.
          _____            AMOUNT
          11                AVE FOR 11: 13166.66
          12                AVE FOR 12: 14125.00
          13                AVE FOR 13: 14875.00
          21                AVE FOR 21: 18583.33
          22                AVE FOR 22: 22500.00
          33                AVE FOR 33: 38166.66

- 1 -
1=HELP    3=QUIT    4=MESSAGE    6=MENU    8=FWD    10=LEFT    11=RIGHT
    
```

### 9.5.3 Step 3 - Replace the Qfile definition

In this step you override the SALARY command file with the commands used to make the current report.

Specify **Replace**. Select the **SALARY** qfile.

```

CA-OLQ Release 15.0                                     *** QFILE Processing ***
->                                               Page 1 of 1
140000 Select function and press the ENTER key

User: SYB
Dictionary name: TSTDICT                            Dictionary node:

Function:      _ Execute      _ Create      x Replace      _ Delete
              _ Execute with new criteria  _ List        _ Edit
              _ Execute batch

Routine name:
Comments:

VERSION COMMENTS
SELECT ROUTINE
- DEPARTMENT 1
- MANAGERS 1
- NEW EMPLOYEES 1
- SALARY GRADE 1 SALARY SUMMARY COMPUTATIONS
x SALARY 1 EXAMPLE

1=HELP          3=QUIT          4=MESSAGE          6=MENU
    
```

CA-OLQ responds with a message that the qfile has been replaced.

```
CA-OLQ Release 15.0                                *** QFILE Processing ***
->                                                    Page 1 of 1
109017 Requested operation for SALARY(1) has been successfully completed
140000 Select function and press the ENTER key
User: SYB
Dictionary name: TSTDICT                            Dictionary node:
Function:      _ Execute      _ Create      _ Replace      _ Delete
              _ Execute with new criteria  _ List        _ Edit
              _ Execute batch
Routine name:                                       Version:
Comments:
SELECT ROUTINE          VERSION  COMMENTS
- DEPARTMENT            1
- MANAGERS              1
- NEW EMPLOYEES         1
- SALARY GRADE          1 SALARY SUMMARY COMPUTATIONS
- SALARY                1 EXAMPLE
1=HELP                  3=QUIT                  4=MESSAGE                6=MENU
```

## 9.6 Looking at your Qfile definition syntax

**Where are qfile definitions stored?:** When you create a qfile, CA-OLQ takes all the commands used in your current session and saves them as CA-OLQ syntax statements in the data dictionary. Definitions stored in the data dictionary are accessed using a CA product called the Integrated Data Dictionary (IDD).

**How to look at your qfile definition:** Using the **List** option on the Qfile Processing screen, you can switch from CA-OLQ to IDD to see how your qfile commands are stored in the data dictionary.

►► For more information on IDD refer to the *CA-IDMS IDD DDDL Reference Guide*.

**Note:** Depending on the security level that has been assigned to you, you may or may not be able to access your qfile definition in IDD. If your specifying **List** or **Edit** on the Qfile Processing screen does not switch you out of CA-OLQ, you probably do not have authority to access IDD.

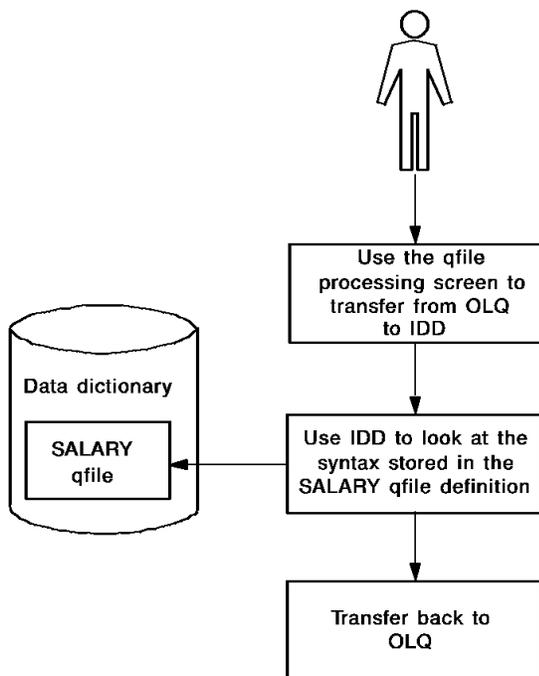


Figure 9-6. Looking at Qfile Syntax

In this example, you see how the SALARY qfile is stored in the data dictionary by using the following steps:

1. Switch to IDD using the **List** option on the Qfile Processing screen.
2. Look at the SALARY qfile definition in IDD.

3. Transfer from IDD back to CA-OLQ.

### 9.6.1 Step 1 - Switch to IDD

Select **List** and the **SALARY** qfile.

```

CA-OLQ Release 15.0                *** QFILE Processing ***
->                                Page 1 of 1
109017 Requested operation for SALARY (1) has been successfully completed
140000 Select function and press the ENTER key
User: SYB
Dictionary name: TSTDICT           Dictionary node:

Function:  _ Execute      _ Create      _ Replace      _ Delete
           _ Execute with new criteria  x List        _ Edit
           _ Execute batch

Routine name:                      Version:
Comments:

SELECT ROUTINE                VERSION  COMMENTS
_ DEPARTMENT                  1
_ MANAGERS                    1
_ NEW EMPLOYEES               1
_ SALARY GRADE                 1 SALARY SUMMARY COMPUTATIONS
x SALARY                      1 EXAMPLE

1=HELP          3=QUIT          4=MESSAGE          6=MENU

```

### 9.6.2 Step 2 - View your Qfile in IDD

In this step, you look at your qfile definition:

- **To page forward** through the qfile definition, press [PF8].
- **To page backward**, press [PF7].

Note that whenever CA-OLQ retrieves data from the database, it creates a Structured Query Language (SQL) SELECT statement. The data retrieval selection criteria that you specified on the Column Select screen are specified in the WHERE clause of the SELECT statement.

►► For a more detailed explanation of this and other CA-OLQ syntax statements, refer to the *CA-OLQ Reference Guide*.

Your qfile syntax includes a SELECT (OLQ access mode) statement. The WHERE clause specifies data retrieval selection criteria.

```

                                IDD 15.0 ONLINE      PAGE 2 LINE 1      END OF COMPILER
**
** SET DICTNAME TSTDICT
** SET UNDERLINE '-'
** SET ACCESS OLQ
** SIGNON SS EMPSS01  SCHEMA EMPSCHM ( 100)
** OPTIONS ALL HEADER ECHO NOFILLER FULL WHOLE INTERRUPT OLQHEADER
** NOPATHSTAT NOSTAT COMMENT VERBOSE NODBKEY PICTURE CODETAB NOSYN
** SELECT EMPLOYEE.EMP-FIRST-NAME-0415 EMPLOYEE.EMP-LAST-NAME-0415 EMPLOYEE.ST
** -YEAR-0415 EMPLOYEE.START-MONTH-0415 EMPLOYEE.START-DAY-0415 EMPOSITION.SAL
** -GRADE-0420 EMPOSITION.SALARY-AMOUNT-0420 EMPOSITION.BONUS-PERCENT-0420 FRO
** MPLOYEE, EMPOSITION WHERE (EMP-EMPOSITION.EMPLOYEE.EMPOSITION)
** PAGE HEADER BLANK LINES AFTER 1  -
** LINE 1 'EMPLOYEE/EMPOSITION REPORT'  CENTER -
** LINE 2 '$DATE'  CENTER
** PAGE FOOTER BLANK LINES BEFORE 1  -
** LINE 1 '- $PAGE -'  CENTER
** EDIT EMP-FIRST-NAME-0415  -
**     ALIGN LEFT  -
**     OLQHEADER 'FIRST'-
**             'NAME'-
**     PICTURE 'X(10) '
** EDIT EMP-LAST-NAME-0415  -
**     ALIGN LEFT  -
**     OLQHEADER 'LAST'-

```

### 9.6.3 Step 3 - Leave IDD

In this step, you switch from IDD back to CA-OLQ.

Type **end** in the command line.

```

end                                IDD 15.0 ONLINE      PAGE 2 LINE 1      END OF COMPILER
**
** SET DICTNAME TSTDICT
** SET UNDERLINE '-'
** SET ACCESS OLQ
** SIGNON SS EMPSS01  SCHEMA EMPSCHM ( 100)
** OPTIONS ALL HEADER ECHO NOFILLER FULL WHOLE INTERRUPT CA-OLQHEADER
** NOPATHSTAT NOSTAT COMMENT VERBOSE NODBKEY PICTURE CODETAB NOSYN
** SELECT EMPLOYEE.EMP-FIRST-NAME-0415 EMPLOYEE.EMP-LAST-NAME-0415 EMPLOYEE.ST
** -YEAR-0415 EMPLOYEE.START-MONTH-0415 EMPLOYEE.START-DAY-0415 EMPOSITION.SAL
** -GRADE-0420 EMPOSITION.SALARY-AMOUNT-0420 EMPOSITION.BONUS-PERCENT-0420 FRO
** MPLOYEE, EMPOSITION WHERE (EMP-EMPOSITION.EMPLOYEE.EMPOSITION)
** PAGE HEADER BLANK LINES AFTER 1  -
** LINE 1 'EMPLOYEE/EMPOSITION REPORT'  CENTER -
** LINE 2 '$DATE'  CENTER
** PAGE FOOTER BLANK LINES BEFORE 1  -
** LINE 1 '- $PAGE -'  CENTER
** EDIT EMP-FIRST-NAME-0415  -
**     ALIGN LEFT  -
**     CA-OLQHEADER 'FIRST'-
**             'NAME'-
**     PICTURE 'X(10) '
** EDIT EMP-LAST-NAME-0415  -
**     ALIGN LEFT  -
**     CA-OLQHEADER 'LAST'-

```

## 9.7 Modifying your Qfile definition syntax

In this example, you edit the SALARY qfile definition in the data dictionary using the following steps:

1. Switch to IDD using the **Edit** field on the Qfile Processing screen.
2. Modify the SALARY qfile definition.
3. Replace the SALARY qfile definition.
4. Switch from IDD back to CA-OLQ.

### 9.7.1 Step 1 - Switch to IDD

In this step, you suspend your current CA-OLQ session and transfer to the Integrated Data Dictionary (IDD).

Select **Edit** and the **SALARY** qfile.

```

CA-OLQ Release 15.0                               *** QFILE Processing ***
->                                                    Page    1 of    1
140000 Select function and press the ENTER key

User: SYB
Dictionary name: TSTDICT                          Dictionary node:

Function:  _ Execute          _ Create          _ Replace          _ Delete
           _ Execute with new criteria  _ List            x Edit
           _ Execute batch

Routine name:                                     Version:
Comments:

SELECT ROUTINE          VERSION  COMMENTS
- DEPARTMENT            1
- MANAGERS              1
- NEW EMPLOYEES        1
- SALARY GRADE         1 SALARY SUMMARY COMPUTATIONS
x SALARY                1 EXAMPLE

1=HELP          3=QUIT          4=MESSAGE          6=MENU

```

**Tip:** When you first see the qfile definition, erase the first three lines (those that sign you on to IDD, specify the dictionary name, and display the qfile). After you have erased these lines, your first line should begin with the verb **MODIFY**. If you don't do this, IDD will see **DISPLAY** as the first verb when you press [Enter], and will redisplay the qfile (without the changes you have made).

In this example, **VERB MODIFY** means that the qfile definition can be updated. Press [PF8] to scroll to the next page.

```
          IDD 15.0 ONLINE          NO ERRORS          DICT=TSTDICT          1/86
SIGNON DICTNAME= TSTDICT NODENAME= ' ' USA UPD.
DISPLAY QFILE 'SALARY'          ' VERSION          1 AS SYN VERB MODIFY
.
MODIFY
QFILE NAME IS SALARY VERSION IS 1
LANGUAGE IS OLQ
TEXT IS OLQ
** DATE CREATED IS          02/20/91
** DATE LAST UPDATED IS 02/20/91
** TIME LAST UPDATED IS 11160166
** PREPARED BY SYB
** REVISED BY SYB
DESCRIPTION IS OLQ
USER IS SYB
REGISTERED FOR ALL
RESPONSIBLE FOR CREATION
AND UPDATE
AND DELETION
TEXT IS OLQ
PUBLIC ACCESS IS ALLOWED FOR ALL
** ACCESSED BY USER SYB
COMMENTS
'EXAMPLE'
```

### 9.7.2 Step 2 - Modify the SALARY Qfile definition

In this step, you change the SALARY qfile definition using the following steps:

1. Press [PF4] to supply space to type in your changes.
2. Add a restriction to the SELECT statement WHERE clause that limits retrieval to salary grades higher than 18.
3. Press [PF5] to apply the change.

►► For more information on how to change dictionary definitions in IDD, refer to the *CA-IDMS Online Compiler Text Editor*.

In this example, your qfile syntax includes a SELECT (OLQ access mode) statement. Position the cursor on the line that contains the WHERE clause. Press [PF4] to insert additional criteria.

IDD 15.0 ONLINE PAGE 2 LINE 1 DICT=TSTDICT 24/86  
 QFILE SOURCE FOLLOWS

```

SET DICTNAME TSTDICT
SET UNDERLINE '-'
SET ACCESS OLQ
SIGNON SS EMPSS01 SCHEMA EMPSCHM ( 100)
OPTIONS ALL HEADER ECHO NOFILLER FULL WHOLE INTERRUPT OLQHEADER -
NOPATHSTAT NOSTAT COMMENT VERBOSE NODBKEY PICTURE CODETAB NOSYN
SELECT EMPLOYEE.EMP-FIRST-NAME-0415 EMPLOYEE.EMP-LAST-NAME-0415 EMPLOYEE.START-
-YEAR-0415 EMPLOYEE.START-MONTH-0415 EMPLOYEE.START-DAY-0415 EMPOSITION.SALARY-
-GRADE-0420 EMPOSITION.SALARY-AMOUNT-0420 EMPOSITION.BONUS-PERCENT-0420 FROM E-
MPLOYEE, EMPOSITION W HERE (EMP-EMPOSITION.EMPLOYEE.EMPOSITION)
PAGE HEADER BLANK LINES AFTER 1 -
LINE 1 'EMPLOYEE/EMPOSITION REPORT' CENTER -
LINE 2 '$DATE' CENTER
PAGE FOOTER BLANK LINES BEFORE 1 -
LINE 1 '- $PAGE -' CENTER
EDIT EMP-FIRST-NAME-0415 -
ALIGN LEFT -
OLQHEADER 'FIRST'-
'NAME'-
PICTURE 'X(10)'
EDIT EMP-LAST-NAME-0415 -
ALIGN LEFT -

```

Type a blank over the closing parenthesis on the WHERE clause. Add **AND SALARY-GRADE-0420 GT 18** to the WHERE clause. Don't forget the closing parenthesis. Then press [PF5] to apply the change.

IDD 15.0 ONLINE PAGE 2 LINE 11 DICT=TSTDICT 34/86  
 EMPLOYEE, EMPOSITION WHERE (EMP-EMPOSITION.EMPLOYEE.EMPOSITION and salary-grade  
 -0420 gt 18)

### 9.7.3 Step 3 - Replace the SALARY Qfile definition

In this step, you replace the qfile definition in the data dictionary.

Press [PF6] to replace the qfile definition in the data dictionary.

```

                                IDD 15.0 ONLINE      PAGE 2 LINE 11 DICT=TSTDICT   34/91
EMPLOYEE, EMPOSITION WHERE (EMP-EMPOSITION.EMPLOYEE.EMPOSITION AND SALARY-GRADE
-0420 GT 18)
PAGE HEADER BLANK LINES AFTER 1 -
LINE 1 'EMPLOYEE/EMPOSITION REPORT' CENTER -
LINE 2 '$DATE' CENTER
PAGE FOOTER BLANK LINES BEFORE 1 -
LINE 1 '- $PAGE -' CENTER
EDIT EMP-FIRST-NAME-0415 -
    ALIGN LEFT -
    OLQHEADER 'FIRST'-
        'NAME'-
    PICTURE 'X(10)'
EDIT EMP-LAST-NAME-0415 -
    ALIGN LEFT -
    OLQHEADER 'LAST'-
        'NAME'-
    PICTURE 'X(15)'
EDIT START-YEAR-0415 -
    ALIGN RIGHT -
    OLQHEADER ' '-
    PICTURE '99'
EDIT START-MONTH-0415 -
    ALIGN RIGHT -

```

IDD responds with the message NO ERRORS on the top line of the screen.

```

                                IDD 15.0 ONLINE      NO ERRORS      DICT=TSTDICT
SIGNON DICTNAME= TSTDICT  NODENAME= ' '          USA UPD.
DISPLAY QFILE 'SALARY'                                ' VERSION    1 AS SYN VERB MODIF
.
MODIFY
QFILE NAME IS SALARY VERSION IS 1
LANGUAGE IS OLQ
TEXT IS OLQ
**  DATE CREATED IS      02/20/91
**  DATE LAST UPDATED IS 02/20/91
**  TIME LAST UPDATED IS 11160166
**  PREPARED BY SYB
**  REVISED BY SYB
DESCRIPTION IS OLQ
USER IS SYB
REGISTERED FOR ALL
RESPONSIBLE FOR CREATION
AND UPDATE
AND DELETION
TEXT IS OLQ
PUBLIC ACCESS IS ALLOWED FOR ALL
**  ACCESSED BY USER SYB
COMMENTS
'EXAMPLE'

```

## 9.7.4 Step 4 - Switch from IDD back to CA-OLQ

In this step, you terminate your IDD session and switch back to the Qfile Processing screen.

Type **end** in the command line to get back to CA-OLQ.

```

end          IDD 15.0 ONLINE      NO ERRORS      DICT=TSTDICT
SIGNON DICTNAME= TSTDICT  NODENAME= ' '  USA UPD.
DISPLAY QFILE 'SALARY'          ' VERSION      1 AS SYN VERB MODIF
.
  MODIFY
  QFILE NAME IS SALARY  VERSION IS 1
  LANGUAGE IS OLQ
  TEXT IS OLQ
**  DATE CREATED IS      02/20/91
**  DATE LAST UPDATED IS 02/20/91
**  TIME LAST UPDATED IS 11160166
**  PREPARED BY SYB
**  REVISED  BY SYB
  DESCRIPTION IS OLQ
  USER IS SYB
      REGISTERED FOR ALL
      RESPONSIBLE FOR CREATION
      AND UPDATE
      AND DELETION
      TEXT IS OLQ
  PUBLIC ACCESS IS ALLOWED FOR ALL
**  ACCESSED BY USER SYB
  COMMENTS
    'EXAMPLE'

```

CA-OLQ redisplay the Qfile Processing screen.

```

CA-OLQ Release 15.0                                     *** QFILE Processing ***
->                                                       Page    1 of    1
140000 Select function and press the ENTER key

User: SYB
Dictionary name: TSTDICT                               Dictionary node:

Function:  _ Execute      _ Create      _ Replace      _ Delete
           _ Execute with new criteria  _ List         _ Edit
           _ Execute batch

Routine name:                                          Version:
Comments:

SELECT ROUTINE          VERSION  COMMENTS
- DEPARTMENT            1
- MANAGERS              1
- NEW EMPLOYEES        1
- SALARY GRADE         1 SALARY SUMMARY COMPUTATIONS
- SALARY               1 EXAMPLE

1=HELP          3=QUIT          4=MESSAGE      6=MENU

```

## 9.8 Executing a Qfile in Batch Mode

**When do you use batch?:** If you have a qfile that you know is going to access a large amount of data, or if you want to execute your qfile overnight, the batch option is the most efficient operating method. Executing a job in batch mode frees computer resources for other users. Your DBA can help you decide when to execute your qfile in batch.

Because using batch requires advance preparation by your DBA, you will not actually execute a qfile in this example. This example shows you the CA-OLQ tools you need to know about to execute a qfile in batch mode.

You will:

1. Select a qfile.
2. Transfer to the Batch Processing screen.

### 9.8.1 Step 1 - Select a Qfile

Select **Execute batch** and select the **SALARY** qfile.

```

CA-OLQ Release 15.0                               *** QFILE Processing ***
->                                                  Page    1 of    1
140000 Select function and press the ENTER key

User: SYB
Dictionary name: TSTDICT                          Dictionary node:

Function:  _ Execute      _ Create      _ Replace      _ Delete
           _ Execute with new criteria  _ List         _ Edit
           x Execute batch

Routine name:
Comments:

SELECT ROUTINE          VERSION  COMMENTS
- DEPARTMENT            1
- MANAGERS              1
- NEW EMPLOYEES        1
- SALARY GRADE         1 SALARY SUMMARY COMPUTATIONS
x SALARY                1 EXAMPLE

1=HELP          3=QUIT          4=MESSAGE          6=MENU

```

The default values for executing a qfile in batch are displayed when you access this screen from the Qfile Processing screen.

```

CA-OLQ Release 15.0                                     *** Batch Processing ***
->                                                    Page 1 of 1
132000 Select activity, output selection and press the ENTER key

Password:                Job control module: OLQBATCH-JCL-SYB
Select activity:
  _ Submit current report request and comments
  X Submit OLQ syntax

To automatically generate output syntax:
X Display (Output to SYSLST)
  _ Print (DC printer) Class:           Dest:
  _ Save report      Name :

Enter OLQ Syntax/Comments:
> QFIL 'SALARY '(1) DICT TSTDICT DICTNO ' '
>
>
>
>
>
>
1=HELP                3=QUIT                4=MESSAGE                6=MENU

```

## 9.8.2 Step 2 - Using the Batch Processing screen

To execute a qfile in batch mode:

1. Enter your user password.
2. Make sure that the proper Job Control Module is displayed. Ask your DBA to make sure you have the right name.
3. Select an output destination, or accept the default destination that has been listed for you. In addition, the output of the batch job is always displayed at your terminal.
4. Check to see if the correct qfile name is listed in the **Enter OLQ Syntax/Comments:** field.
5. Press [Enter] to initiate your batch job.

►► For more information on how to use batch processing in CA-OLQ, refer to Chapter 12, “How to Use CA-OLQ in Batch Mode” on page 12-1.

## 9.9 Deleting a Qfile

When you delete a qfile, CA-OLQ does the following:

- Deletes the qfile definition in the data dictionary
- Removes the name of the definition from the list of qfiles on the Qfile screen

In this example, you delete a qfile using the Qfile Processing screen.

Start on the Qfile Processing screen. To get there, type **qfile** in the command line of any screen.

Select **Delete** and select the **SALARY** qfile.

```

CA-OLQ Release 15.0                               *** QFILE Processing ***
->                                                    Page 1 of 1
140000 Select function and press the ENTER key

User: SYB
Dictionary name: TSTDICT                          Dictionary node:

Function:  _ Execute          _ Create          _ Replace      x Delete
           _ Execute with new criteria  _ List         _ Edit
           _ Execute batch

Routine name:                                     Version:
Comments:

SELECT ROUTINE          VERSION  COMMENTS
- DEPARTMENT            1
- MANAGERS              1
- NEW EMPLOYEES        1
- SALARY GRADE         1 SALARY SUMMARY COMPUTATIONS
- SALARY                1 EXAMPLE

1=HELP          3=QUIT          4=MESSAGE          6=MENU

```

CA-OLQ responds with a message indicating that the qfile definition has been deleted. The name of the qfile is deleted from the list of routine names.

```
CA-OLQ Release 15.0                *** QFILE Processing ***
->                                  Page 1 of 1
109017 Requested operation for SALARY (1) has been successfully completed
140000 Select function and press the ENTER key
User: SYB
Dictionary name: TSTDICT             Dictionary node:

Function:  _ Execute      _ Create      _ Replace      _ Delete
           _ Execute with new criteria  _ List         _ Edit
           _ Execute batch

Routine name:                        Version:
Comments:

SELECT ROUTINE          VERSION  COMMENTS
- DEPARTMENT            1
- MANAGERS              1
- NEW EMPLOYEES        1
- SALARY GRADE         1 SALARY SUMMARY COMPUTATIONS

1=HELP          3=QUIT          4=MESSAGE          6=MENU
```



# Chapter 10. How to Make a Report from Database Records

---

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---

**In this chapter** Using CA-OLQ, you can report on records stored in a CA-IDMS/DB database.

**Access mode:** This chapter only applies when the access switch is set to **OLQ**.

►► For information about setting the access switch, see 3.3.1, “Step 1 — Select the type of table” on page 3-15.

For example, you can make an employee report based on data retrieved from the EMPLOYEE record.

---

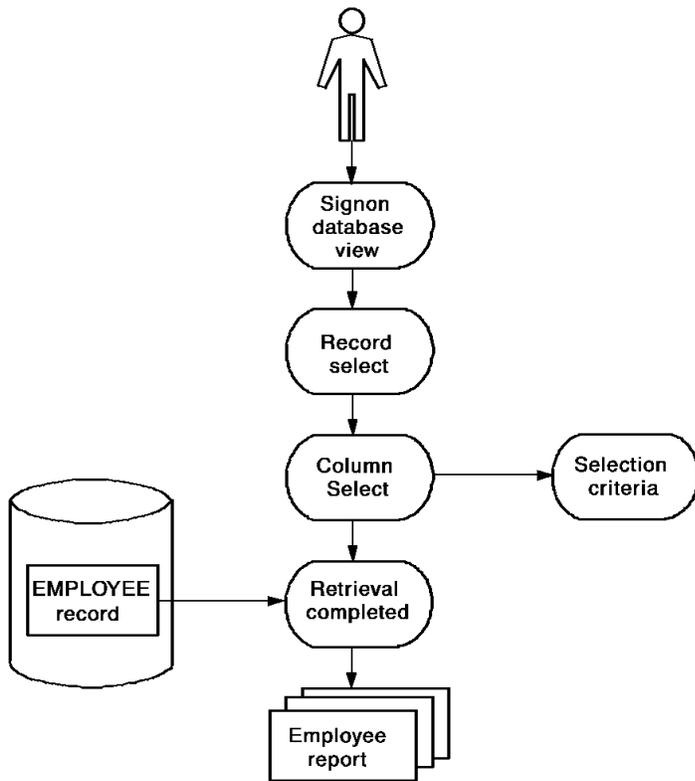


Figure 10-1. Creating a Report

---

## 10.1 Key terms

Here are some of the terms used to discuss making a report from database records:

**Database view:** A more descriptive term for subschema. The two terms are used interchangeably.

**Element:** The smallest significant unit of data in a CA-IDMS/DB database. Record elements correspond to columns in a table. For example, the record element DEPT-ID-0410 corresponds to the DEPARTMENT ID column in a table.

**Record:** A group of related elements. For example, the DEPT-NAME-0410, DEPT-ID-0410, and DEPT-HEAD-ID-0410 elements are all grouped into the DEPARTMENT record. Records correspond to rows in a table. For example, the record element DEPT-NAME-0410 corresponds to the DEPARTMENT NAME column in a table.

**Selection criteria:** A logical expression that you use to tell CA-OLQ which rows of data to retrieve for your report.

**Additional selection criteria:** A logical expression that you use to tell CA-OLQ which rows of data to retrieve for your report. Unlike selection criteria, you can also use:

- Logical record keywords
- Criteria expressions for subscripted fields

**Subschema:** A view of the database that contains a subset of the records, elements, sets, and areas that make up the entire database. A subschema usually views functionally related data.

For example, the personnel department uses a subschema that views employee information such as salary, date of hire, and personal information. All of the information used by the corporation (sales, accounting, and personnel) are held in the same database, but the personnel department views only the information that it needs.

▶▶

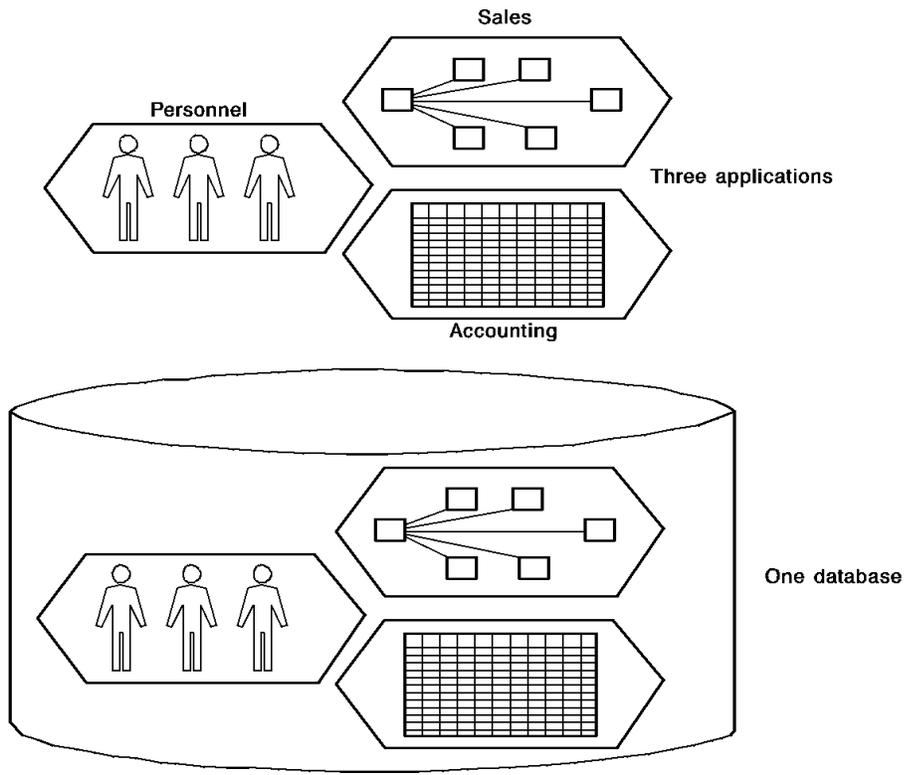


Figure 10-2. Using Subschemas

## 10.2 Creating a report

In this sample, you create a report using the following steps:

1. Select a subschema.
2. Choose the records you want to include in your report.
3. Select which columns you want to display and specify selection criteria.
4. Retrieve the data from the database and display your report.

### 10.2.1 Step 1 — Choose a subschema.

In this step, you select a subschema that views employee information.

Select the EMPSS01 subschema.

```

CA-OLQ Release 15.0                               *** Signon Database View ***
->                                                    Page   3  OF   4
121000 Select a subschema and press the ENTER key

Dictionary name . . : TSTDICT           Dictionary node name . . :
Database name . . . :                   Database node name . . . :

Specify Subschema :                       of Schema . . . : EMPSCHM  Version : 100
-or-
Select subschema:                          Description:
x  EMPSS01  OF  EMPSCHM  VER  100  DEPARTMENT AND EMPLOYEE INFORMATION
_  FINAN01  OF  EMPSCHM  VER  100  3Q91
_  SALES01  OF  EMPSCHM  VER  100  SALES QUOTAS

1=HELP      3=QUIT      4=MESSAGE      6=MENU      7=BWD      8=FWD      PA2=REFRESH

```

### 10.2.2 Step 2 — Select your records

In this step, you specify that you want to report on the EMPLOYEE and OFFICE records.

```

CA-OLQ Release 15.0                               *** Record Select ***
->                                                Page 1 of 1
123000 Select records and press the ENTER key

Enter records :                                Records currently selected: 0

-and/or-
Select records :
- COVERAGE
- DENTAL-CLAIM
- DEPARTMENT
x EMPLOYEE
- EMPOSITION
- EXPERTISE
- HOSPITAL-CLAIM
- INSURANCE-PLAN
- JOB
- NON-HOSP-CLAIM
x OFFICE
- SKILL
- STRUCTURE

1=HELP      3=QUIT      4=MESSAGE      6=MENU      PA2=REFRESH

```

### 10.2.3 Step 3 — Choose columns and specify selection criteria

In this step, you:

1. Choose which columns you want to display in the report.
2. Specify retrieval selection criteria that restrict what data is retrieved from the data-base. In this sample, your selection criteria limit the report to those employees from Boston.

```

CA-OLQ Release 15.0                               *** Column Select ***
->                                                Page 1 of 2
124000 Select columns, specify selection criteria and press the ENTER key

Columns currently selected: 0      Selection criteria
EMPLOYEE
x 02 EMP-ID-0415                    *
- 02 EMP-NAME-0415
- 03 EMP-FIRST-NAME-0415            *
x 03 EMP-LAST-NAME-0415            *
- 02 EMP-ADDRESS-0415
- 03 EMP-STREET-0415
x 03 EMP-CITY-0415                  eq boston
- 03 EMP-STATE-0415
- 03 EMP-ZIP-0415
- 04 EMP-ZIP-FIRST-FIVE-0415
- 04 EMP-ZIP-LAST-FOUR-0415
x 02 EMP-PHONE-0415
- 02 STATUS-0415
Additional Selection Criteria:

Proceed to Selection Criteria Screen? N Y/N
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      PA2=REFRESH

```

**More about selection criteria:** Selection criteria are logical expressions you use to tell CA-OLQ which rows of data you want to include in your report. You don't have to specify any selection criteria. If you don't, CA-OLQ retrieves all rows from the record.

If you specify...

Your report looks like...

<p>EMP-ID-0415 EQ '0075' →</p> <p>EMP-CITY-0415 EQ 'SHELBURNE FALLS' →</p> <p>EMP-STATE-0415 NE 'MA' →</p> <p>EMP-CITY-0415 MATCHES "WAL@@@@" →</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">EMPLOYEE Report 3/20/99</th> </tr> <tr> <th style="text-align: left;">Emp ID</th> <th style="text-align: left;">Last Name</th> <th style="text-align: left;">City</th> <th style="text-align: left;">State</th> </tr> </thead> <tbody> <tr> <td>0075</td> <td>Lanzarotta</td> <td>Lowell</td> <td>MA</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">EMPLOYEE Report 3/20/99</th> </tr> <tr> <th style="text-align: left;">Emp ID</th> <th style="text-align: left;">Last Name</th> <th style="text-align: left;">City</th> <th style="text-align: left;">State</th> </tr> </thead> <tbody> <tr> <td>3302</td> <td>Elopoulos</td> <td>Shelburne Falls</td> <td>MA</td> </tr> <tr> <td>3871</td> <td>Mahoney</td> <td>Shelburne Falls</td> <td>MA</td> </tr> <tr> <td>4230</td> <td>Ho</td> <td>Shelburne Falls</td> <td>MA</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">EMPLOYEE Report 3/20/99</th> </tr> <tr> <th style="text-align: left;">Emp ID</th> <th style="text-align: left;">Last Name</th> <th style="text-align: left;">City</th> <th style="text-align: left;">State</th> </tr> </thead> <tbody> <tr> <td>2789</td> <td>Vangelis</td> <td>Buckatunna</td> <td>MS</td> </tr> <tr> <td>5558</td> <td>Runningbrook</td> <td>Casper</td> <td>WY</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">EMPLOYEE Report 3/20/99</th> </tr> <tr> <th style="text-align: left;">Emp ID</th> <th style="text-align: left;">Last Name</th> <th style="text-align: left;">City</th> <th style="text-align: left;">State</th> </tr> </thead> <tbody> <tr> <td>1164</td> <td>Rokoski</td> <td>Waltham</td> <td>MA</td> </tr> <tr> <td>2112</td> <td>Walesa</td> <td>Walden</td> <td>MA</td> </tr> <tr> <td>3881</td> <td>Li</td> <td>Walpole</td> <td>MA</td> </tr> <tr> <td>4003</td> <td>Barrett</td> <td>Waltham</td> <td>MA</td> </tr> </tbody> </table>	EMPLOYEE Report 3/20/99				Emp ID	Last Name	City	State	0075	Lanzarotta	Lowell	MA	EMPLOYEE Report 3/20/99				Emp ID	Last Name	City	State	3302	Elopoulos	Shelburne Falls	MA	3871	Mahoney	Shelburne Falls	MA	4230	Ho	Shelburne Falls	MA	EMPLOYEE Report 3/20/99				Emp ID	Last Name	City	State	2789	Vangelis	Buckatunna	MS	5558	Runningbrook	Casper	WY	EMPLOYEE Report 3/20/99				Emp ID	Last Name	City	State	1164	Rokoski	Waltham	MA	2112	Walesa	Walden	MA	3881	Li	Walpole	MA	4003	Barrett	Waltham	MA
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4003	Barrett	Waltham	MA																																																																						

**How to specify selection criteria:** Each column has its own **Selection criteria** field. If you want to retrieve rows based on the value in a certain column, fill in the **Selection criteria** field next to that column. For example:

	Selection criteria	
X 02 COLUMN1		
- 02 COLUMN2		
X̄ 02 COLUMN3	= 2000	
X 02 COLUMN4	> 5 * COLUMN1	

The following table gives examples of the types of operators you can include in your selection criteria.

Type of Operator	Operator	Description	Example
Logical comparison operators	=	Equal to	= 100 = 100 to 500 (exclusive) = 100 thru 500 (inclusive)
	≠	Not equal to	≠ COLUMN2
	>	Greater than	> COLUMN1 * COLUMN2
	>=	Greater than or equal to	>= COLUMN4 + 100
	<	Less than	< COLUMN4 - COLUMN1
	<=	Less than or equal to	<= 750 / COLUMN4
Arithmetic operators	+	Addition	COLUMN1 + COLUMN2
	-	Subtraction	COLUMN1 - 5
	*	Multiplication	COLUMN1 * 1/2
	/	Division	COLUMN1/COLUMN2
MATCHES and CONTAINS characters	*	Stands for any character	contains "Z**05"
	@	Stands for any alphabetic character	matches "NEW@@@@@@@@@"
	#	Stands for any numeric character	matches "669####"

**The IN clause:** You can include the IN clause in your selection criteria. The IN clause is a subset of the SQL SELECT statement that compares your column value to a list of data values.

►► For complete syntax and syntax rules, refer to the *CA-OLQ Reference Guide*.

**IN IN** yields a true comparison if the column value matches one or more of the data values. For example, you can compare the value of the EMP-LAST-NAME field to the following IN clause:

```
IN ('JONES', 'TANAKA', 'ANDERSON')
```

**NOT IN NOT IN** yields a true comparison if the column value does not match or more of the data values. For example, you can compare the value of the EMP-LAST-NAME field to the following IN clause:

```
NOT IN ('JONES', 'TANAKA', 'ANDERSON')
```

**The LIKE clause:** You can also include the LIKE clause in your selection criteria. The LIKE clause is a subset of the SQL SELECT statement that searches for a pattern string.

►► For complete syntax and syntax rules, refer to the *CA-OLQ Reference Guide*.

**How to use the LIKE clause:** Your LIKE clause contains two parts:

- The **LIKE/NOT LIKE** keywords
- A **pattern string**

**LIKE:** LIKE determines whether a column expression contains a pattern string. LIKE yields a true comparison if the column contains the pattern. For example, you can compare the EMP-LAST-NAME field to the following LIKE clause:

```
LIKE 'MAC%'
```

This comparison is true if the last name is any number of characters long and begins with the string MAC.

**NOT LIKE:** NOT LIKE yields a true comparison if the column does not contain the pattern. For example, you can compare the OFFICE-CODE field to the following NOT LIKE clause:

```
NOT LIKE '002'
```

This comparison is true if the office code is anything except for 002.

**Pattern string:** The pattern string is what is compared to the column value. The pattern can contain:

- **Alphanumeric characters** for an exact match
- **Special characters** used as wild cards
- **An escape character** to exactly match the special characters

The LIKE clause is summarized in the table below.

Object String	Pattern String	Example of Syntax	Example of True comparison
Underscore ( _ )	Any single character	NAME LIKE 'S__'	True if NAME is exactly 3 characters long and the first character is S
Percent sign (%)	Any sequence of zero or more characters	NAME LIKE '%C__'	True if NAME is 3 or more characters long and the third from last character is C
Single alphanumeric character	Exact match to that alphanumeric character	NAME LIKE 'MAC'	True if NAME is MAC
Escape character + underscore ( _ )	Exact match to the underscore ( _ )	PARTNUM LIKE '*_115' ESCAPE '*_1'	True if PARTNUM is __115
Escape character + percent sign (%)	Exact match to the percent sign (%)	PARTNUM LIKE '*%15' ESCAPE '*_1'	True if PARTNUM is *%15
Escape character alone	Exact match to the escape character	PARTNUM LIKE '***'	True if PARTNUM is ***

<sup>1</sup>The escape character can be any single alphanumeric character and is set by specifying ESCAPE '*escape-character*' in your SELECT statement.

**The AND operator:** If you enter selection criteria for more than one column, CA-OLQ combines the expressions by placing the AND operator between them. AND means that a row must meet both conditions in order to be retrieved.

For example, when you specify:

```

                                Selection criteria
X  02 COLUMN1
   02 COLUMN2
X  02 COLUMN3          eq 2000
X  02 COLUMN4          gt 5 * COLUMN1

```

CA-OLQ produces:

```
COLUMN3 eq 2000 and COLUMN4 gt 5 * COLUMN1
```

**The OR operator:** You may not want to combine your expressions with AND operators. As an alternative, you can type the OR operator at the beginning of any expression. OR means that a row need only meet one of the conditions in order to be retrieved.

For example, when you specify:

```

                                Selection criteria
X 02 COLUMN1
 02 COLUMN2
X 02 COLUMN3                eq 2000
X 02 COLUMN4                or gt 5 * COLUMN1

```

CA-OLQ produces:

```
COLUMN3 eq 2000 or COLUMN4 gt 5 * COLUMN1
```

**Selection criteria for unchosen columns:** You can specify criteria for columns that do not appear on your report. CA-OLQ tests the values in such columns when it chooses which rows to retrieve, but does not display those values on the report.

**Built-in functions:** CA-OLQ provides built-in functions that you can use in your selection criteria. Built-in functions are a shorthand way of performing common calculations (such as square root) and string manipulations (such as concatenation).

►► For more information on CA-OLQ built-in functions, refer to the *CA-OLQ Reference Guide*.

## 10.2.4 Step 4 — Enter additional selection criteria

In this step, you:

Specify **Y** to proceed to the Additional selection criteria screen.

```

CA-OLQ Release 15.0                                *** Column Select ***
->                                                    Page 1 of 2
124000 Select columns, specify selection criteria and press the ENTER key

Columns Currently Selected:  0      Selection Criteria  Distinct N Y/N
EMPLOYEE
x 02 EMP-ID-0415             *
 02 EMP-NAME-0415
- 03 EMP-FIRST-NAME-0415    *
x 03 EMP-LAST-NAME-0415     *
 02 EMP-ADDRESS-0415
- 03 EMP-STREET-0415
x 03 EMP-CITY-0415          eq boston
 03 EMP-STATE-0415
 03 EMP-ZIP-0415
x 04 EMP-ZIP-FIRST-FIVE-0415
 04 EMP-ZIP-LAST-FOUR-0415
x 02 EMP-PHONE-0415
 02 STATUS-0415
Additional Selection Criteria:

Proceed to Selection Criteria Screen? Y Y/N
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      PA2=REFRESH

```

At the Selection criteria screen, specify **additional** retrieval selection criteria that restrict what data is retrieved from the database. In this sample, your additional selection criteria limit the employees whose:

- Area code (first 3 digits) is '508'
- City of residence is *not* one beginning with 'New'
- Zip code begins with a '01'

```
CA-OLQ Release 15.0                               ***Selection Criteria***
->                                                    Line   1 Of   1
146000 Type in selection criteria, and press the ENTER key.
Please Enter Additional Selection Criteria:
(EMP-PHONE-0415 MATCHES '508#####') AND (EMP-CITY-0415 NOT LIKE 'NEW%'
OR EMP-CITY-0415 NOT LIKE 'BOSTON') AND (EMP-ZIP-FIRST-FIVE LIKE
'01###')

1=HELP          3=QUIT          4=MESSAGE          6=MENU          PA2=REFRESH
```

**More about additional selection criteria:** The **Additional selection criteria** field works like the **Selection criteria** field, enabling you to enter simple and compound expressions. In addition, you can enter:

- Logical record keywords
- Criteria expressions for subscripted fields

Type of Expression	Example
Simple Expressions	COLUMN1 eq 2000 thru 5000
	not COLUMN1 eq 2000 thru 5000
Compound Expressions	(COLUMN3 eq 2000) and (COLUMN4 gt 5 * COLUMN1)
	(COLUMN3 eq 2000) or (COLUMN4 gt 5 * COLUMN1)
Logical Record Keywords	ACCOUNTANT and EMPLOYEE-ON-LEAVE
Subscripted Fields	COLUMN5(3) matches "329*****"
	(COLUMN1 eq (2 * COLUMN6(1))) or (COLUMN7 ne 1)

### 10.2.5 Step 5 — Retrieve the data and display your report

In this step, you retrieve your report data from the database and display your report.

```

CA-OLQ Release 15.0                               *** Retrieval Completed ***
->
130000 Select activity and press the ENTER key

Number of whole rows. . . . .                2  Total displayable cols .      20
Total number of records read. . . . .        57  Formatted line length. .    372
Total number of records selected. . . . .     2
Number of data errors . . . . .              0

Select Option      ---> Display/Format Activity <---      Command/Screen Name
X      Display report      DISplay
-      Save report        SAVE
-      Choose the sort sequence of report      SORT
-      Change column headers      HEAder
-      Change page header and footer      PAGE HEAder
-      Change display format of data ($,commas)  PICTure
-      Format columns (Alignment, sparse)      EDIt
-      Specify summary computations (Totals)    GROUp BY
-      Send the report to a printer      PRInt

1=HELP              3=QUIT              4=MESSAGE              6=MENU

```

```
CA-OLQ Release 15.0                *** Display Report ***
->                                Page      1 Line      1
125004 Press the ENTER key for DISPLAY/FORMAT ACTIVITY selections

                                EMPLOYEE REPORT
                                06/20/99

EMP-ID-0415 EMP-LAST-NAME-0415 EMP-CITY-0415 EMP-ZIP-FIRST-FIVE EMP-PHONE-0415
-----
      0015 LINGER                NATICK      01734      5085461414
      0013 PEOPLES              FRAMINGHAM 01818      5083291212
      0111 SANCHEZ              WESTON      01993      5084447871
END OF REPORT

                                - 1 -
1=HELP      3=QUIT      4=MESSAGE      6=MENU      10=LEFT      11=RIGHT
```



# Chapter 11. How to Save a Table From a Report

---

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- 11.2 Creating a report . . . . . 11-6
  - 11.2.1 Step 1 — Select a subschema . . . . . 11-6
  - 11.2.2 Step 2 — Select what records you want . . . . . 11-6
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- 11.4 Saving your report as an ASF table . . . . . 11-11
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- 11.6 Viewing your ASF table . . . . . 11-15



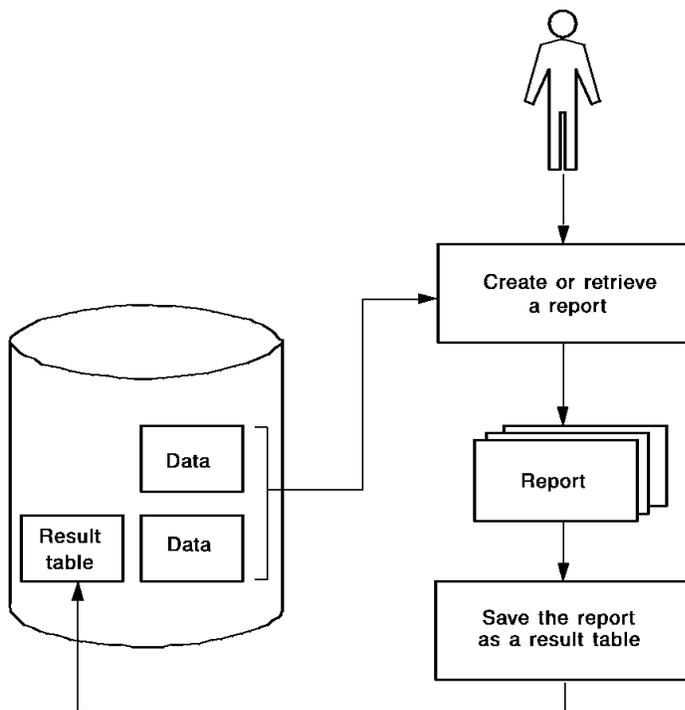
---

**In this chapter** This section shows you how to save your current report as a data table. In this example, you will:

1. Create an EMPLOYEE/OFFICE report, retrieving data from the EMPLOYEE and OFFICE records
2. Save your current report as an ASF table
3. Save your current report as an SQL table
4. View the tables you just created

In this sample, you retrieve data from database records and store it in a table format. Each column of your table corresponds to an element in one of the records you retrieved. For example, the EMP-ID-0415 column corresponds to the EMP-ID-0415 element in the EMPLOYEE record.

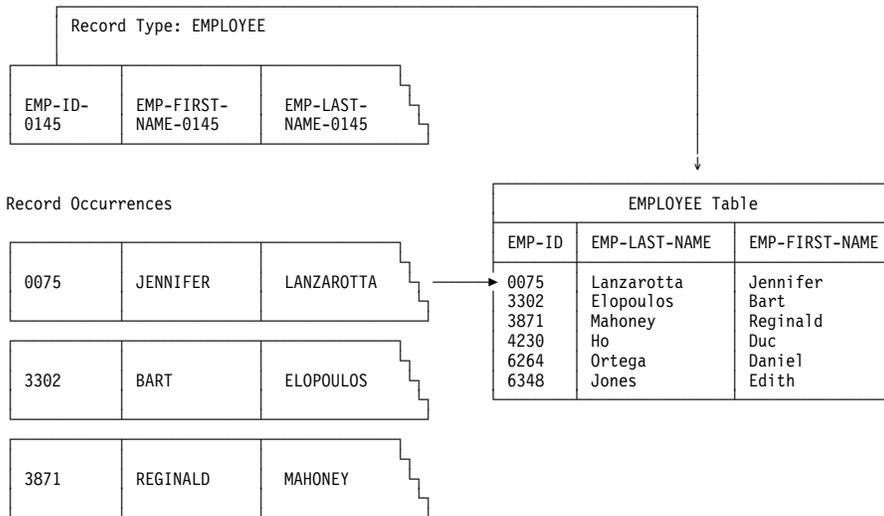
---



---

Figure 11-1. Saving a Table from Your Current Report

Each row in the table you create corresponds to a single **occurrence** of a record. For example, the table row that contains data for employee ANGELO corresponds to one occurrence each of the EMPLOYEE and OFFICE records.



## 11.1 Key terms

Some terms used to discuss saving a table from a report are:

**Automatic System Facility (ASF):** A tool in CA-IDMS/DB used to create and manage tables. You can use ASF to modify the table definition, once you have created a table using CA-OLQ.

**ASF Dictionary:** An application dictionary used by ASF. You must be using the ASF dictionary when you are creating data tables with CA-OLQ. The application dictionary contains schema definitions, subschema definitions, user information, and application definitions (such as records, maps, dialogs, and programs).

**Current report:** The report you're working on in an active CA-OLQ session. If you retrieve a saved report, CA-OLQ clears out the current report.

**Table:** A presentation of data as a series of rows and columns.

- *ASF tables* refers to tables associated with the IDMSR schema.
- *SQL tables* refers to tables associated with an SQL schema.

## 11.2 Creating a report

In this step, you create an OFFICE/EMPLOYEE report. This report retrieves information from the EMPLOYEE and OFFICE records.

### 11.2.1 Step 1 — Select a subschema

The EMPLOYEE and OFFICE records are defined in the EMPSS01 subschema for the sample employee database.

Start on the Signon Database View screen. To get there, type **sub** (for subschema) in the command line of any screen.

Select the EMPSS01 subschema.

```

CA-OLQ Release 15.0                               *** Signon Database View ***
->                                                    Page    1 OF    1
121000 Select a subschema and press the ENTER key

Dictionary name . : EMPLOYEE           Dictionary node name . :
Database name . . :                   Database node name . . :

Specify Subschema :                   of Schema . . . :       Version :
-or-
Select subschema:                      Description:
x  EMPSS01 OF EMPSCHM   VER   1
_  FINAN01 OF EMPSCHM   VER   1
_  SALES01 OF EMPSCHM   VER   1

1=HELP          3=QUIT          4=MESSAGE          6=MENU          PA2=REFRESH

```

### 11.2.2 Step 2 — Select what records you want

Select the EMPLOYEE and OFFICE records.

```

CA-OLQ Release 15.0                               *** Record Select ***
->                                                    Page 1 of 1
123000 Select records and press the ENTER key

Enter records :                                Records currently selected: 0

-and/or-
Select records :
- COVERAGE
- DENTAL-CLAIM
- DEPARTMENT
- x EMPLOYEE
- EMPOSITION
- EXPERTISE
- HOSPITAL-CLAIM
- INSURANCE-PLAN
- JOB
- NON-HOSP-CLAIM
- x OFFICE
- SKILL
- STRUCTURE

1=HELP          3=QUIT          4=MESSAGE          6=MENU          PA2=REFRESH

```

### 11.2.3 Step 3 — Select your columns

Select EMP-ID-0415 and EMP-LAST-NAME-0415 from the EMPLOYEE record. Select OFFICE-CODE-0450 and OFFICE-CITY-0450 from the OFFICE record. Press [PF8] to view more pages of the screen.

```

CA-OLQ Release 15.0                               *** Column Select ***
->                                                    Page 1 of 3
124000 Select columns, specify selection criteria and press ENTER key

Columns Currently Selected: 0      Selection Criteria  Distinct N Y/N
EMPLOYEE
- x 02 EMP-ID-0415                *
  02 EMP-NAME-0415
- 03 EMP-FIRST-NAME-0415         *
- x 03 EMP-LAST-NAME-0415        *
  02 EMP-ADDRESS-0415
  03 EMP-STREET-0415
  03 EMP-CITY-0415
  03 EMP-STATE-0415
  03 EMP-ZIP-0415
  04 EMP-ZIP-FIRST-FIVE-0415
  04 EMP-ZIP-LAST-FOUR-0415
  02 EMP-PHONE-0415
  02 STATUS-0415
Additional selection criteria:

1=HELP          3=QUIT          4=MESSAGE          6=MENU          8=FWD          PA2=REFRESH

```

## 11.2.4 Step 4 — Retrieve your data

Press [Enter] to view your report.

```

CA-OLQ Release 15.0                *** Retrieval Completed ***
->
130000 Select activity and press the ENTER key

Number of whole rows. . . . .      57 Total displayable cols .      20
Total number of records read. . . . 62 Formatted line length. .    372
Total number of records selected. . 62
Number of data errors . . . . .      0

Select                               Command/
Option    ---> Display/Format Activity <--- Screen Name

X         Display report                DISplay
-         Save report                  SAVE
-         Choose the sort sequence of report SORT
-         Change column headers        HEAdEr
-         Change page header and footer PAGE HEAdEr
-         Change display format of data ($,commas) PICTure
-         Format columns (Alignment, sparse) EDIt
-         Specify summary computations (Totals) GROUp BY
-         Send the report to a printer  PRInt

1=HELP          3=QUIT          4=MESSAGE          6=MENU

```

## 11.2.5 Step 5 — Display your report

Your report lists data from the EMPLOYEE and OFFICE records.

```

CA-OLQ Release 15.0                *** Display Report ***
->                                Page      1 Line      1
125000 Press the ENTER key to go to the next page of the report.

                OFFICE/EMPLOYEE REPORT
                07/28/96

EMP-ID-0415   EMP-LAST-NAME-0415   OFFICE-CODE-0450   OFFICE-CITY-0450
-----
      0120   ANGELO                002                BOSTON
      0007   BANK                  002                BOSTON
      0069   BLOOMER                002                BOSTON
      0081   FITZHUGH                002                BOSTON
      0045   FONRAD                  002                BOSTON
      0053   GARDNER                  002                BOSTON
      0030   HENDON                  002                BOSTON
      0100   HUTTON                   002                BOSTON
      0158   JACKSON                  002                BOSTON
      0011   JENSON                   002                BOSTON
      0051   JOHNSON                  002                BOSTON
      0049   KAHALLY                   002                BOSTON

- 1 -
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      10=LEFT      11=RIGHT

```

## 11.3 Saving your report as an SQL table

**Note:** Before beginning this step, make sure that the access switch has been set to **idms**.

►► For information on setting the access mode switch, see 3.2.1, “Step 1 — Select the type of table” on page 3-6.

In this step, you save your report as a SQL table. Type **table** in the command line to proceed to the Table Processing screen.

Select **Create**. Name your table **emp\_office**.

```

CA-OLQ Release 15.0                               *** Table Processing ***
->                                                    Page    1 of    2
138000 Select function, table(s) and press the ENTER key

Dictname: EMPLOYEE      Schema: EMPLOYEE
Function:  _ Select          x Create          Delete
           _ Add            _ Replace

Enter table:  emp_office
-or-
Select table
_ EMPLOYEE.ACCOUNTING
_ EMPLOYEE.BUDGET
_ EMPLOYEE.DEPARTMENT

1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD

```

CA-OLQ responds with a message that your table has been defined. The EMP-OFFICE table is listed.

### 11.3 Saving your report as an SQL table

---

```
CA-OLQ Release 15.0                                *** Data Table Processing ***
->                                                    Page    2 of    2
102020 The appending, replacing, or creating of an SQL table has been successful.
102021 A total of 100 rows have been inserted into the named SQL table.

Dictname:                               Schema: EMPLOYEE
Function: X Select                        _ Create
        _ Add                            _ Replace
                                           _ Delete

Enter table:
-or-
Select table
_ EMPLOYEE.ACCOUNTING
_ EMPLOYEE.BUDGET
_ EMPLOYEE.DEPARTMENT
_ EMPLOYEE.EMP_OFFICE

1=HELP          3=QUIT          4=MESSAGE          6=MENU          8=FWD
```

## 11.4 Saving your report as an ASF table

**Note:** Before beginning this step, make sure that the access switch has been set to **olq**.

►► For information on setting the access mode switch, see 3.3.1, “Step 1 — Select the type of table” on page 3-15.

Before you begin, make sure that you are signed on to the correct **ASF dictionary**. Ask your DBA or support staff to make sure you are signed on to the right dictionary.

In this step, you save your report as an ASF table. Type **table** in the command line to proceed to the Table Processing screen.

Select **Create**. Name your table **emp-office**.

```

CA-OLQ Release 15.0                               *** Table Processing ***
->                                                    Page    1 of    2
138000 Select function, table(s) and press the ENTER key

  Owner: DOC1
  Catalog: ASFDICT      Location:
  Function: _ Select          x Create          Delete
             _ Add           _ Replace

Enter table:  emp-office
-or-
Select table
_ ACCOUNTING
_ BUDGET
_ DEPARTMENT

1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD

```

CA-OLQ responds with a message that your table has been defined. The EMP-OFFICE table is listed.

## 11.4 Saving your report as an ASF table

---

```
CA-OLQ Release 15.0                                *** Table Processing ***
->                                                    Page      1 of    2
102017 Table processing has been successfully completed
138000 Select function, table(s) and press the ENTER key
      Owner: DOC1
      Catalog: ASFDICT      Location:
      Function: X Select      _ Create      _ Delete
                _ Add      _ Replace
Enter table:
-or-
Select table
_ ACCOUNTING
_ BUDGET
_ DEPARTMENT
_ EMP-OFFICE

1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD
```

## 11.5 Viewing your SQL table

**Note:** Before beginning this step, make sure that the access switch has been set to **idms**.

►► For information on setting the access mode switch, see 3.2.1, “Step 1 — Select the type of table” on page 3-6.

In this step, you look at the table you just created.

Choose **Select** and select the **EMP\_OFFICE** table.

```
CA-OLQ Release 15.0                                *** Table Processing ***
->                                                    Page    1 of   11
138000 Select function, table(s) and press the ENTER key

Dictname:                Schema: EMPLOYEE
Function: X Select        _ Create
        _ Add            _ Replace
                        _ Delete

Enter table:
-or-
Select table
_ EMPLOYEE.ACCOUNTING
_ EMPLOYEE.BUDGET
_ EMPLOYEE.DEPARTMENT
_ EMPLOYEE.EMP_OFFICE

1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD
```

Select all columns for viewing. When you select the table name, you automatically select all of the columns within that table.

## 11.5 Viewing your SQL table

---

```
CA-OLQ Release 15.0                                *** Column Select ***
->                                                    Page    1 of    1
124000 Select columns, specify selection criteria and press ENTER key

Columns Currently Selected:    0    Selection Criteria    Distinct N Y/N
x EMP_OFFICE
- 03 EMP-ID-0415
- 03 EMP-LAST-NAME-0415
- 03 OFFICE-CODE-0450
- 03 OFFICE-CITY-0450

Additional selection criteria:

Proceed to Selection Criteria Screen? N Y/N
1=HELP          3=QUIT          4=MESSAGE      6=MENU        PA2=REFRESH
```

## 11.6 Viewing your ASF table

**Note:** Before beginning this step, make sure that the access switch has been set to **olq**.

►► For information on setting the access mode switch, see 3.3.1, “Step 1 — Select the type of table” on page 3-15.

In this step, you look at the table you just created.

Choose **Select** and select the EMP-OFFICE table.

```

CA-OLQ Release 15.0                               *** Table Processing ***
->                                                    Page   1 of   2
138000 Select function, table(s) and press the ENTER key

  Owner: DOC1
  Catalog: ASFDICT      Location:
  Function: X Select      _ Create          Delete
             _ Add           _ Replace

Enter table:
-or-
Select table
_ ACCOUNTING
_ BUDGET
_ DEPARTMENT
x EMP-OFFICE

1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD

```

Select all columns for viewing. When you select the table name, you automatically select all of the columns within that table.

## 11.6 Viewing your ASF table

---

```
CA-OLQ Release 15.0                               *** Column Select ***
->                                                    Page 1 of 1
124000 Select columns, specify selection criteria and press ENTER key

Columns Currently Selected: 0      Selection Criteria  Distinct N Y/N
x EMP-OFFICE
- 03 EMP-ID-0415                *
- 03 EMP-LAST-NAME-0415         *
- 03 OFFICE-CODE-0450           *
- 03 OFFICE-CITY-0450

Additional selection criteria:

1=HELP      3=QUIT      4=MESSAGE      6=MENU      PA2=REFRESH
```

# Chapter 12. How to Use CA-OLQ in Batch Mode

---

- 12.1 Key terms . . . . . 12-5
- 12.2 Batch processing . . . . . 12-6



---

**What is batch processing?** Batch processing is a way to create a report without requiring any interaction from the user. Once you have set up the requirements of the batch job, you can start it running and it will run until it has completed, without needing any input from you.

**When do you use batch?** Batch processing is used to process large amounts of data, or to perform an operation in off hours.: If you are creating a report that contains a very large number of records, the amount of time that the system spends retrieving your report's data restricts with the system's availability to other users. Thus, if you are creating a very large report, you probably want to perform the data retrieval at off hours, when the system's resources aren't at high demand.

**Example:** Suppose you were put in charge of creating a personnel report for the phone company. Your report retrieves 30,000 records, one record for each employee. Since you are creating this report for the first time, you will probably want to change it once you see how it looks.

Because your report contains so many records, you don't want to retrieve all of them until you are sure that you have the report exactly the way you want it. You can create a report prototype to make sure that you are satisfied with the report before you retrieve the data.

**Using batch processing:** The step-by-step solution for the personnel report would be to:

1. Set your interrupt count to a very low level (for example, 20 records)
2. Create the report, but limit it to 20 records
3. Save the report definition as a qfile
4. Execute the qfile in off hours using batch processing

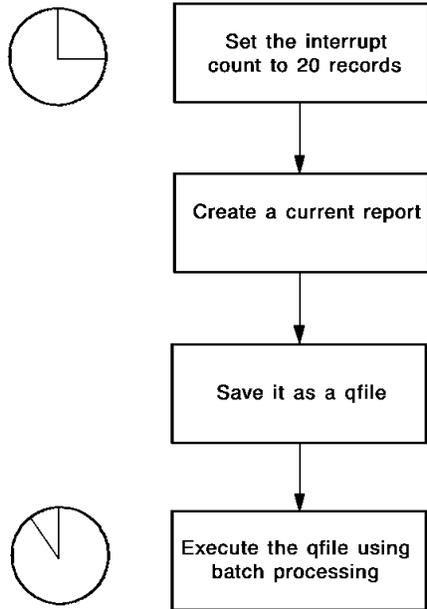


Figure 12-1. Processing a Qfile in Batch

## 12.1 Key terms

Some terms used to discuss batch processing are:

**Batch:** Batch processing means that the user doesn't have to interact with the computer system in order to perform a function. Usually, a batch job is set up in advance (such as when you fill out your Batch Processing screen). Once the job has started running, you cannot intervene except to cancel execution.

**Input file:** A file that contains input for a batch job.

**Interactive:** A way of performing a function in which the computer system requires the user to provide input, and then responds to that input. An example would be CA-OLQ menu mode. Another term to describe interactive processing is **online**.

**Interrupt count:** The maximum number of records CA-OLQ will retrieve when building a report. If the number of records that meet the selection criteria for that report exceeds the interrupt count, CA-OLQ suspends data retrieval and issues a message asking you if you want to continue to retrieve records.

**Job Control Language:** A language used to define the special requirements of your batch program to the system. Job Control Language (JCL) statements name input and output files, the name of your program, and your output destination.

**Output destination:** Any type of device that receives the report that you have created through your batch job. Output destinations can be a printer, a terminal, or a log.

**Output file:** A file that contains the results of your batch job.

## 12.2 Batch processing

To create a report using batch, you do the following:

Table 12-1. Steps to Create a Report using Batch

Step	What To Do	How To Do It
1	Specify which report you want to execute batch.	<ul style="list-style-type: none"> <li>■ Build it from a table or records.</li> <li>■ Execute a qfile.</li> <li>■ Retrieve a saved report.</li> <li>■ Specify your processing commands on the Batch Processing screen.</li> </ul>
2	Move to the Batch Processing screen.	Type BATCH in the command line.
3	Specify your batch processing options.	See Table 12-2 on page 12-7.
4	Initiate batch processing.	Press [Enter].

### The Batch Processing screen

```

CA-OLQ Release 15.0                               *** Batch Processing ***
->                                                    Page 1 of 1
132000 Select activity, output selection and press the ENTER key

Password:                Job control module: OLQBATCH-JCL-RMG
Select activity:
  _ Submit current report request and comments
  X Submit CA-OLQ syntax

To automatically generate output syntax:
  X Display (Output to SYSLST)
  _ Print (DC printer) Class:           Dest:
  _ Save report      Name :

Enter CA-OLQ Syntax/Comments:
> QFIL 'SALARY '(1) DICT TSTDICT DICTNO ' '
>
>
>
>
>
>
1=HELP                3=QUIT                4=MESSAGE                6=MENU

```

You can accept the default values on the Batch Processing screen or type over them. You'll probably need to ask your DBA how to fill out these fields.

When you press [Enter], your batch job begins processing.

Batch Processing screen fields are explained in Table 13-2 on page 13-6.

Table 12-2. Batch Processing Screen Fields

<b>Field</b>	<b>Function</b>
Password:	Provides security for saved reports and qfile definitions. Usually, you want to enter your user password (it will not show on the screen).
Job control module:	Names a module that contains Job control language (JCL) statements that tell the system how to run your batch job. Your DBA defines Job Control Language modules for your site.
Select activity:	Tells CA-OLQ what is to be processed in batch mode. You can: <ul style="list-style-type: none"> <li>■ Execute the current report in batch mode (Submit current report request). If you access the Batch Processing screen from the Saved Reports screen, this field is the default.</li> <li>■ Execute the commands listed in the Enter CA-OLQ syntax/comments field. (submit CA-OLQ syntax). If you access the Batch Processing screen from the Qfile Processing screen, this field is the default.</li> </ul>
Additional output selections:	Tells CA-OLQ where to route the output from your batch program. A default output destination is displayed. Ask your support staff if this is the correct destination.
Enter CA-OLQ syntax/comments:	Allows you to enter your own CA-OLQ processing commands. If you are running a qfile, this field displays the name of the qfile.

►► For more information on how to use the Batch Processing screen, refer to the *CA-OLQ Reference Guide*.



# Chapter 13. How to Print Your Report

---

13.1 Key terms . . . . . 13-4  
13.2 Printing a report . . . . . 13-5



---

**In this chapter** This chapter shows you how to print a report.

## 13.1 Key terms

Some terms used to discuss printing reports are:

**Current report:** The report you are working on in an active CA-OLQ session. If you retrieve a saved report or execute a qfile, CA-OLQ clears out the current report.

**Destination:** When you print a report, you specify an output destination where the report is to be printed. Usually, the destination is a file associated with a printer.

## 13.2 Printing a report

To print a report, do the following:

Table 13-1. Steps for Printing a Report

Step	What To Do	How To Do It
1	Create a current report.	<ul style="list-style-type: none"> <li>■ Build it from a table or records.</li> <li>■ Execute a qfile.</li> <li>■ Retrieve a saved report.</li> </ul>
2	Move to the Print Processing screen.	Type PRINT in the command line.
3	Specify your print options.	See Table 13-2 on page 13-6.
4	Initiate print processing.	Press [Enter].

When you get to the Print Processing screen, the fields are filled out with default values. You can accept these default values or type over them. When you press [Enter], your job is routed to a printer.

```

CA-OLQ Release 15.0                               *** Print Processing ***
->                                                    Page 1 of 1
139000 Select print options and press the ENTER key

Print current report: Y (Y-Yes/N-No)
Line size. . . . : 80
Line count . . . : 60
Number of copies: 1
From page: 1 for: ALL pages
Enter destination:                               or class:
-or-
Select destination
- DEST01
- DEST02
- DEST03

1=HELP          3=QUIT          4=MESSAGE          6=MENU

```

Print Processing screen fields are explained in Table 13-2 on page 13-6

Table 13-2. Print Processing Screen Fields

<b>What to Specify</b>	<b>Which Field to Use</b>	<b>Restrictions</b>	<b>Defaults</b>
Whether you want to print the report	Print current report:	Specify Yes or No	No
How many characters per print line	Line size:	1 through 9999	80
The number of lines per page	Line count:	1 through 9999	60
How many copies of the report you want to print	Number of copies:	1 to 256	1
The number of the first page you want to print	From page:	Any page number in the report	Page 1
How many report pages you want to print	for:	The number of pages in the report	All of the report
The printer used to print the report	Enter destination:	A printer destination defined by your DBA	Site specific. Ask your support staff which printer is set up as the default printer.

**Note:** The values of Line size and Line count do not have to match what you can see on your screen. They should match the specifications of the printer that is specified as the output destination.

# Chapter 14. Introducing the OLQ SELECT statement

---

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---

**What this chapter presents** This chapter introduces the OLQ SELECT statement, which you can use to retrieve information in a CA-IDMS/DB database. It also contains some tips for using the command mode and reporting features of CA-OLQ.

**When to use OLQ SELECT:** Use the OLQ SELECT statement, to access:

- ASF tables
- Database records
- Logical records
- Sequential files (batch only)

**Important:** The examples of the OLQ SELECT statement in this manual are valid when the access switch is set to **olq**.

►► The CA-IDMS/DB SQL SELECT statement is used when the access switch is set to **sql**. For more information, refer to the *CA-IDMS SQL Reference Guide*.

## 14.1 The OLQ SELECT statement

**When to use the SELECT statement:** CA-OLQ uses the OLQ SELECT statement to access information from ASF tables, logical records, and database records.

**Generate queries:** By using the SELECT statement, you can formulate both simple and complex queries for information. CA-OLQ interprets the SELECT statement and produces a report.

**SELECT statement syntax:** Depending on your request, use some or all of these clauses in the sequence listed:

Clause	Information you supply
SELECT	Columns or fields to display.
FROM	The source of information (that is, table or record names).
WHERE	Selection criteria applied to rows or record occurrences.
GROUP BY	Column or field names for grouping information with the same value (for example, all rows with the same department ID).
HAVING	Selection criteria applied to grouped information (for example, a summary row where the average salary is less than \$35,000).
UNION	Multiple SELECT statements. UNION combines the rows retrieved from each SELECT statement.
ORDER BY	Column or field names on which to sort retrieved information.

**Reading a SELECT statement:** Read a SELECT statement like an English sentence. The order of the clauses falls into place. For example, to get all employee IDs less than 100 displayed in ascending order, you would:

- **SELECT** the employee ID
- **FROM** the EMP table
- **WHERE** the employee ID is less than 100
- **ORDER** the display **BY** employee ID

Here is the complete SELECT statement:

```
select empid from emp where empid < 100 order by empid
```

**Some examples:** These examples show how the SELECT statement is used to retrieve information from a database:

- List all information about corporate departments:  

```
select * from dept
```

- List the names and phone numbers of employees in department 4000 sorted by the employee's last name:

```
select lastname, firstname, phone
  from emp
  where deptid = 4000
  order by lastname
```

- Display the date Themis Papazeus was hired:

```
select startdate
  from emp
  where firstname=&xq.themis' and lastname=&xq.papazeus'
```

- List the number of employees in department 4000:

```
select count(*)
  from emp
  where deptid = 4000
```

- How many employees in each department were hired before January 1, 1975?

```
select deptid, count(*)
  from emp
  where startdate < 750101
  group by deptid
```

## 14.2 Defining your data

**Creating sample tables:** If you want to use the SELECT statement as you proceed through this manual, you need two or more ASF-generated tables.

►► To create an ASF-generated table, see the *CA-IDMS ASF User Guide*.

**Sample tables used in this manual:** The sample tables used in this manual are ASF-generated tables created in part from data stored in the Employee database your site receives at installation. The sample tables, which appear in Appendix A, “Sample Tables and Database” on page A-1, are:

<b>The table</b>	<b>Contains information about</b>
EMP	Employees in departments 3100, 4000, and 6666
DEPT	All corporate departments
JOBLIST	Position held by each corporate employee
JOBCLASS	Class and associated salary range assigned to a position
BOSTON	Employees in the Boston office
WESTON	Employees in the Weston office
SPRINGFIELD	Employees in the Springfield office

**Sample database:** For the most part, examples in this manual are based on the sample tables listed above. Examples that retrieve information from network records use the Employee database. The data structure diagram for the Employee database appears in Appendix A.

## 14.3 Some tips on using CA-OLQ

This section gives you some tips on using CA-OLQ:

- Signing on
- Signing off
- Entering statements
- Setting the access to IDMS
- Tailoring your reports

### 14.3.1 Signing on

To signon to CA-OLQ, follow these steps:

**Step 1 — Sign on to a CA-IDMS/DC or CA-IDMS/UCF system:** Access your CA-IDMS/DC or CA-IDMS/UCF system and enter your signon id and password at the ENTER NEXT TASK CODE prompt:

```
V85 REL 15.0 ENTER NEXT TASK CODE:
  signon cub scout
```

**Step 2 — Specify a dictionary:** Specify the data dictionary that contains the table or subschema definitions describing the data you want. You may be assigned to a dictionary when you sign on depending on the contents of your signon profile. You can change your signon dictionary or specify a dictionary by issuing a DCUF command to set the dictionary name:

```
IDMS DC258003 V85 USER CUB SIGNED ON LTERM VL85008 AT 11:57:35.75 88.040
V85 REL 15.0 ENTER NEXT TASK CODE:
  dcuf set dictname asfdict
```

**Tip:** You can also specify a dictionary in the SIGNON statement.

**Step 3 — Enter CA-OLQ's task code:** Issue your site's task code for CA-OLQ at the ENTER NEXT TASK CODE command. The task code provided at installation is OLQ:

```
SET DICTNAME ASFDICT
IDMS DC402009 V85 DICTNAME ASFDICT HAS BEEN SET
V85 REL 15.0 ENTER NEXT TASK CODE:
  olq
```

You are now signed on to CA-OLQ.

**Step 4 — Set your default access to OLQ:** The examples of the SELECT statement in this manual are only valid when your default access is set to OLQ. You can do this for your CA-OLQ session by specifying:

```
set access olq
```

```
OLQ 092033 00 Processing mode changed to OLQ.
```

## 14.3.2 Signing off

To end your DC/UCF session, follow these steps:

**Step 1 — Sign off CA-OLQ:** Sign off CA-OLQ by entering BYE on the command line:

```
bye
```

```
OLQ 091057 00 Please enter next command.
```

CA-OLQ terminates the CA-OLQ session and returns you to DC/UCF.

**Step 2 — End your session:** End your session by entering BYE at the ENTER NEXT TASK CODE prompt:

```
OLQ 100029 00 Signoff accepted - OLQ session terminated
```

```
V401 ENTER NEXT TASK CODE:  
bye
```

## 14.3.3 Entering commands

**Switching between menu/command mode:** If you have signed on to CA-OLQ and you see a screen of menu options, you are in CA-OLQ's menu facility. Press [PF9] to swap to CA-OLQ's command mode screen, which looks like this:

```
OLQ 107017 00 CA-OLQ Release 15.0  
OLQ 017019 Copyright(C) 1972,2000 Computer Associates International,Inc.  
OLQ 091057 00 Please enter next command.
```

**Command area of the screen:** Type CA-OLQ commands in the space above the CA-OLQ messages you see on the screen above. You may notice that your terminal shows more or less space in the command area than you see in the above example.

The size of the command portion is established at system generation by the INPUT LINE SIZE clause of the OLQ system generation statement. If the command portion of your screen is too small, ask your system administrator to adjust the value assigned to the INPUT LINE SIZE clause.

**How to enter commands:** Enter CA-OLQ commands starting at the upper left corner of the screen. Depending on your preference, enter commands in lower case letters, upper case letters, or both. When CA-OLQ interprets a command, it changes the display to upper case letters.

**Tip:** By issuing a DCUF SET UPLOW command before signing on to CA-OLQ, CA-OLQ recognizes case in character strings and displays processed commands and headings as you entered them.

Separate each word in a command by at least one blank. At a 3270-type terminal, press &retsym. to continue a command on the next line. Press [Enter] to process the command. The processed command appears on the screen. You can edit the command and resubmit it to CA-OLQ.

**Some useful commands:** The SELECT statement is the focus of this manual. However, you'll need some of the commands listed below to facilitate your CA-OLQ session:

Command	Description	Example
SIGNON	Initiates a CA-OLQ session by defining a view of the database	<b>signon ss empss01</b>
HELP	Explains how to use CA-OLQ commands and displays information about your tables and subschema records	<b>help table</b>
SET	Sets session parameters in a signon profile, such as ACCESS	<b>set access olq</b>
OPTIONS	Sets processing and display options for the session	<b>options = olqheader</b>
DISPLAY	Displays a report	<b>display</b>
BYE	Ends a CA-OLQ session	<b>bye</b>

►► Some of these commands are described below. For a complete description, see the *CA-OLQ Reference Guide*.

**Command delimiters:** CA-OLQ provides a **separator character**, which lets you string many commands together. The system default is an exclamation mark (!). All the examples in this manual show an exclamation mark to separate the SELECT state-

ment from a DISPLAY command, which displays the report: **select \* from dept ! display.**

CA-OLQ also provides a **comment character**, which tells CA-OLQ to treat all text following the delimiter as a comment. The system default is a semi-colon (;). By using a comment character, you can save portions of a command that you want to edit and resubmit. This example shows a DISPLAY command typed over a SELECT statement CA-OLQ has already processed:

```
SELECT * FROM DEPT
display; FROM DEPT
```

To change the separator and comment characters for your session, use the SET command:

```
SET SEPARATOR CHARACTER '$'
```

```
OLQ 092014 00 The SEPARATOR CHARACTER has been modified.
```

**Signing on to a table or subschema:** Issue a SIGNON command to tell CA-OLQ what subschema to access for data. A SIGNON command is required for CA-IDMS/DB subschemas. It is optional for tables.

To sign on to a specific table or subschema enter a SIGNON command: **signon table emp.**

CA-OLQ responds that it is ready to retrieve data:

```
SIGNON TABLE EMP
```

```
CA-OLQ 100021 00 Ready to retrieve data from subschema RU000371
CA-OLQ 100022 00 Schema: CA-IDMSDB Version: 1
CA-OLQ 100023 00 Database name: ASFDICT
CA-OLQ 100025 00 Dictionary name: ASFDICT
```

**Using the SELECT statement:** You can use CA-OLQ command mode to create your own SELECT statements, or you can let CA-OLQ's menu facility build the statements for you when you select data. All the examples in this manual use command mode to enter the SELECT statement.

### 14.3.4 Setting the access to IDMS

When you want to access SQL-defined tables, your default access setting must be set to IDMS. You can do this for your CA-OLQ session by specifying:

```
set access idms
```

```
OLQ 092120 00 Processing mode changed to IDMS.
```

You are now able to use the SELECT statement to access SQL-defined tables.

**Note:** The examples of the SELECT statement in this manual are not necessarily valid for SQL-defined tables.

►► For more information about using the SELECT statement with SQL-defined tables, refer to the *CA-IDMS SQL Reference Guide*.

### 14.3.5 Tailoring reports

**Tailoring your report:** The screen displays in this manual show the direct results of the SELECT statement. The displays reflect default formatting options. For example, reports have the name of the source table as a title, fields aren't edited, and groups of data are not separated by blank lines.

You can easily tailor your reports by using options available in CA-OLQ's menu facility.

The following series of screens show a few of these options:

**Display the report:** In command mode, issue a SELECT statement to CA-OLQ:

```
select deptid, lastname, salary, phone
  from emp
 order by deptid, lastname ! display
```

```
SELECT DEPTID, LASTNAME, SALARY, PHONE FROM EMP
ORDER BY DEPTID, LASTNAME ! DISPLAY
```

EMP REPORT 02/09/96			
DEPTID	LASTNAME	SALARY	PHONE
3100	DOUGH	33000.00	6174458155
3100	GALLWAY	33000.00	6173349155
3100	GARFIELD	65000.00	6173321967
3100	GRANGER	34500.00	6173341212
3100	HEAROWITZ	33000.00	6173349634
3100	JACOBI	55000.00	6173348912
3100	JENSEN	37000.00	6172241955
3100	LITERATA	37500.00	6175912323
3100	TYRO	20000.00	6174459191
4000	ANGELO	18000.00	6178870235
4000	BANK	80000.00	6173321933
4000	JACKSON	34000.00	6175346767
4000	MCDUGALL	18000.00	6178871324
4000	PENMAN	39000.00	6175341199

- 1 -

**Go to the menu facility:** Swap to CA-OLQ's menu facility by pressing [PF9].

**Tip:** You can also move directly to a screen by entering the name of the screen on the command line.

CA-OLQ displays the Menu screen:

```

CA-OLQ Release 15.0          *** Menu ***
->                            Page 1 of 3
122000 Select an option and press the ENTER key.

  Select
  Pfkey Option Description Command/ Screen Name Show Help
  ---
  ---> Data Source for Report <---
  - Choose data tables TABLE -
  - Choose subschema SUBSchema -

  ---> Retrieval Activity <---
  - Choose records from selected subschema RECOrd -
  - Choose columns for report COLumn -
  - Retrieve data to build report RETrieve -
  - Alter database access strategy LINKage -

  ---> Processing Mode <---
  - Execute or create a predefined routine QFILE -
  - View existing or save current report SAVE -
  - Submit batch report request BATch -

1=HELP 2=GLOBAL HELP 3=QUIT 4=MESSAGE 8=FWD

```

**Change the column headings:** On page 2 of the Menu screen, select the option to change column headers. CA-OLQ brings you to the Report Format - Header screen. You can assign new column headings for your report and specify a character to underline the column headings. The default character is a hyphen (-).

```

CA-OLQ Release 15.0          *** Report Format - Header ***
->                            Page 1 of 1
134000 Specify column headers and press the ENTER key.

Underline character: -      Disp
                             Seq      Header
EMP
X DEPTID                    1 department id
X LASTNAME                  2 employee name
X PHONE                     4 PHONE
X SALARY                    3 SALARY

```

When you press [Enter], CA-OLQ displays a revised report:

```

CA-OLQ Release 15.0          *** Display Report ***
->                            Page 1 Line 1
125000 Press the ENTER key to go to the next page of the report.

EMP REPORT
02/09/96

DEPARTMENT ID      EMPLOYEE NAME      SALARY      PHONE
-----
3100      DOUGH      33000.00      6174458155
3100      GALLWAY      33000.00      6173349155
3100      GARFIELD      65000.00      6173321967
3100      GRANGER      34500.00      6173341212

```

**Change the report title:** Press [PF6] to return to the menu options. Choose the option to change page headers and footers. CA-OLQ brings you to the Page Header/Footer screen, where you can give the report a meaningful title:

```

CA-OLQ Release 15.0          *** Page Header/Footer ***
->                          Page 1 OF 1
152000 Specify page header(s), footer(s) and press the ENTER key.

Format for $DATE: MM/DD/YY
Use variables: $DATE, $TIME, $PAGE, $LINE, $USER...
Skip lines before heading: 0      Skip lines after heading: 1

Line  Page heading text                      Align
1      employee report by department        ENTER
2      $DATE                                CENTER
3

```

Once you have entered the information, press [Enter]. CA-OLQ displays this report:

```

CA-OLQ Release 15.0          *** Display Report ***
->                          Page 1 Line 1
125000 Press the ENTER key to go to the next page of the report.

      EMPLOYEE REPORT BY DEPARTMENT
      02/09/96

DEPARTMENT      EMPLOYEE      SALARY      PHONE
  ID              NAME
-----
      3100      DOUGH          33000.00    6174458155
      3100      GALLWAY        33000.00    6173349155
      3100      GARFIELD       65000.00    6173321967
      3100      GRANGER        34500.00    6173341212
      3100      HEAROWITZ     33000.00    6173349634
      3100      JACOBI         55000.00    6173348912

```

**Format the phone and salary data:** Return to the Menu screen by pressing [PF6] and choose the option to change the display format of data. CA-OLQ brings you to the Report Format - Picture screen where you can:

- Edit the phone number display
- Select options to display the SALARY field with a dollar sign and commas

```

CA-OLQ Release 15.0          *** Report Format - Picture ***
->                          Page 1 of 1
137000 Specify pictures and press the ENTER key.

Disp  Select Options or Alter
Seq  $ , 0      Picture
EMP
X DEPTID      1      - - -      9999
X LASTNAME    2      - - -      X(15)
X PHONE       4      - - -      (999)999-9999
X SALARY      3      x x -      -ZZZZZ9.99

```

CA-OLQ displays this report once it processes the information entered on the Report Format - Picture screen:

```

->
125000 Press the ENTER key to go to the next page of the report.

```

CA-OLQ Release 15.0 *** Display Report ***			
EMPLOYEE REPORT BY DEPARTMENT			
02/09/96			
DEPARTMENT ID	EMPLOYEE NAME	SALARY	PHONE
3100	DOUGH	\$33,000.00	(617)445-8155
3100	GALLWAY	\$33,000.00	(617)334-9155
3100	GARFIELD	\$65,000.00	(617)332-1967
3100	GRANGER	\$34,500.00	(617)334-1212
3100	HEAROWITZ	\$33,000.00	(617)334-9634
3100	JACOBI	\$55,000.00	(617)334-8912
3100	JENSEN	\$37,000.00	(617)224-1955

**Group the rows by department:** Press [PF6] to return to the Menu screen and choose the option to sort the sequence of the report. CA-OLQ brings you to the Report Format - Sort screen. On this screen, you can indicate:

- The sort priority for the fields (which isn't really necessary because the ORDER BY clause of the SELECT statement sorted the report's contents)
- The field on which to group data for summary calculations. In this case, the DEPTID field is assigned Group Level # 1.
- Whether to display detail lines, summary lines (subtotals), or both. In this screen, both types of lines are chosen.

```

->
133000 Specify sort or group by request and press the ENTER key.

```

CA-OLQ Release 15.0 *** Report Format - Sort ***					
Page 1 of 1					
EMP	Disp Seq	Sort Priority	Order (A/D)	Group By Level #	
X DEPTID	1	1	a	1	
X LASTNAME	2	2	a	-	
X PHONE	4	-	-	-	
X SALARY	3	-	-	-	

Display lines: Detail X and/or Summary X      Group by all \_

Compute:

1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      11=HEADER

**Total the salaries:** Once CA-OLQ processes the information provided above, it brings you to the Report Format - Group By screen where you can enter summary information for the report. In this example, the report will display the total salaries for each department. The SKIP LINES and SEPARATOR CHARACTER fields indicate that CA-OLQ will:

- Insert one line between the detail and subtotal lines
- Write a separator line (composed of hyphens) between the detail and subtotal lines

```

CA-OLQ Release 15.0      *** Report Format - Group By ***
->                      Page      1 OF      1
136000 Specify summary computations and press the ENTER key.

Group by: EMP.DEPTID

                                Seq  Sum  Avg  Max  Min  Level# 1
                                |    |    |    |    |    |    |
EMP                               |    |    |    |    |    |    |
X DEPTID                          1    -    -    -    -    |
X LASTNAME                         2    -    -    -    -    |
X PHONE                             4    -    -    -    -    |
X SALARY                            3    x    -    -    -    |

                                |    |    |    |    |    |    |

Compute:      Skip lines after group 1      Separator character -

1=HELP      3=QUIT      4=MESSAGE      5=DISPLAY      6=MENU      10=PICTURE

```

When you press [Enter], CA-OLQ displays this report:

```

CA-OLQ Release 15.0      *** Display Report ***
->                      Page      1 Line      1
105022 Sort successfully completed. 19 records in. 19 records out.
125000 Press the ENTER key to go to the next page of the report.
EMPLOYEE REPORT BY DEPARTMENT
02/09/99

DEPARTMENT ID      EMPLOYEE NAME      SALARY      PHONE
-----
3100 DOUGH      $33,000.00      (617)445-8155
3100 GALLWAY      $33,000.00      (617)334-9155
3100 GARFIELD      $65,000.00      (617)332-1967
3100 GRANGER      $34,500.00      (617)334-1212
3100 HEAROWITZ      $33,000.00      (617)334-9634
3100 JACOBI      $55,000.00      (617)334-8912
3100 JENSEN      $37,000.00      (617)224-1955
3100 LITERATA      $37,500.00      (617)591-2323
3100 TYRO      $20,000.00      (617)445-9191

                                $348,000.00

                                - 1 -
1=HELP      3=QUIT      4=MESSAGE      6=MENU      8=FWD      10=LEFT      11=RIGHT

```

**The end result:** The report shown above contains the same data as the original report. However, this report is easier to read and contains summary information for each department.

# Chapter 15. Retrieving Information from a Table

---

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## 15.1 Retrieving all columns

**Use an asterisk (\*)** To retrieve all of the columns defined for a table, you can use an asterisk (\*) in the SELECT statement. An asterisk is shorthand for all of the table's columns. By using an asterisk, you don't need to know the table's column names in order to retrieve data.

**Example:** To display the DEPT table, enter:

```
select * from dept ! display
```

DEPT REPORT 01/29/99		
DEPTID	DEPTNAME	MGRID
1000	PERSONNEL	0013
2000	ACCOUNTING AND PAYROLL	0011
3100	INTERNAL SOFTWARE	0003
3200	COMPUTER OPERATIONS	0004
4000	PUBLIC RELATIONS	0007
5100	BRAINSTORMING	0015
5200	THERMOREGULATION	0349
5300	BLUE SKIES	0321
6666	EXECUTIVE ADMINISTRATION	0030
END OF REPORT		

If all of the columns or all of the rows of the table don't fit on one screen, use these PF keys to scroll:

---

[PF7]            Scroll backward

---

[PF8]            Scroll forward

---

[PF10]           Scroll left

---

[PF11]           Scroll right

---

**Tip:** If your PF key assignments are different than those described above, see your CA-IDMS/DC system administrator.

## 15.2 Retrieving selected columns

**Name the columns:** To retrieve some of the columns from your table, list the columns you want in the `SELECT` statement, using a comma to separate each name. CA-OLQ displays the columns in the order you enter them. Each column name becomes the column header in the report.

**Tip:** To determine the column names used in the sample tables, look in Appendix A or retrieve all of the table's columns by using an asterisk in the `SELECT` statement.

**Example:** List each department's name and manager ID:

```
select deptname, mgrid from dept ! display
```

DEPT REPORT 01/29/99	
DEPTNAME	MGRID
PERSONNEL	0013
ACCOUNTING AND PAYROLL	0011
INTERNAL SOFTWARE	0003
COMPUTER OPERATIONS	0004
PUBLIC RELATIONS	0007
BRAINSTORMING	0015
THERMOREGULATION	0349
BLUE SKIES	0321
EXECUTIVE ADMINISTRATION	0030
END OF REPORT	

## 15.3 Eliminating duplicate data

**Use DISTINCT:** A table can have one or more columns with duplicate data entries. For example, the JOBLIST table lists COMPUTER OPERATOR three times because three employees have that title. To retrieve unique, rather than duplicate, values in a column, use the keyword DISTINCT in the SELECT statement.

**Example:** List unique job titles in the company:

```
select distinct title from joblist ! display
```

```
JOBLIST REPORT  
01/29/99
```

```
TITLE
```

```
ACCOUNTANT  
AP CLERK  
AR CLERK  
COMPUTER OPERATOR  
CUMULUS CARETAKER  
DATA ENTRY CLERK  
DATABASE ADMIN.  
DIR CORP CONFUSION  
DIR OPERATIONS  
DIR WEATHER  
DOCUMENTATION SPEC  
FINANCIAL ANALYST  
HUMIDITY CONTROL CLK  
ILLUSTRATOR
```

```
- 1 -
```

## 15.4 Displaying calculations in columns

**Compute new values:** The SELECT statement displays *calculated values*, in addition to values stored in the table. For example, you might want to calculate a 6% bonus for each employee.

To display a calculated column, include an **arithmetic expression** in the column list following the SELECT statement. An arithmetic expression uses these operators:

Operator	Meaning
+	Addition
-	Subtraction
*	Multiplication
/	Division

You can also use a built-in function to display a calculated column. Built-in functions are described later in this chapter.

**Some examples:** A few examples of arithmetic expressions appear below. These examples show you can:

- Leave spaces, or omit spaces, before and after these arithmetic operators: \*, +, /. You must include a blank space before and after a minus (-) sign.
- Use parentheses to show how the arithmetic expression should be evaluated and to improve readability.

Expression	Meaning
<code>salary/52</code>	Evaluates a weekly salary
<code>maxsalary - minsalary</code>	Evaluates a salary range
<code>(salary * 0.06) / 4</code>	Evaluates a 6% bonus, to be distributed in 4 payments

**Provide a heading for a calculation:** To give each calculated column a heading, use the keyword AS and a heading name following the arithmetic expression. Enclose headings with two or more words in single quotation marks.

**Example:** List each employee's salary and end-of-year bonus, based on 6% of salary:

```
select empid, salary as 'annual salary', salary * 0.06 as bonus
from emp ! display
```

---

EMP REPORT 01/29/99		
EMPID	ANNUAL SALARY	BONUS
0001	76000.00	4560.0000
0003	65000.00	3900.0000
0007	80000.00	4800.0000
0019	37000.00	2220.0000
0020	55000.00	3300.0000
0021	20000.00	1200.0000
0024	33000.00	1980.0000
0027	33000.00	1980.0000
0028	34500.00	2070.0000
0029	33000.00	1980.0000
0030	240000.00	14400.0000
0035	37500.00	2250.0000
0120	18000.00	1080.0000
0127	18000.00	1080.0000

- 1 -

## 15.5 Putting rows in order

**Use ORDER BY:** To sort selected rows by the values in a column, use the ORDER BY clause. CA-OLQ assumes you want rows in ascending order. If you want rows in descending order, specify DESCENDING as Example 2 shows below.

CA-OLQ sorts selected rows by the first column named in the ORDER BY clause. It then sorts each group of rows sharing a common value in order of the second column named in the ORDER BY clause, and so on. For example, you might want to display a table of bank transactions in order of branch number, and within each branch number, in order of transaction date.

**Example 1 — Sorting on 1 column:** For each employee in department 4000, list the ID, name, and hire date starting with the first person hired to the last person hired:

```
select empid, lastname, firstname, startdate as &xsq.hire date'
from emp
where deptid = 4000
order by startdate ! display
```

EMP REPORT 01/29/99			
EMPID	LASTNAME	FIRSTNAME	HIRE DATE
0476	ZEDI	BETSY	760223
0158	JACKSON	JOCK	770707
0149	PENMAN	LAURA	770908
0007	BANK	MONTE	780430
0120	ANGELO	MICHAEL	790908
0127	MCDOUGALL	CAROL	800607
END OF REPORT			

**Example 2 — Sorting on 2 columns:** List the department ID, employee name, and hire date of all employees sorted by department. Within each department, list the employees in alphabetic descending order:

```
select deptid, lastname, startdate as &xsq.hire date'
from emp
order by deptid, lastname descending ! display
```

EMP REPORT 01/29/99		
DEPTID	LASTNAME	HIRE DATE
3100	TYRO	801221
3100	LITERATA	800909
3100	JENSEN	820929
3100	JACOBI	811111
3100	HEAROWITZ	810909
3100	GRANGER	800527
3100	GARFIELD	770121
3100	GALLWAY	811010
3100	DOUGH	760808
4000	ZEDI	760223
4000	PENMAN	770908
4000	MCDOUGALL	800607
4000	JACKSON	770707
4000	BANK	780430

- 1 -

**Sorting on calculated columns:** If you want to sort the contents of your report based on values in a calculated column, specify the column *number* in the ORDER BY clause. Count the columns from left to right, beginning with 1.

**Example:** List salaries and anticipated 5% year-end bonus for employees in department 4000. List rows in order of smallest to largest bonus:

```
select lastname, salary, &xq.year end bonus=', salary*0.005
      from emp
      where deptid=4000
      order by 4 ! display
```

EMP REPORT			
02/10/99			
LASTNAME	SALARY		
ANGELO	18000.00	YEAR END BONUS=	90.00000
MCDUGALL	18000.00	YEAR END BONUS=	90.00000
JACKSON	34000.00	YEAR END BONUS=	170.00000
ZEDI	37000.00	YEAR END BONUS=	185.00000
PENMAN	39000.00	YEAR END BONUS=	195.00000
BANK	80000.00	YEAR END BONUS=	400.00000
END OF REPORT			

## 15.6 Retrieving selected rows

**Use WHERE:** You can retrieve selected rows from a table by specifying selection criteria in the WHERE clause. A WHERE clause contains one or more **comparison expressions**. A comparison expression compares one value to another value. The simplest comparison expression compares column values to a constant. If the comparison expression is true, CA-OLQ selects the row for the report.

Within the WHERE clause, you can select rows by using these symbols and keywords:

Expression	Meaning
Comparison operators (for example, = and <=)	Compares each value in a column to another value.
AND and OR	Connects comparison expressions. AND is true if all the comparisons are true. OR is true if any of the comparisons is true.
IN	Compares a column's values to a list of values. The expression is true if the value in the column equals one of the listed values.
NOT	Negates the comparison expression. That is, if the comparison expression is true, NOT returns a value of false so the row is not selected.
BETWEEN	Compares each value in a column to a specified range, <i>including</i> the starting and ending range values.
LIKE	Compares a character string to a mask (that is, pattern).
Arithmetic expression	Compares a value in a column to the result of an arithmetic expression.
Built-in function	Compares each value in a column to a value calculated by a predefined function.

CA-OLQ does not support NULL, an ANSI-standard keyword, for this release.

### 15.6.1 A simple comparison

**Defining a comparison expression:** As stated above, the simplest comparison expression compares each value in a column to a constant. The constant can be either:

- Numeric (that is, decimal, integer, real, hexadecimal, binary, or multibit binary).
- Character. A character constant is enclosed in single quotation marks.

The symbols that compare one value to the other are:

=	Equal to
<> or !=	Not equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

If you prefer, you can also use these symbols: EQ, NE, GT, LT, GE, and LE.

**Example 1 — Comparing a number:** List all the employees that work in department 4000:

```
select deptid, firstname, lastname
from emp
where deptid = 4000 ! display
```

EMP REPORT 01/29/99		
DEPTID	FIRSTNAME	LASTNAME
4000	MONTE	BANK
4000	MICHAEL	ANGELO
4000	CAROL	MCDUGALL
4000	LAURA	PENMAN
4000	JOCK	JACKSON
4000	BETSY	ZEDI
END OF REPORT		

**Example 2 — Comparing a character:** List the department and names of all female employees:

```
select deptid, firstname, lastname
from emp
where sex = &xq.f' ! display
```

EMP REPORT 01/29/99		
DEPTID	FIRSTNAME	LASTNAME
3100	JENNIFER	GARFIELD
3100	JULIE	JENSEN
3100	JANE	DOUGH
6666	HENRIETTA	HENDON
4000	CAROL	MCDUGALL
4000	LAURA	PENMAN
4000	BETSY	ZEDI
END OF REPORT		

**Example 3 — Selecting lower values:** List the hire date, in ascending order, and names of all employees employed before January 1, 1978:

```
select startdate as &xq.hire date', firstname, lastname
from emp
where startdate < 780101
order by startdate ! display
```

EMP REPORT 01/29/99		
HIRE DATE	FIRSTNAME	LASTNAME
731121	HENRIETTA	HENDON
750223	JOHN	RUPEE
760223	BETSY	ZEDI
760808	JANE	DOUGH
770121	JENNIFER	GARFIELD
770707	JOCK	JACKSON
770908	LAURA	PENMAN
END OF REPORT		

**Example 4 — Using a calculation:** List all job classes where the salary range is less than \$3,000:

```
select class, minsalary as &sq.minimum salary',
       maxsalary as &sq.maximum salary'
from jobclass
where (maxsalary - minsalary) < 3000 ! display
```

JOBCLASS REPORT 01/29/99		
CLASS	MINIMUM SALARY	MAXIMUM SALARY
21	18000.00	20000.00
33	37000.00	39000.00
42	33000.00	35000.00
END OF REPORT		

## 15.6.2 Complex comparisons

**Using AND and OR:** You can specify more than one comparison expression to select rows from a table by connecting each expression with an AND or an OR:

---

AND                      Retrieves the row if *each* comparison expression is true

---

OR                        Retrieves the row if *any* comparison expression is true

---

If a WHERE clause contains both AND and OR, CA-OLQ evaluates the OR expressions first. For example, to process the example below, CA-OLQ determines whether the employee's department is 4000 or whether the employee was hired before January 1, 1980. If either of these conditions is true, CA-OLQ determines if the employee's job class is 21:

```
where class=21 and deptid=4000 or startdate<800101
```

**Tip:** You can use parentheses to indicate the order in which CA-OLQ evaluates the expressions. It's also a good idea to use parentheses to improve the readability and accuracy of complex expressions.

**Example 1 — Using AND:** List information about all employees who were hired before January 1, 1980 *and* whose salary exceeds \$50,000:

```

select empid, lastname, startdate as &xq.hire date', salary
from emp
where (startdate < 800101)
and (salary > 50000) ! display

```

EMP REPORT 01/29/99			
EMPID	LASTNAME	HIRE DATE	SALARY
0001	RUPEE	750223	76000.00
0003	GARFIELD	770121	65000.00
0007	BANK	780430	80000.00
0030	HENDON	731121	240000.00
0471	PAPAZEUS	780907	90000.00
0472	WILDER	790716	90000.00
END OF REPORT			

**Example 2 — Using parentheses with AND and OR:** Parentheses determine how CA-OLQ evaluates complex comparisons. Each of the SELECT statements shown below have the same three comparison expressions. However, the first SELECT statement uses parentheses to group the expressions connected by AND. The second groups the expressions connected by OR.

*SELECT Statement 1:* List the names, birthdays, and salaries of all employees who are *either*:

- Female, born before January 1, 1947 *or*
- Making less than \$25,000

```

select lastname, firstname, birthdate, salary
from emp
where (sex = &xq.f' and birthdate < 470101)
or (salary < 25000)
order by birthdate ! display

```

EMP REPORT 01/29/99			
LASTNAME	FIRSTNAME	BIRTHDATE	SALARY
HENDON	HENRIETTA	331006	240000.0
ZEDI	BETSY	401229	37000.00
PENMAN	LAURA	440504	39000.00
GARFIELD	JENNIFER	450818	65000.00
TYRO	RALPH	551225	20000.00
ANGELO	MICHAEL	570405	18000.00
MCDUGALL	CAROL	590304	18000.00
END OF REPORT			

*SELECT Statement 2:* In comparison, list the same information about employees who:

- Are female *and*
- Earn less than \$25,000 *or* were born before January 1, 1947

```

select lastname, firstname, birthdate, salary
from emp
where (sex = &xq.f')
and (birthdate < 470101 or salary < 25000)
order by birthdate ! display

```

EMP REPORT 01/29/99			
LASTNAME	FIRSTNAME	BIRTHDATE	SALARY
HENDON	HENRIETTA	331006	240000.00
ZEDI	BETSY	401229	37000.00
PENMAN	LAURA	440504	39000.00
GARFIELD	JENNIFER	450818	65000.00
MCDUGALL	CAROL	590304	18000.00
END OF REPORT			

### 15.6.3 Comparisons to a list of values

**Using IN:** To compare a value to one of several values in a list, use the IN keyword. The IN keyword is a short way of coding two or more comparison expressions connected by an OR. For example, both of these SELECT statements yield the same result:

```
select empid
  from emp
 where deptid in (3100, 4000)
```

```
select empid
  from emp
 where (deptid = 3100) or
       (deptid = 4000)
```

Separate each value in the list by a comma. A blank following the comma is optional.

**Example:** List all employees whose job falls into one of these classes: 11, 21, 43, or 71 (the report shown below indicates that there are no employees that have a job in class 11):

```
select firstname, lastname, class
  from emp
 where class in (11, 21, 43, 71)
 order by class ! display
```

EMP REPORT 01/29/99		
FIRSTNAME	LASTNAME	CLASS
RALPH	TYRO	21
MICHAEL	ANGELO	21
CAROL	MCDUGALL	21
JULIE	JENSEN	43
LARRY	LITERATA	43
JENNIFER	GARFIELD	71
END OF REPORT		

## 15.6.4 Exclusive comparisons

**Using NOT:** You can retrieve all rows that are *exceptions* to the comparison expression by using the keyword NOT. For example, you can retrieve information about all employees except those that work in departments 6666 and 3100.

A few examples appear below:

Example	Meaning
<b>where not (deptid &lt; 4000)</b>	All rows where the department id is greater than or equal to 4000
<b>where deptid = 4000 and not (empid = 0007)</b>	All rows where the department id is 4000 except the row with employee id 0007

**Example:** List all employees except those with manager id 0007:

```
select firstname, lastname, mgrid
from emp
where not (mgrid = 0007)
order by mgrid ! display
```

EMP REPORT 03/21/99		
FIRSTNAME	LASTNAME	MGRID
LARRY	LITERATA	0003
RALPH	TYRO	0003
JULIE	JENSEN	0003
JAMES	JACOBI	0003
VLADIMIR	HEAROWITZ	0003
JANE	DOUGH	0003
PERCY	GRANGER	0003
JAMES	GALLWAY	0003
MONTE	BANK	0030
JENNIFER	GARFIELD	0030
HENRIETTA	HENDON	0030
JOHN	RUPEE	0030
THEMIS	PAPAZEUS	0030
ROBBY	WILDER	0030

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## 15.6.5 Range comparisons

**Using BETWEEN:** To retrieve rows from a table where the values of one column fall in a range of values, use BETWEEN. BETWEEN selects all rows that have values in between and equal to the starting and ending values of the specified range.

**Example:** List the ID, job class, and salary of all employees who earn from \$33,000 to \$39,000:

```
select empid, class, salary
from emp
where salary between 33000 and 39000
order by salary ! display
```

EMP REPORT 01/29/99		
EMPID	CLASS	SALARY
0024	42	33000.00
0027	42	33000.00
0029	42	33000.00
0158	42	34000.00
0028	42	34500.00
0019	43	37000.00
0476	33	37000.00
0035	43	37500.00
0149	33	39000.00
END OF REPORT		

## 15.6.6 Character string comparisons

**Using LIKE:** You can compare an alphanumeric field to a mask (pattern) that contains alphanumeric characters and wild card symbols. For example, you might want to retrieve information about jobs that have CLERK in the job title.

To code the pattern, use the wild card symbols described below. If the pattern contains embedded blanks, enclose it in single quotation marks.

Symbol	Meaning
Percent (%)	Specifies from 0 to any number of unknown characters
Underscore (_)	Specifies a single unknown character

Some examples using these symbols appear below:

Example	Selects the row if the value contains
'%m%'	An M
'_m_'	3 characters with an M in the middle

**Tip:** To improve CA-OLQ's performance, use conditional operators, rather than LIKE, to perform character string comparisons. For example, use **where firstname = 'b'** to retrieve all employees whose first name begins with B.

**Example 1 — Using a % sign:** List the names of all employees with initials JG:

```
select firstname, lastname
  from emp
 where firstname like &xq.j%'
        and lastname like &xq.g%' ! display
```

EMP REPORT 01/29/99	
<u>FIRSTNAME</u>	<u>LASTNAME</u>
JENNIFER	GARFIELD
JAMES	GALLWAY
END OF REPORT	

**Example 2 — Using two % signs:** List all employees whose name contains the letter Z:

```
select lastname
from emp
where lastname like &xq.%%z%' ! display
```

EMP REPORT 01/29/99	
LASTNAME	
HEAROWITZ	
PAPAZEUS	
ZEDI	
END OF REPORT	

**Example 3 — Using an underscore (\_):** List all employees whose name contains 5 letters, beginning with J:

```
select firstname, lastname
from emp
where firstname like &xq.j_____ ! display
```

EMP REPORT 03/21/99	
<u>FIRSTNAME</u>	<u>LASTNAME</u>
JULIE	JENSEN
JAMES	JACOBI
JAMES	GALLWAY
END OF REPORT	

## 15.7 Using built-in functions

**Definition:** CA-OLQ provides many predefined functions that evaluate expressions and return results. These functions, called **built-in functions**, can be used anywhere you would normally specify arithmetic or comparison expressions. The built-in functions fall into these categories:

Category	Definition
String	Perform operations on character strings, such as concatenating BUSY and BEE
Arithmetic	Perform arithmetic operations, such as rounding 5.77 to 6
Trigonometric	Perform mathematical calculations, such as evaluating the cosine of 30 degrees
Date	Perform calculations on dates, such as evaluating the number of days between January 14, 1956 and June 26, 1987

►► The examples shown below are only a few of the built-in functions you can use. For information about *all* the built-in functions CA-OLQ provides, see the *CA-OLQ Reference*.

**Example 1 — Retrieving a substring:** Create a 3-letter department code for each department by using the first three letters of the department name:

```
select substring(deptname,1,3) as &xq.dept code'
from dept ! display
```

	DEPT REPORT
	01/29/99
	DEPT CODE
ACC	
BLU	
BRA	
COM	
EXE	
INT	
PER	
PUB	
THE	
END OF REPORT	

**Example 2 — Concatenating names:** List the last name of each employee, followed by a comma and a blank, and the employee's first name. The EXTRACT function deletes all trailing blanks from the employee's last name. The CONCATENATE function strings together:

- The character string returned by the EXTRACT function
- The literal containing the comma and the blank
- The employee's first name

```
select concatenate(extract(lastname), ' ', firstname)
from emp ! display
```

EMP REPORT	
01/29/99	
RUPEE, JOHN	
GARFIELD, JENNIFER	
BANK, MONTE	
JENSEN, JULIE	
JACOBI, JAMES	
TYRO, RALPH	
DOUGH, JANE	
HEAROWITZ, VLADIMIR	
GRANGER, PERCY	
GALLWAY, JAMES	
HENDON, HENRIETTA	
LITERATA, LARRY	
ANGELO, MICHAEL	
MCDOUGALL, CAROL	

- 1 -

**Example 3 — Determining a date's weekday:** List the day of the week each employee was born. The GWEEKDAY function accepts a Gregorian date and returns the day of the week on which that date falls:

```
select lastname, birthdate, gweekday(birthdate) as weekday
from emp ! display
```

EMP REPORT		
03/22/99		
LASTNAME	BIRTHDATE	WEEKDAY
RUPEE	330219	SUNDAY
GARFIELD	450818	SATURDAY
BANK	500101	SUNDAY
JENSEN	480730	FRIDAY
JACOBI	401101	FRIDAY
TYRO	551225	SUNDAY
DOUGH	510329	THURSDAY
HEAROWITZ	560425	WEDNESDAY
GRANGER	580222	SATURDAY
GALLWAY	471006	MONDAY
HENDON	331006	FRIDAY
LITERATA	550430	SATURDAY
ANGELO	570405	FRIDAY
MCDOUGALL	590304	WEDNESDAY

- 1 -

**Example 4 — Calculating employee age:** List each employee's name and age. The DATEDIF function determines the number of days between today's date (January 13, 1999) and the employee's birthday. The NEXT-INT-EQLO function rounds the number of years to the next lowest integer:

```
select firstname, lastname,
       next-int-eqlo(datedif(990113, birthdate)/365)
as &xq.employee age'
from emp ! display
```

## 15.7 Using built-in functions

---

EMP REPORT 01/29/99		
FIRSTNAME	LASTNAME	EMPLOYEE AGE
JOHN	RUPEE	54
JENNIFER	GARFIELD	42
MONTE	BANK	38
JULIE	JENSEN	39
JAMES	JACOBI	47
RALPH	TYRO	32
JANE	DOUGH	36
VLADIMIR	HEAROWITZ	31
PERCY	GRANGER	29
JAMES	GALLWAY	40
HENRIETTA	HENDON	54
LARRY	LITERATA	32
MICHAEL	ANGELO	30
CAROL	MCDUGALL	28

- 1 -

## 15.8 Testing your knowledge

Using the sample tables in Appendix A, “Sample Tables and Database” on page A-1, code a SELECT statement for each of the queries listed below. Appendix B, “Answers” on page B-1, contains one possible answer. Remember, there can be more than one way to achieve the same result when you use the SELECT statement.

1. List the salary range for each job class
2. List all employees who have both a:
  - Manager with ID 0007 or 0003
  - Job that begins with the number 3
3. Identify all employees whose sex code was entered incorrectly (that is, is not M or F)
4. List the number of years employees have from January 1, 1988 until they reach retirement age (65)



# Chapter 16. Summarizing Information

---

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## 16.1 Summarizing information about a whole table

**Summary lines** This chapter tells you how to create reports containing **summary lines**, rather than **detail lines**. A detail line contains information about individual rows in a table. Summary lines contain summary information about detail lines. For example, a line containing salary information about Henrietta Hendon is a detail line. A line containing total salaries for all employees is a summary line.

**Aggregate functions:** To summarize information, CA-OLQ provides the **aggregate functions** shown below. An aggregate function is a type of built-in function that evaluates all the values in a column and returns a single value.

Function	Meaning
COUNT	Counts the number of rows
SUM	Supplies a total value for the named column
AVG	Supplies an average value for the named column
MIN	Supplies the lowest value in the named column
MAX	Supplies the highest value in the named column
STD	Standard deviation
VAR	Variance

**How to use aggregate functions:** You use aggregate functions in the list of column names or expressions following the SELECT statement. The function is calculated by giving the function (for example, SUM) followed by a column name or value in parentheses.

You can use all aggregate functions, except COUNT, with:

- Values in a column: **sum(salary)**
- An arithmetic expression: **sum(salary \* 0.06)**
- Any combination of the items listed above

To count the number of selected rows, use COUNT followed by an asterisk in parentheses: **count(\*)**. CA-OLQ displays the value in the report.

**Example — Aggregate functions in column lists:** List the number of employees within the company, and the company's total salary payment and average salary payment:

```
select count(*) as &xq.number of employees',
       sum(salary) as &xq.total salary',
       avg(salary) as &xq.average salary'
from emp ! display
```

## 16.1 Summarizing information about a whole table

---

EMP REPORT 01/29/99		
<u>NUMBER OF EMPLOYEES</u>	<u>TOTAL SALARY</u>	<u>AVERAGE SALARY</u>
19	1070000.00	56315.78
END OF REPORT		

## 16.2 Summarizing data in groups

**Groups:** You can display summary information about **groups**. A group is a collection of detail lines that share a common value in one or more columns. For example, you can display summary salary information for each department. Summarizing information about groups is similar to break processing for those familiar with that reporting terminology.

**Use GROUP BY:** To summarize information for groups of values, use the GROUP BY clause. The GROUP BY clause indicates which columns to group. For example, this clause groups all rows that share the same department ID: **group by deptid**.

You can specify up to 31 columns in the GROUP BY clause. For example, you can group rows by department, and within the department, by job ID: **group by deptid, jobid**.

When you group rows, each column listed in the SELECT statement, except those named in the GROUP BY clause, must be acted upon by an aggregate function, such as AVG or MIN. For example, you might group rows by department ID to return average and minimum salaries for each department. CA-OLQ displays one row for each group it evaluates.

**Example 1 — Grouping based on 1 column:** List the number of employees in each department and the department's total and average salaries:

```
select deptid, count(*) as &xq.number of employees',
       sum(salary) as &xq.total salary',
       avg(salary) as &xq.average salary'
from emp
group by deptid ! display
```

EMP REPORT 01/29/99				
DEPTID	NUMBER OF EMPLOYEES	TOTAL SALARY	AVERAGE SALARY	
3100	9	348000.00	38666.66	
4000	6	226000.00	37666.66	
6666	4	496000.00	124000.00	
END OF REPORT				

**Example 2 — Grouping based on 2 columns:** For each department, list the number of employees, total salary, and average salary by gender. Notice that a sex code was entered incorrectly for an employee in department 6666:

```
select deptid, sex, count(*) as &xq.number of employees',
       sum(salary) as &xq.total salary',
       avg(salary) as &xq.average salary'
from emp
group by deptid, sex ! display
```

## 16.2 Summarizing data in groups

---

EMP REPORT 01/29/99					
DEPTID	SEX	NUMBER OF EMPLOYEES	TOTAL SALARY	AVERAGE SALARY	
3100	F	3	135000.00	45000.00	
3100	M	6	213000.00	35500.00	
4000	F	3	94000.00	31333.33	
4000	M	3	132000.00	44000.00	
6666	F	1	240000.00	240000.00	
6666	M	2	166000.00	83000.00	
6666	N	1	90000.00	90000.00	
END OF REPORT					

## 16.3 Specifying a condition for a group

**Use HAVING:** To apply selection criteria to the result of a GROUP BY clause, use a HAVING clause after the GROUP BY clause. The HAVING clause is similar to a WHERE clause, except that it applies to summary rows only. As in the WHERE clause, you can connect multiple conditional expressions by using AND and OR.

**Example:** List the departments where the total salary exceeds \$300,000:

```
select deptid, sum(salary) as &xq.total salary',
       avg(salary) as &xq.average salary'
from emp
group by deptid
having sum(salary) > 300000 ! display
```

EMP REPORT 01/29/99		
DEPTID	TOTAL SALARY	AVERAGE SALARY
3100	348000.00	38666.66
6666	496000.00	124000.00
END OF REPORT		

## 16.4 Summarizing information from another table

**Using a nested SELECT statement:** A SELECT statement within a WHERE clause is called a **nested SELECT**. You can use a nested SELECT statement to retrieve information from one table based on summary information in another table.

**Example — COUNT in a nested SELECT:** List the jobs held by more than one employee. The SELECT statement contains a nested SELECT that returns the number of employees assigned to each job ID. The primary SELECT statement determines if the number is greater than 1:

```
select distinct jobid, title
  from joblist
 where 1 <
      (select count(*)
       from emp
       where joblist.jobid = emp.jobid) ! display
```

JOBLIST REPORT	
02/10/99	
JOBID	TITLE
3001	MGR INTERNL SOFTWARE
3025	PROGRAMMER/ANALYST
4025	PR WRITER
END OF REPORT	

## 16.5 Testing your knowledge

Using the sample tables in Appendix A, “Sample Tables and Database” on page A-1, code a SELECT statement for each of the queries listed below. Appendix B, “Answers” on page B-1, contains one possible answer. Remember, there can be more than one way to achieve the same result when you use the SELECT statement.

1. For each manager in table EMP, determine the number of staff reporting to the manager and the average salary of the staff members.
2. List the number of jobs greater than 3 that are assigned to classes 10 and 50. Display the report in order by the number of jobs.
3. For departments 6666, 4000, and 3100, list the minimum and maximum salaries within the department, provided the average departmental salary is greater than \$37,800.
4. List information about employees earning less than the average salary.



# Chapter 17. Joining Tables or Database Records

---

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## 17.1 Relating tables and records

**Tables:** In many cases, you want to retrieve information from two or more tables. For example, to retrieve the name of each department manager, you must get the manager's ID from the DEPT table and the name that corresponds to the ID from the EMP table. With CA-OLQ, you can obtain information from two tables by **joining** the tables based on a column both tables have in common.

**Database records:** Additionally, if you are using CA-IDMS/DB database records, you can join the records based on a common value or you can join the records by specifying a record-to-record set relationship. For example, to retrieve information about employees and where they work, you would use the OFFICE-EMPLOYEE set of the Employee Database.

**Tables and records:** In some cases, you will want to retrieve information that exists in a table and in a record; for example, a CA-IDMS/DB record (DEPARTMENT) and a table (EMP).

This chapter explains how to retrieve data from each of these data structures.

## 17.2 Joining tables

You can join tables that share a column of common values. For example, you can join:

- Two or more different tables.
- A table to itself when one column contains similar values to another column. For example, table EMP contains a column of manager IDs. You would join table EMP to itself to determine the name of an employee's manager.

Both of these topics are described below. This chapter also describes a method to translate a nested SELECT that retrieves more than one value into a SELECT statement that is a join operation.

### 17.2.1 Joining different tables

**Associate one column with another:** To join tables together, each table must have at least one column that corresponds to a column in another table. You **join** tables together by equating these columns in the WHERE clause of the SELECT statement. The WHERE clause defines the join condition. This figure joins the EMP and DEPT tables by equating the department ID values in both tables:

EMP table

EMPNAME	DEPTID
Jennifer Lanzarotta	3100
Bart Elopoulos	3200
Reginald Mahoney	4000
Duc Ho	2000
Daniel Ortega	1000
Edith Jones	5100
Anthea Poznanski	0100
<b>Ankur Sahu</b>	<b>5300</b>
William Sternbach	5200

DEPT table

DEPTID	DEPTNAME
3100	Internal Software
3200	Computer Operations
4000	Public Relations
2000	Accounting and Payroll
1000	Personnel
5100	Brainstorming
0100	Executive Administration
<b>5300</b>	<b>Blue Skies</b>
5200	Thermoregulation

Join rows in EMP table and DEPT table that have DEPTID equal to 5300 to list information about department 5300 and its employees

EMPNAME	DEPTID	DEPTNAME
Ankur Sahu	5300	Blue Skies

**Which columns can you use?:** The columns should contain comparable data. For example, you could compare the EMPID column in table EMP with the MGRID column in table DEPT. Both columns contain employee ID values.

**Choosing a column:** In some cases, the tables you want to join will have more than one corresponding column. For example, you can join the EMP and DEPT tables by comparing:

- The DEPTID column defined in both tables, *or*
- The EMPID column defined in the EMP table and the MGRID column defined in the DEPT table

If you compare the department ID values, CA-OLQ retrieves information about all employees and their departments. If you compare employee and manager ID values, CA-OLQ retrieves information about all employees who are department managers and the departments they manage.

**Qualifying column names:** When the tables you want to join have the same names for some or all of the columns (like the DEPTID column in the EMP and DEPT tables), qualify the column names by specifying the table name, followed by a period and the column name: **dept.deptid**. In fact, it's a good idea to qualify all column names in join operations to make the SELECT statement easier to read.

**Coding the SELECT statement:** To join tables in a SELECT statement:

1. Name selected columns from any or all of the tables in the column list following the SELECT keyword: **dept.deptid, emp.lastname**.
2. Name the tables, separated by a comma, in the FROM clause of the SELECT statement: **dept, emp**. The order of the tables is not important.
3. Compare the values of the associated columns in the WHERE clause: **dept.deptid = emp.deptid**. The WHERE clause can contain more than one comparison expression, as shown in Example 2 below.

**Example 1 — Name the department managers:** List information about each department manager. The SELECT statement joins the DEPT and EMP tables by getting rows from both tables where the manager ID in the department table is the same as the employee ID in the EMP table:

```
select dept.deptid, dept.deptname, emp.firstname, emp.lastname
   from dept, emp
  where dept.mgrid = emp.empid ! display
```

DEPT/EMP REPORT 01/29/99			
DEPTID	DEPTNAME	FIRSTNAME	LASTNAME
3100	INTERNAL SOFTWARE	JENNIFER	GARFIELD
4000	PUBLIC RELATIONS	MONTE	BANK
6666	EXECUTIVE ADMINISTRATION	HENRIETTA	HENDON
END OF REPORT			

**Example 2 — Name employees hired before their manager:** Assuming that employee IDs are assigned sequentially, list all employees who have worked at the company longer than their manager; that is, those employees who have a lower ID than that of the department's manager. The SELECT statement joins the EMP and DEPT tables by retrieving all rows where:

- The employee's department is the same as the manager's department, *and*
- The employee's ID is less than the manager's ID

```
select emp.empid, emp.lastname, emp.firstname, dept.mgrid
  from emp, dept
  where (dept.deptid = emp.deptid)
  and (emp.empid < dept.mgrid) ! display
```

EMP/DEPT REPORT 01/07/99			
EMPID	LASTNAME	FIRSTNAME	MGRID
0001	RUPEE	JOHN	0030
END OF REPORT			

**Joining more than two tables:** If you need to join more than two tables, specify a join condition for each pair of tables. That is, to join three tables, you'll need at least two join conditions. For example, to join the EMP, DEPT, and JOBCLASS tables, you could join the tables this way:

Tables	Join condition
EMP and DEPT	<b>dept.deptid = emp.deptid</b>
EMP and JOBCLASS	<b>emp.class = jobclass.class</b>

The resulting report would contain information about each employee's department and job class.

**Example — Join three tables:** List job information about all employees who earn the minimum salary for their job class. The SELECT statement joins three tables: EMP, JOBLIST, and JOBCLASS. CA-OLQ retrieves all rows where:

- The employee ID in the EMP table matches the employee ID assigned to a job in the JOBLIST table, *and*
- The employee's job class matches the class assigned in the JOBCLASS table, *and*
- The employee's salary equals the minimum salary in the JOBCLASS table

```
select emp.empid, emp.lastname,
  joblist.title, jobclass.class, emp.salary
  from emp, joblist, jobclass
  where joblist.empid=emp.empid and
  jobclass.class = emp.class and
  emp.salary = jobclass.minsalary ! display
```

EMP/JOBLIST/JOBCLASS REPORT 01/29/99				
EMPID	LASTNAME	TITLE	CLASS	SALARY
0001	RUPEE	DIR OPERATIONS	72	76000.00
0024	DOUGH	PROGRAMMER/ANALYST	42	33000.00
0027	HEAROWITZ	PROGRAMMER/ANALYST	42	33000.00
0029	GALLWAY	PROGRAMMER/ANALYST	42	33000.00
0120	ANGELO	ILLUSTRATOR	21	18000.00
0120	ANGELO	PASTE-UP ARTIST	21	18000.00
0127	MCDUGALL	PASTE-UP ARTIST	21	18000.00
0476	ZEDI	PR WRITER	33	37000.00
END OF REPORT				

## 17.2.2 Joining a table to itself

**Why join a table to itself?:** You join a table to itself when one column in a table requires the table itself to supply additional information. For example, table EMP has a column of manager IDs. To find the name of Michael Angelo's manager, you find the manager's ID in the MGRID column and then find the same ID in the EMPID column. The manager's name is associated with the employee ID:

EMP table

EMPID	EMPNAME	MGRID
<b>0075</b>	<b>Jennifer Lanzarotta</b>	<b>0003</b>
3302	Bart Elopoulos	0004
3871	Reginald Mahoney	0007
4230	Duc Ho	0011
6264	Daniel Ortega	0013
6348	Edith Jones	0015
<b>7170</b>	<b>Anthea Poznanski</b>	<b>0075</b>
8939	Ankur Sahu	0321
8957	William Sternbach	0349

Join table EMP to itself by equating Anthea Poznanski's manager ID to an employee ID

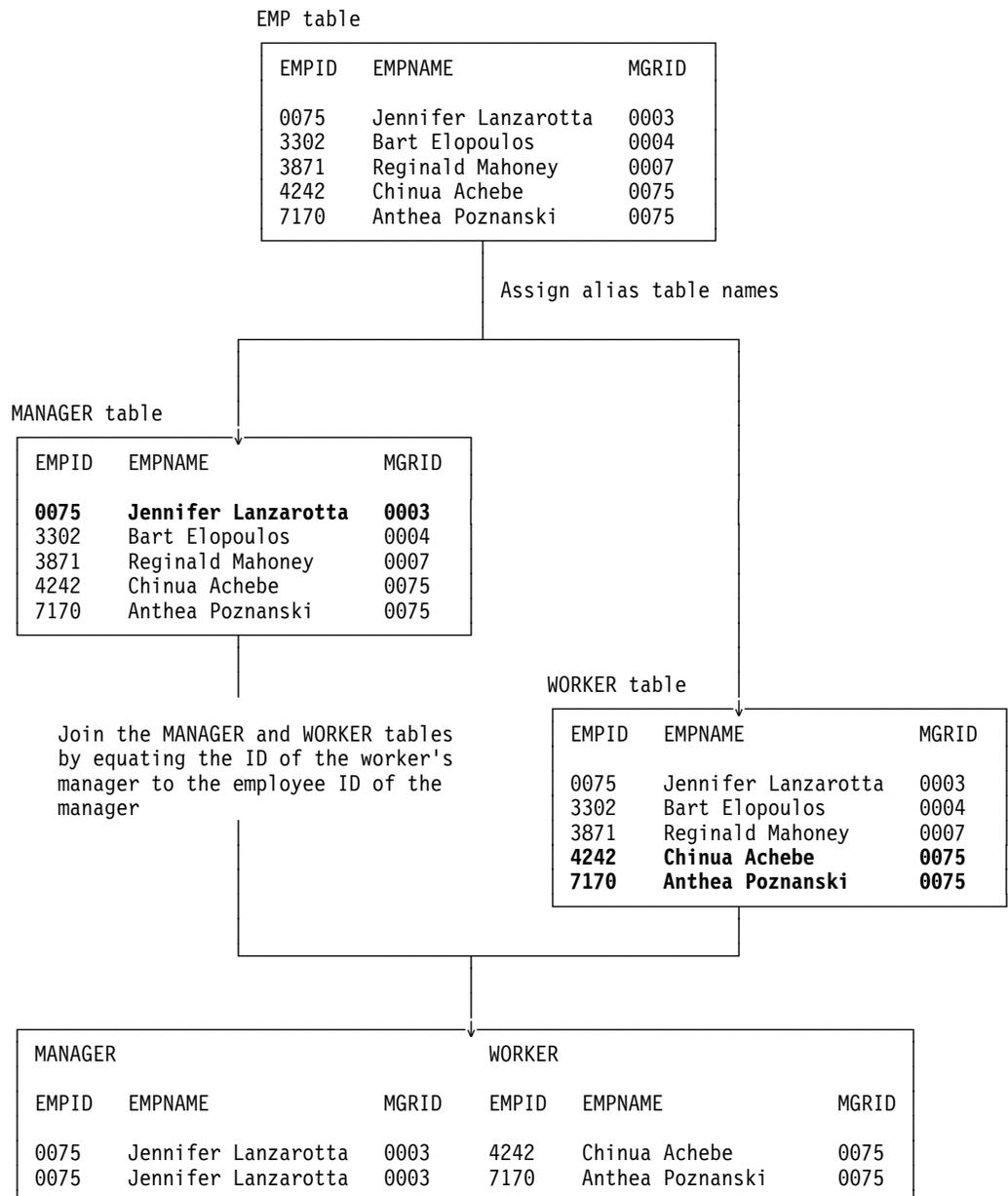
EMPID	EMPNAME	MGRID	EMPID	EMPNAME	MGRID
7170	Anthea Poznanski	0075	0075	Jennifer Lanzarotta	0003

This type of join is called a **reflexive join** and is used to implement a **nested structure**, which is also called a **bill-of-materials** structure. A nested structure is one where there is a relationship between columns in the same table. For example, nested relationships exist:

- In an industrial environment where a part is a component of another part and can contain component parts itself. For example, a door is a component of a car and contains these component parts: handle, lock, and window.

- In the corporate environment used for examples in this manual where an employee manages other employees. Likewise, an employee can report to more than one supervisor.

**How to join a table to itself:** To join a table to itself, you simply treat the table as two tables by assigning **aliases**, or alternative names, to the table in the SELECT statement. Thereafter, the SELECT statement coding requirements listed below are the same as if you were joining two different tables. This figure illustrates how to join table EMP to itself by assigning two alias table names — MANAGER and WORKER:



**Coding the SELECT statement:** To join a table to itself, follow these steps:

1. Qualify each column listed after the SELECT keyword with an alias table name: **manager.lastname**
2. For each reflexive join (that is, for each time you join a table to itself), assign an alias by coding:
  - a. The table name
  - b. A blank
  - c. The alias

Separate each table and its alias from another with a comma: **emp manager, emp worker**

3. In the WHERE clause, compare two columns that share the same type of information: **manager.empid = worker.mgrid**

**Example:** List each manager and associated staff. To retrieve this information, join the EMP table to itself, equating a manager's employee ID to the ID of a staff member's manager.

The SELECT statement assigns these aliases to EMP table: MANAGER and WORKER. The WHERE clause selects rows where the employee ID in the MANAGER table equals the manager's ID in the WORKER table. The columns display the manager's name retrieved from the MANAGER table and the worker's name retrieved from the WORKER table:

```
select manager.lastname as supervisor, worker.lastname as staff
  from emp manager, emp worker
 where manager.empid = worker.mgrid ! display
```

EMP/EMP REPORT 01/07/99	
SUPERVISOR	STAFF
-----	-----
GARFIELD	JENSEN
GARFIELD	JACOBI
GARFIELD	TYRO
GARFIELD	DOUGH
GARFIELD	HEAROWITZ
GARFIELD	GRANGER
GARFIELD	GALLWAY
GARFIELD	LITERATA
BANK	ANGELO
BANK	MCDOUGALL
BANK	PENMAN
BANK	JACKSON
BANK	ZEDI
HENDON	RUPEE
HENDON	GARFIELD
HENDON	BANK

- 1 -

### 17.2.3 Comparing a column to more than one value

**Why you compare more than one value:** You may want to compare values in one table to a list of values in another table. For example, you might want to obtain information about all employees whose ID matches the manager IDs in table DEPT. If you know the manager IDs in table DEPT, you could code a SELECT statement that compares employee IDs to a list of manager IDs:

```
select empid, lastname
  from emp
 where empid in
    (0013, 0011, 0003, 0004, 0007, 0015, 0349, 0321, 0030)
```

However, this type of query isn't practical in some cases, especially for large tables. CA-OLQ provides a method to retrieve this information.

**Coding it as a join operation:** You can obtain the same information by joining the EMP and DEPT tables where the manager ID in table DEPT is the same as the employee ID in table EMP:

```
select emp.lastname
  from dept, emp
 where emp.empid = dept.mgrid
```

## 17.3 Retrieving information from CA-IDMS/DB records

Examples to this point are all based on ASF-generated tables. However, you can also use the SELECT statement to retrieve data from CA-IDMS/DB database records. This portion of the chapter tells you how to retrieve data from:

- One CA-IDMS/DB record
- Two or more CA-IDMS/DB records by using sets
- A CA-IDMS/DB bill-of-materials data structure

### 17.3.1 Retrieving data from a single record

**Comparing a record to a table:** Retrieving information from a CA-IDMS/DB database record is comparable to retrieving rows from a table. The CA-IDMS/DB record type (for example, the EMPLOYEE record) is like a table (for example, the EMP table). The EMPLOYEE record occurrences are like the rows of EMP table.

**Signing on to a subschema:** To access CA-IDMS/DB database records, you have to first sign on to a subschema. A subschema is a view of the database. That is, it describes a subset of the database records that a CA-IDMS/DB database contains.

To signon to a subschema, issue a SIGNON command:

```
signon ss=empss01
```

**Coding the SELECT statement:** To retrieve information from a single CA-IDMS/DB database record, code the SELECT statement like this:

1. Enter record field names instead of column names following the SELECT keyword: **emp-last-name-0415**
2. Enter the record name instead of the table name following the FROM keyword: **employee**

**Finding record names:** If you do not know the record or the record field names that you need, issue these commands:

HELP RECORDS	Lists the records defined to the subschema you have accessed
HELP RECORD= <i>record-name</i>	Lists the fields associated with the named record

**Example:** List each office's code number, in ascending order, and city:

```
select office-code-0450, office-city-0450
  from office
 order by office-code-0450 ! display
```

```

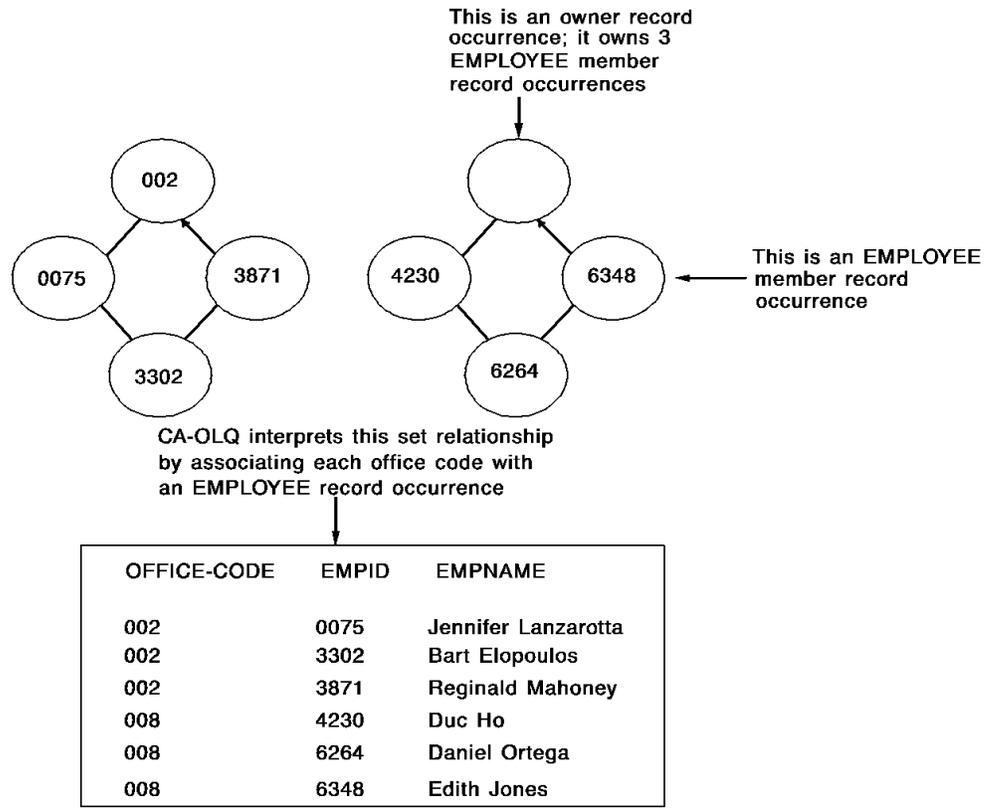
                                OFFICE REPORT
                                01/27/99

OFFICE-CODE-0450                OFFICE-CITY-0450
-----
001                               SPRINGFIELD
002                               BOSTON
005                               GLASSTER
008                               WESTON
012                               CAMBRIDGE
END OF REPORT
```

### 17.3.2 Retrieving data from two or more records

**How CA-OLQ interprets a set relationship:** CA-IDMS/DB database records relate to each other through **set** relationships or through data values. A CA-IDMS/DB set links occurrences of one record type with associated occurrences of another record type. One record type is the owner of the set. The other record type is a member of the set. For example, the OFFICE-EMPLOYEE set associates each employee with a particular office. The OFFICE record is the owner and the EMPLOYEE record is the member.

When you retrieve data from two or more tables, you join the tables on a common value. For example, you join the DEPT and EMP tables by equating department IDs: **where dept.deptid=emp.deptid**. Similarly, when you retrieve data from two or more records, you join the records by using a set relationship. For example, you join the OFFICE and EMPLOYEE records with the OFFICE-EMPLOYEE set relationship: **where office-employee**. The figure below illustrates how CA-OLQ interprets a set relationship between the OFFICE and EMPLOYEE database records:



**Coding the SELECT statement:** To retrieve data from two or more CA-IDMS/DB records, code the SELECT statement like this:

1. Enter record field names instead of column names following the SELECT keyword. If the same field name appears in more than one record, qualify the fields with the record name: **employee.emp-id-0415**.
2. Enter the record names instead of the table names following the FROM keyword: **office, employee**.
3. Enter the set names following the WHERE keyword. Separate set names by AND. You can also include other WHERE criteria. Separate additional WHERE criteria from set names by using AND, also: **where (office-employee and dept-employee) and (dept-id-0410 = 4000)**.

**Example 1 — Retrieving data from 2 records:** List all employees who work in the Boston office. The SELECT statement shown below selects EMPLOYEE and OFFICE records in the OFFICE-EMPLOYEE set having an office code of BOSTON:

```
select emp-last-name-0415 as &xq.employee name',
       office-city-0450 as &xq.office'
from employee, office
where office-employee and office-city-0450 = &xq.boston' ! display
```

OFFICE/EMPLOYEE REPORT 01/27/99	
EMPLOYEE NAME -----	OFFICE -----
ANGELO	BOSTON
BANK	BOSTON
BLOOMER	BOSTON
FITZHUGH	BOSTON
FONRAD	BOSTON
GARDNER	BOSTON
HENDON	BOSTON
HUTTON	BOSTON
JACKSON	BOSTON
JENSON	BOSTON
JOHNSON	BOSTON
KAHALLY	BOSTON
KIMBALL	BOSTON
KING	BOSTON

- 1 -

**Example 2 — Retrieving data from 3 records:** List the department and office location of each employee. The SELECT statement shown below:

1. Selects fields from the DEPARTMENT, EMPLOYEE, and OFFICE records where:
  - The DEPT-EMPLOYEE set associates DEPARTMENT and EMPLOYEE record occurrences
  - The OFFICE-EMPLOYEE set associates OFFICE and EMPLOYEE record occurrences
2. Orders the retrieved rows by employee name within each department

```
select dept-id-0410 as department, emp-last-name-0415 as employee,
office-city-0450 as office
from department, employee, office
where dept-employee and office-employee
order by dept-id-0410, emp-last-name-0415 ! display
```

OFFICE/EMPLOYEE/DEPARTMENT REPORT 01/29/99		
DEPARTMENT -----	EMPLOYEE -----	OFFICE -----
0100	HENDON	BOSTON
0100	PAPAZEUS	WESTON
0100	RUPEE	SPRINGFIELD
0100	WILDER	SPRINGFIELD
1000	FITZHUGH	BOSTON
1000	JOHNSON	BOSTON
1000	ORGRATZI	BOSTON
1000	PEOPLES	BOSTON
2000	BLOOMER	BOSTON
2000	HUTTON	BOSTON
2000	JENSON	BOSTON
2000	KIMBALL	BOSTON
2000	KING	BOSTON

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### 17.3.3 Retrieving data from a record joined to itself

**By using a nested structure:** Like tables, records can participate in nested structures. For example, employees who are supervisors have employees who are staff members. Likewise, employees who are staff can report to more than one supervisor.

This type of set relationship is called a **bill-of-materials** structure. The data structure diagram in Appendix A, “Sample Tables and Database” on page A-1 shows a bill-of-materials structure between the EMPLOYEE and STRUCTURE records:

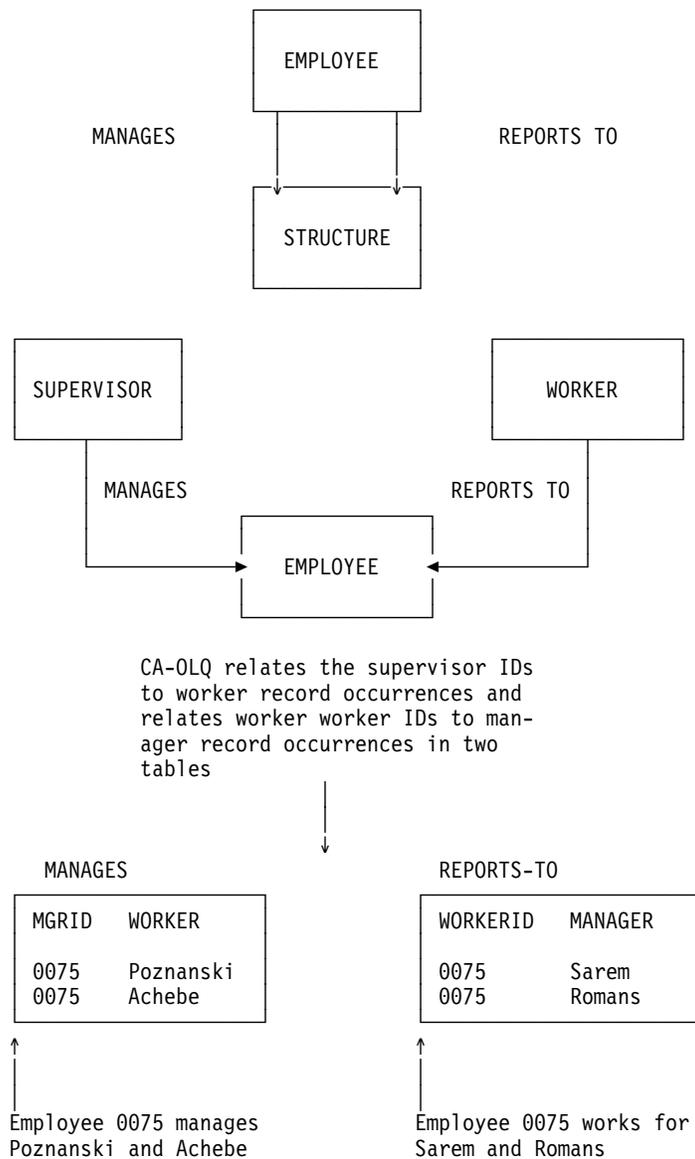
- One set is MANAGES. It associates supervisors with staff.
- The other set is REPORTS-TO. It associates each employee with one or more supervisors.

The STRUCTURE record exists only to facilitate these set relationships.

**Assign alias record names:** This figure shows how CA-OLQ interprets a bill-of-materials structure relationally, by using alias names for the EMPLOYEE record:

- The SUPERVISOR alias contains occurrences of supervisors. The MANAGES set relates each supervisor to employees who are staff.
- The WORKER alias contains occurrences of staff. The REPORTS-TO set relates each staff member to employees who are supervisors.

CA-OLQ uses the concept illustrated in the figure shown under 17.3.2, “Retrieving data from two or more records” on page 17-12 to interpret these set relationships:



**Coding the SELECT statement:** As with a reflexive table join, the SELECT statement is unique in that you assign alias names to the same record. To code the SELECT statement, follow these steps:

1. Qualify each record field name with an alias record name:  
**supervisor.emp-last-name-0415.**
2. For each bill-of-materials navigation, assign a unique alias to the record by coding:
  - a. The record name
  - b. A blank
  - c. The alias

Separate each record and its alias from another with a comma: **employee supervisor, employee worker, structure**.

3. Name the sets that participate in the bill-of-materials following the WHERE clause by coding:
  - a. A qualified set name. A qualified set name is the set name followed by a period and the alias record name: **where reports-to.worker**.
  - b. An AND logical operator.
  - c. A second qualified set name.

**Example — Listing managers and their staff:** Retrieve each project leader and the staff working on the project. The SELECT statement assigns these aliases to the EMPLOYEE record: SUPERVISOR and WORKER. STRUCTURE is the name of the CA-IDMS/DB record that facilitates this bill-of-materials data structure.

The alias table names qualify record field names that appear following the SELECT keyword and set names that appear in the WHERE clause:

```
select supervisor.emp-last-name-0415 as &xq.project leader',
       worker.emp-last-name-0415 as &xq.staff'
  from employee supervisor, employee worker, structure
  where manages.supervisor and reports-to.worker
  order by supervisor.emp-last-name-0415 ! display
```

EMPLOYEE/EMPLOYEE REPORT 02/01/99	
PROJECT LEADER	STAFF
BANK	ZEDI
BANK	JACKSON
BANK	PENMAN
BANK	MCDUGALL
BANK	ANGELO
CRANE	GARDNER
CRANE	KAHALLY
CRANE	KLWELLEN
CRANE	LIPSICH
CRANE	KRAAMER
CRANE	TERNER
CRANE	FONRAD
CRANE	FERNDALE

- 1 -

## 17.4 Retrieving data from tables and records

**Signing on:** To join information from a table and a database record, sign on to the subschema that contains the database record and sign on to the table. Use a view id in the SIGNON statement to keep each signon active and to qualify records and tables that share the same name:

```
signon table emp view emptab !
signon ss=empss01 view empssc&RB.
```

**Comparing view IDs to alias names:** A view ID applies when you sign on to more than one subschema. It qualifies records or tables that have the same name in different subschemas.

An alias applies to records and tables in the SELECT statement. It qualifies fields (columns) and sets that have the same name in different records or tables.

**Coding the SELECT statement:** Once you have signed on to the subschemas, code the SELECT statement like this:

1. Enter column names and/or record field names following the SELECT keyword: **lastname, dept-name-0410**.
2. Enter table and/or record names following the FROM keyword. If the record and table share the same name, qualify them with the view id you assigned to the subschema at signon: **emptab.emp, empssc.department**.
3. Equate values in the WHERE clause. If you are retrieving information from a table and a database record, compare a column to a field: **deptid = dept-id-0410**

**Example — Joining a table and a record:** Join table EMP and database record DEPARTMENT to list all employees and their associated departments by:

1. Signing on to the EMPSS01 subschema in dictionary TSTDICT.
2. Signing on to the EMP table in dictionary ASFDICT.
3. Select the employee's name from table EMP and the department's name from record DEPARTMENT where a table row and record occurrence have the same department ID value. The ORDER BY clause instructs CA-OLQ to display the rows alphabetically by employees names.

```
signon ss empss01 dictname tstdict view empssc !
signon table emp dictname asfdict view emptab !
select lastname as employee, dept-name-0410 as department
   from emp, department
   where deptid = dept-id-0410
   order by lastname ! display
```

EMP/DEPARTMENT REPORT	
01/29/99	
EMPLOYEE	DEPARTMENT
ANGELO	PUBLIC RELATIONS
BANK	PUBLIC RELATIONS
DOUGH	INTERNAL SOFTWARE
GALLWAY	INTERNAL SOFTWARE
GARFIELD	INTERNAL SOFTWARE
GRANGER	INTERNAL SOFTWARE
HEAROWITZ	INTERNAL SOFTWARE
HENDON	EXECUTIVE ADMINISTRATION
JACKSON	PUBLIC RELATIONS
JACOBI	INTERNAL SOFTWARE
JENSEN	INTERNAL SOFTWARE
LITERATA	INTERNAL SOFTWARE
MCDUGALL	PUBLIC RELATIONS
PAPAZEUS	EXECUTIVE ADMINISTRATION

## 17.5 Testing your knowledge

Using the sample tables in Appendix A, “Sample Tables and Database” on page A-1, code a SELECT statement for each of the queries listed below. Appendix B, “Answers” on page B-1, contains one possible answer. Remember, there can be more than one way to achieve the same result when you use the SELECT statement.

1. List the average salary for employees in the Boston office
2. List all employees in the Springfield office who are programmer/analysts
3. List the average salary of the managers in table DEPT
4. List all employees who are either programmer/analysts, paste-up artists, or a brainstorming manager

Using the data structure diagram in Appendix A, “Sample Tables and Database” on page A-1 code a SELECT statement for these database record queries:

1. List each employee's job title and salary
2. For each job assigned to more than one employee, list the number of employees assigned to the job and their average salaries
3. List each employee's manager

# Appendix A. Sample Tables and Database

---

- A.1 BOSTON table . . . . . A-3
- A.2 DEPT table . . . . . A-4
- A.3 EMP table . . . . . A-5
- A.4 JOBCLASS table . . . . . A-6
- A.5 JOBLIST table . . . . . A-7
- A.6 SPRINGFIELD table . . . . . A-9
- A.7 WESTON table . . . . . A-10
- A.8 EMPLOYEE database data structure diagram . . . . . A-11



---

## A.1 BOSTON table

EMPID	LASTNAME	HIREDATE	OFFICECODE	TOWN
0120	ANGELO	090879	002	BOSTON
0007	BANK	043078	002	BOSTON
0069	BLOOMER	050580	002	BOSTON
0119	BOWER	121477	002	BOSTON
0081	FITZHUGH	091981	002	BOSTON
0045	FONRAD	041480	002	BOSTON
0053	GARDNER	061581	002	BOSTON
0030	HENDON	112173	002	BOSTON
0100	HUTTON	090777	002	BOSTON
0158	JACKSON	070777	002	BOSTON
0011	JENSON	092980	002	BOSTON
0051	JOHNSON	032377	002	BOSTON
0049	KAHALLY	092979	002	BOSTON
0067	KIMBALL	091978	002	BOSTON
0106	KING	081680	002	BOSTON
0074	KRAAMER	040481	002	BOSTON
0127	MCDUGALL	060780	002	BOSTON
0101	NICEMAN	050680	002	BOSTON
0091	ORGRATZI	101080	002	BOSTON
0149	PENMAN	090877	002	BOSTON
0013	PEOPLES	010281	002	BOSTON
0048	TERNER	052682	002	BOSTON
0466	ANDALE	061582	002	BOSTON
0457	ARM	012365	002	BOSTON

---

## A.2 DEPT table

DEPTID	DEPTNAME	MGRID
1000	PERSONNEL	0013
2000	ACCOUNTING AND PAYROLL	0011
3100	INTERNAL SOFTWARE	0003
3200	COMPUTER OPERATIONS	0004
4000	PUBLIC RELATIONS	0007
5100	BRAINSTORMING	0015
5200	THERMOREGULATION	0349
5300	BLUE SKIES	0321
6666	EXECUTIVE ADMINISTRATION	0030

## A.3 EMP table

EMPID	FIRSTNAME	LASTNAME	DEPTID	MGRID	SALARY	JOBID
0001	JOHN	RUPEE	6666	0030	76000.00	3001
0003	JENNIFER	GARFIELD	3100	0030	65000.00	3001
0007	MONTE	BANK	4000	0030	80000.00	4001
0019	JULIE	JENSEN	3100	0003	37000.00	3025
0020	JAMES	JACOBI	3100	0003	55000.00	3011
0021	RALPH	TYRO	3100	0003	20000.00	3027
0024	JANE	DOUGH	3100	0003	33000.00	3025
0027	VLADIMIR	HEAROWITZ	3100	0003	33000.00	3025
0028	PERCY	GRANGER	3100	0003	34500.00	3025
0029	JAMES	GALLWAY	3100	0003	33000.00	3025
0030	HENRIETTA	HENDON	6666	0030	240000.00	9001
0035	LARRY	LITERATA	3100	0003	37500.00	3031
0120	MICHAEL	ANGELO	4000	0007	18000.00	4051
0127	CAROL	MCDUGALL	4000	0007	18000.00	4053
0149	LAURA	PENMAN	4000	0007	39000.00	4025
0158	JOCK	JACKSON	4000	0007	34000.00	4021
0471	THEMIS	PAPAZEUS	6666	0030	90000.00	5001
0472	ROBBY	WILDER	6666	0030	90000.00	9005
0476	BETSY	ZEDI	4000	0007	37000.00	4025

EMPID	PHONE	SSECNUM	STARTDATE	BIRTHDATE	CLASS	SEX
0001	6173421515	013445656	750223	330219	72	M
0003	6173321967	021994516	770121	450818	71	F
0007	6173321933	022446676	780430	500101	72	M
0019	6172241955	033456718	820929	480730	43	F
0020	6173348912	018813465	811111	401101	63	M
0021	6174459191	019893456	801221	551225	21	M
0024	6174458155	022337878	760808	510329	42	F
0027	6173349634	031896154	810909	560425	42	M
0028	6173341212	011234545	800527	580222	42	M
0029	6173349155	014567777	811010	471006	42	M
0030	6178881212	011334444	731121	331006	93	F
0035	6175912323	023567831	800909	550430	43	M
0120	6178870235	127675593	790908	570405	21	M
0127	6178871324	153897789	800607	590304	21	F
0149	6175341199	014593186	770908	440504	33	F
0158	6175346767	019996919	770707	500904	42	M
0471	6174561277	022887770	780907	350304	72	N
0472	6174317709	038779010	790716	550304	81	M
0476	6174319909	010004560	760223	401229	33	F

## A.4 JOBCLASS table

---

<u>CLASS</u>	<u>MINSALARY</u>	<u>MAXSALARY</u>
11	12000.00	18000.00
21	18000.00	20000.00
33	37000.00	39000.00
42	33000.00	35000.00
43	35500.00	40000.00
51	38000.00	57000.00
63	52500.00	62500.00
71	60000.00	70000.00
72	76000.00	90000.00
81	85000.00	105000.00
93	200000.00	250000.00

---

## A.5 JOBLIST table

JOBID	TITLE	EMPID	CLASS
1001	MGR PERSONNEL	0013	72
1023	RECRUITER/INTERVWR	0091	43
1051	PERSONNEL CLERK	0051	11
1051	PERSONNEL CLERK	0081	11
2001	MGR ACCTNG/PAYROLL	0011	72
2023	ACCOUNTANT	0067	62
2025	FINANCIAL ANALYST	0100	62
2051	AP CLERK	0101	12
2053	AR CLERK	0106	12
2055	PAYROLL CLERK	0069	13
3001	MGR INTERNL SOFTWARE	0003	71
3003	MGR COMPUTER OPS	0004	71
3011	DATABASE ADMIN.	0020	63
3023	SYSTEMS PROGRAMMER	0016	52
3025	PROGRAMMER/ANALYST	0019	43
3025	PROGRAMMER/ANALYST	0023	44
3025	PROGRAMMER/ANALYST	0024	42
3025	PROGRAMMER/ANALYST	0027	42
3025	PROGRAMMER/ANALYST	0028	42
3025	PROGRAMMER/ANALYST	0029	42
3027	PROGRAMMER TRAINEE	0021	21
3027	PROGRAMMER TRAINEE	0023	43
3029	COMPUTER OPERATOR	0031	21
3029	COMPUTER OPERATOR	0032	22
3029	COMPUTER OPERATOR	0049	21

A.5 JOBLIST table

---

3031	DOCUMENTATION SPEC	0035	43
3051	DATA ENTRY CLERK	0045	13
3051	DATA ENTRY CLERK	0048	11
3051	DATA ENTRY CLERK	0053	12
3051	DATA ENTRY CLERK	0074	12
4001	MGR PUBLIC RELATIONS	0007	72
4021	SPORTS CONSULTANT	0158	42
4023	PHOTOGRAPHER	9999	33
4025	PR WRITER	0149	33
4025	PR WRITER	0476	33
4051	ILLUSTRATOR	0120	21
4053	PASTE-UP ARTIST	0120	21
4053	PASTE-UP ARTIST	0127	21
5001	MGR BRAINSTORMING	0015	72
5001	MGR BRAINSTORMING	0471	72
5003	MGR THERMOREGULATION	0349	72
5005	MGR BLUE SKIES	0321	71
5021	RAINMAKER	0301	53
5023	RAINDANCE CONSULTANT	0334	43
5025	SNOWBLOWER	0341	51
5025	SNOWBLOWER	0466	51
5027	KEEPER OF THE WINDS	0467	51
5029	STURM/DRANG ADMIN	0457	53
5029	STURM/DRANG ADMIN	0458	53
5031	KEEPER OF BALLOONS	0329	52
5033	WINTERIZER	0355	51
5033	WINTERIZER	0469	51
5035	HUMIDITY CONTROL CLK	0479	43
5037	SUNSHINE SUPERVISOR	0321	53
5037	SUNSHINE SUPERVISOR	0366	51
5039	CUMULUS CARETAKER	0371	53
9001	PRESIDENT	0030	93
9003	DIR OPERATIONS	0001	81
9005	DIR CORP CONFUSION	0472	81
9007	DIR WEATHER	0471	82

---

---

## A.6 SPRINGFIELD table

EMPID	LASTNAME	STARTYEAR	OFFICECODE	CITY
0004	CRANE	051477	001	SPRINGFIELD
0024	DOUGH	080876	001	SPRINGFIELD
0032	FERNDALE	090979	001	SPRINGFIELD
0329	FINN	061679	001	SPRINGFIELD
0029	GALLWAY	101081	001	SPRINGFIELD
0003	GARFIELD	012177	001	SPRINGFIELD
0028	GRANGER	052780	001	SPRINGFIELD
0027	HEAROWITZ	090981	001	SPRINGFIELD
0020	JACOBI	111181	001	SPRINGFIELD
0019	JENSEN	092982	001	SPRINGFIELD
0016	KLWELLEN	010678	001	SPRINGFIELD
0031	LIPSICH	042981	001	SPRINGFIELD
0035	LITERATA	090980	001	SPRINGFIELD
0023	O'HEARN	050478	001	SPRINGFIELD
0001	RUPEE	022375	001	SPRINGFIELD
0021	TYRO	122180	001	SPRINGFIELD
0472	WILDER	071679	001	SPRINGFIELD
0476	ZEDI	022376	001	SPRINGFIELD
0007	BANK	043078	001	SPRINGFIELD
0069	BLOOMER	050580	001	SPRINGFIELD
0467	BREEZE	022980	001	SPRINGFIELD

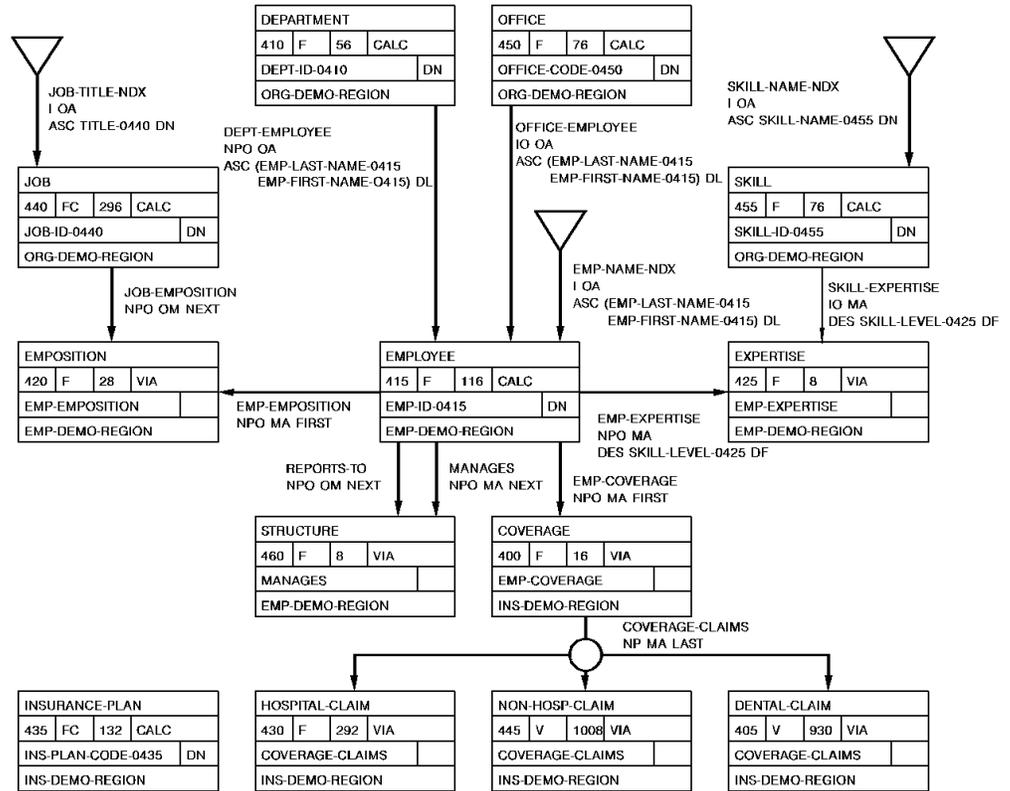
## A.7 WESTON table

---

EMPID	LASTNAME	STARTDATE	OFFICECODE	CITY
0466	ANDALE	061582	008	WESTON
0457	ARM	012365	008	WESTON
0467	BREEZE	022980	008	WESTON
0469	KASPAR	091476	008	WESTON
0341	MUNYON	031482	008	WESTON
0471	PAPAZEUS	090778	008	WESTON
0355	TIME	050675	008	WESTON
0458	WAGNER	070883	008	WESTON
0349	WILCO	111179	008	WESTON
0119	BOWER	121477	008	WESTON
0081	FITZHUGH	091981	008	WESTON
0004	CRANE	051477	008	WESTON
0024	DOUGH	080876	008	WESTON
0032	FERNDALE	090979	008	WESTON
0329	FINN	061679	008	WESTON

---

## A.8 EMPLOYEE database data structure diagram





# Appendix B. Answers

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- B.1 Chapter 2 answers . . . . . B-3
- B.2 Chapter 3 answers . . . . . B-5
- B.3 Chapter 4 answers . . . . . B-7
- B.4 Chapter 5 answers . . . . . B-10
- B.5 Chapter 6 answers . . . . . B-12
- B.6 Final query . . . . . B-14



## B.1 Chapter 2 answers

**Query 1:** List the salary range for each job class:

```
select class, maxsalary - minsalary as &xq.salary range'
from jobclass
```

CLASS REPORT	
02/16/99	
CLASS	SALARY RANGE
11	6000.00
21	2000.00
33	2000.00
42	2000.00
43	4500.00
51	19000.00
63	10000.00
71	10000.00
72	14000.00
81	20000.00
93	50000.00
END OF REPORT	

**Query 2:** List all employees who have both a:

- Manager with ID 0007 or 0003
- Job that begins with the number 3

```
select lastname, mgrid, jobid
from emp
where mgrid in (0003, 0007) and
jobid like &xq.3__'
```

EMP REPORT		
02/16/99		
LASTNAME	MGRID	JOBID
JENSEN	0003	3025
JACOBI	0003	3011
TYRO	0003	3027
DOUGH	0003	3025
HEAROWITZ	0003	3025
GRANGER	0003	3025
GALLWAY	0003	3025
LITERATA	0003	3031
END OF REPORT		

**Query 3:** Identify all employees whose sex code was entered incorrectly (that is, is not M or F):

```
select firstname, lastname, sex
from emp
where sex not in (&xq.m', &xq.f')
```

EMP REPORT		
02/16/99		
FIRSTNAME	LASTNAME	SEX
THEMIS	PAPAZEUS	N
END OF REPORT		

**Query 4:** List the number of years employees have from January 1, 1988 until they reach retirement age (65):

```
select firstname, lastname, birthdate,
(65 - next-int-eqlo(datedif(880101,birthdate)/365))
as &xq.years until retirement'
from emp
```

EMP REPORT 02/16/99			
FIRSTNAME	LASTNAME	BIRTHDATE	YEARS UNTIL RETIREMENT
JOHN	RUPEE	330219	11
JENNIFER	GARFIELD	450818	23
MONTE	BANK	500101	27
JULIE	JENSEN	480730	26
JAMES	JACOBI	401101	18
RALPH	TYRO	551225	33
JANE	DOUGH	510329	29
VLADIMIR	HEAROWITZ	560425	34
PERCY	GRANGER	580222	36
JAMES	GALLWAY	471006	25
HENRIETTA	HENDON	331006	11
LARRY	LITERATA	550430	33
MICHAEL	ANGELO	570405	35
CAROL	MCDUGALL	590304	37

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## B.2 Chapter 3 answers

**Query 1:** For each manager in table EMP, determine the number of staff reporting to the manager and the average salary of the staff members:

```
select mgrid, count(*) as &xq.number of staff',
       avg(salary) as &xq.average salary'
from emp
group by mgrid
```

EMP REPORT 02/16/99		
MGRID	NUMBER OF STAFF	AVERAGE SALARY
0003	8	35375.00
0007	5	29200.00
0030	6	106833.33
END OF REPORT		

**Query 2:** List the number of jobs greater than or equal to 3 that are assigned to classes 10 and 50. Display the report in order by the number of jobs:

```
select count(*) as &xq.number of jobs', class
from joblist
where class between 10 and 50
group by class
having count(*) >= 3
order by 1
```

JOBLIST REPORT 02/16/99		
NUMBER OF JOBS	CLASS	
3	11	
3	33	
4	12	
5	42	
6	21	
6	43	
END OF REPORT		

**Query 3:** For departments 6666, 4000, and 3100, list the minimum and maximum salaries within the department, provided the average departmental salary is greater than \$37,800:

```
select deptid, min(salary) as &xq.minimum salary',
       max(salary) as &xq.maximum salary'
from emp
where deptid in (3100, 4000, 6666)
group by deptid
having avg(salary) > 37800
```

```
EMP REPORT
02/16/99
```

DEPTID	MINIMUM SALARY	MAXIMUM SALARY
3100	20000.00	65000.00
6666	76000.00	240000.00

```
END OF REPORT
```

**Query 4:** List information about employees earning less than the average salary:

```
select lastname, salary
from emp
where salary <
(select avg(salary)
from emp) ! display
```

```
EMP REPORT
03/21/99
```

<u>LASTNAME</u>	<u>SALARY</u>
JENSEN	37000.00
JACOBI	55000.00
TYRO	20000.00
DOUGH	33000.00
HEAROWITZ	33000.00
GRANGER	34500.00
GALLWAY	33000.00
LITERATA	37500.00
ANGELO	18000.00
MCDUGALL	18000.00
PENMAN	39000.00
JACKSON	34000.00
ZEDI	37000.00

```
END OF REPORT
```

## B.3 Chapter 4 answers

**Table Query 1:** List the average salary for employees in the Boston office:

```
select count(*) as &sq.number of boston employees', avg(salary)
      as &sq.average salary'
  from emp, boston
 where emp.empid = boston.empid
```

EMPLOYEE/BOSTON REPORT 02/22/99		
	NUMBER OF BOSTON EMPLOYEES	AVERAGE SALARY
END OF REPORT	7	74142.85

**Table Query 2:** List all employees in the Springfield office who are programmer/analysts:

```
select emp.lastname, joblist.title, springfield.city
  from emp, joblist, springfield
 where emp.empid = springfield.empid and
        emp.empid = joblist.empid and
        joblist.title = &sq.programmer/analyst'
```

JOBLIST/EMPLOYEE/SPRINGFIELD REPORT 02/22/99		
LASTNAME	TITLE	CITY
DOUGH	PROGRAMMER/ANALYST	SPRINGFIELD
HEAROWITZ	PROGRAMMER/ANALYST	SPRINGFIELD
GRANGER	PROGRAMMER/ANALYST	SPRINGFIELD
GALLWAY	PROGRAMMER/ANALYST	SPRINGFIELD
END OF REPORT		

**Table Query 3:** List the average salary of the managers in table DEPT:

```
select avg(salary) as &sq.average manager salary'
  from emp, dept
 where emp.empid = dept.mgrid
```

EMP/DEPARTMENT REPORT 02/22/99	
	AVERAGE MANAGER SALARY
END OF REPORT	128333.33

**Table Query 4:** List all employees who are either programmer/analysts, paste-up artists, or a brainstorming manager:

```
select emp.lastname, joblist.title
  from emp, joblist
 where joblist.title in (&sq.programmer/analyst', &sq.paste-up artist',
                        &sq.mgr brainstorming') and
        joblist.empid = emp.empid
```

JOBLIST/EMPLOYEE REPORT 02/22/99	
LASTNAME	TITLE
DOUGH	PROGRAMMER/ANALYST
HEAROWITZ	PROGRAMMER/ANALYST
GRANGER	PROGRAMMER/ANALYST
GALLWAY	PROGRAMMER/ANALYST
ANGELO	PASTE-UP ARTIST
MCDUGALL	PASTE-UP ARTIST
PAPAZEUS	MGR BRAINSTORMING
END OF REPORT	

**Record Query 1:** List each employee's job title and salary:

```
select employee.emp-last-name-0415, job.job-title-0440,
       emposition.salary-amount-0420
from employee, emposition, job
where emp-emposition and job-emposition
```

JOB/EMPOSITION/EMPLOYEE REPORT 02/22/99		
EMP-LAST-NAME-0415	TITLE-0440	SALARY-AMOUNT-0420
O'HEARN	PROGRAMMER TRAINEE	38000.00
TYRO	PROGRAMMER TRAINEE	20000.00
WILCO	MGR THERMOREGULATION	80000.00
GARFIELD	MGR INTERNL SOFTWARE	65000.00
RUPEE	MGR INTERNL SOFTWARE	76000.00
JOHNSON	PERSONNEL CLERK	13500.00
FITZHUGH	PERSONNEL CLERK	13000.00
BLOOMER	PAYROLL CLERK	15000.00
ARM	STURM/DRANG ADMIN	46000.00
WAGNER	STURM/DRANG ADMIN	47000.00
ORGRATZI	RECRUITER/INTERVWR	39000.00
BANK	MGR PUBLIC RELATIONS	80000.00
ANDALE	SNOWBLOWER	33500.00
- 1 -		

**Record Query 2:** For each job assigned to more than one employee, list the number of employees assigned to the job and their average salaries:

```
select job.title-0440, count(*) as &xq.number of jobs',
       avg(emposition.salary-amount-0420) as &xq.average salary'
from employee, emposition, job
where emp-emposition and job-emposition
group by job.title-0440
having count(*) > 1
```

JOB/EMPOSITION REPORT 02/22/99		
TITLE-0440	NUMBER OF JOBS	AVERAGE SALARY
COMPUTER OPERATOR	3	20333.33
DATA ENTRY CLERK	4	13937.50
DATABASE ADMIN.	2	55000.00
DOCUMENTATION SPEC	2	41250.00
MGR BRAINSTORMING	3	83333.33
MGR COMPUTER OPS	3	68333.33
MGR INTERNL SOFTWARE	2	70500.00
PASTE-UP ARTIST	2	17500.00
PERSONNEL CLERK	2	13250.00
PR WRITER	2	38000.00
PROGRAMMER TRAINEE	2	29000.00
PROGRAMMER/ANALYST	6	35500.00
RAINMAKER	3	46166.66

- 1 -

**Record Query 3:** List each employee's manager:

```
select worker.last-name-0415 as &xq.staff', supervisor.last-name-0415
as &xq.project leader'
from employee worker, employee supervisor, structure
where reports-to.worker and manages.supervisor
order by worker.emp-last-name-0415
```

EMPLOYEE/EMPLOYEE REPORT 02/22/99	
STAFF	PROJECT LEADER
ANDALE	MAKER
ANGELO	BANK
ARM	MAKER
BANK	BOWER
BANK	WILDER
BLOOMER	JENSON
BOWER	BANK
BREEZE	MAKER
CLOTH	WILCO
CLOUD	WILDER
CLOUD	MOON
CRANE	RUPEE
CROW	MAKER

- 1 -

## B.4 Chapter 5 answers

**Query 1:** List the jobs for which employees earn more than \$65,000:

```
select *
  from joblist
 where exists (select *
               from emp
               where emp.jobid=joblist.jobid and
                  salary > 65000)
```

JOBLIST REPORT 02/16/99			
EMPID	CLASS	JOBID	TITLE
0003	71	3001	MGR INTERNL SOFTWARE
0007	72	4001	MGR PUBLIC RELATIONS
0015	72	5001	MGR BRAINSTORMING
0471	72	5001	MGR BRAINSTORMING
0030	93	9001	PRESIDENT
0472	81	9005	DIR CORP CONFUSION
END OF REPORT			

**Query 2:** List openings for jobs that command salaries in the range \$35,000 to \$40,000:

```
select class, jobid, title
  from joblist
 where not exists
   (select * from emp where emp.jobid=joblist.jobid)
 and exists
   (select * from jobclass where jobclass.class=joblist.class
    and minsalary >= 35000 and maxsalary <= 40000)
```

JOBLIST REPORT 02/16/99		
CLASS	JOBID	TITLE
43	1023	RECRUITER/INTERVWR
33	4023	PHOTOGRAPHER
43	5023	RAINDANCE CONSULTANT
43	5035	HUMIDITY CONTROL CLK
END OF REPORT		

**Query 3:** List all employees in the Springfield office who have this job title: &#xq;Programmer/Analyst':

```
select * from springfield where exists
 (select * from employee where employee.empid = springfield.empid
  and exists
   (select * from joblist where employee.empid = joblist.empid and
    joblist.title = &#xq;programmer/analyst'))
```

SPRINGFIELD REPORT 02/22/99				
EMPID	LASTNAME	STARTYEAR	OFFICECODE	CITY
0024	DOUGH	080876	001	SPRINGFIELD
0029	GALLWAY	101081	001	SPRINGFIELD
0028	GRANGER	052780	001	SPRINGFIELD
0027	HEAROWITZ	090981	001	SPRINGFIELD
END OF REPORT				

**Query 4:** List all departments that have no associated employee:

```
select *
from dept
where not exists
(select * from emp
where emp.deptid = dept.deptid) ! display
```

DEPT REPORT 03/21/99		
DEPTID	DEPTNAME	MGRID
1000	PERSONNEL	0013
2000	ACCOUNTING AND PAYROLL	0011
3200	COMPUTER OPERATIONS	0004
5100	BRAINSTORMING	0015
5200	THERMOREGULATION	0349
5300	BLUE SKIES	0321
END OF REPORT		

## B.5 Chapter 6 answers

**Query 1:** List employees in the Boston and Springfield offices, including commuters. Display the report in order of last name:

```
select * from boston
union
select * from springfield
order by 2
```

BOSTON REPORT 02/22/99				
EMPID	LASTNAME	HIREDATE	OFFICECODE	TOWN
0466	ANDALE	061582	002	BOSTON
0120	ANGELO	090879	002	BOSTON
0457	ARM	012365	002	BOSTON
0007	BANK	043078	001	SPRINGFIELD
0007	BANK	043078	002	BOSTON
0069	BLOOMER	050580	001	SPRINGFIELD
0069	BLOOMER	050580	002	BOSTON
0119	BOWER	121477	002	BOSTON
0467	BREEZE	022980	001	SPRINGFIELD
0004	CRANE	051477	001	SPRINGFIELD
0024	DOUGH	080876	001	SPRINGFIELD
0032	FERNDAL	090979	001	SPRINGFIELD
0329	FINN	061679	001	SPRINGFIELD

- 1 -

**Query 2:** List the average salaries of employees in the Boston and Springfield offices:

```
select avg(salary) as 'average salary', town as city
from boston, emp
where boston.empid = emp.empid
group by town
union
select avg(salary), city
from springfield, emp
where springfield.empid = emp.empid
group by city ! display
```

BOSTON/EMP REPORT 03/22/99	
AVERAGE SALARY	CITY
49500.00	SPRINGFIELD
74142.85	BOSTON

END OF REPORT

**Query 3:** List all the employees in the Springfield and Weston offices whose jobid is 3001 or 5001:

```
select lastname, city
  from weston, emp
 where weston.empid=emp.empid
    and jobid in (3001, 5001)
union
select lastname, city
  from springfield, emp
 where springfield.empid=emp.empid
    and jobid in (3001, 5001) ! display
```

EMP/WESTON REPORT 03/22/99		
<u>LASTNAME</u>	<u>JOBID</u>	<u>CITY</u>
GARFIELD	3001	SPRINGFIELD
PAPAZEUS	5001	WESTON
RUPEE	3001	SPRINGFIELD
END OF REPORT		

## B.6 Final query

For each job, list the number of employees greater than 1 who each the minimum salary for the job's class. Display the report in order of job title:

```
select joblist.title, count(*) as &xq.number of employees',
       avg(salary) as salary
from joblist, emp
where exists (select * from jobclass
              where emp.class=jobclass.class and
                    emp.salary = jobclass.minsalary)
       and joblist.empid=emp.empid
group by title
having count(*) > 1
order by title ! display
```

JOBLIST/EMP REPORT 03/22/99		
<u>TITLE</u>	<u>NUMBER OF EMPLOYEES</u>	<u>SALARY</u>
PASTE-UP ARTIST	2	18000.00
PROGRAMMER/ANALYST	3	33000.00
END OF REPORT		

# Glossary

---

**Additional selection criteria.** Logical expressions, logical record keywords, and criteria expressions for sub-scripted fields that you use to tell CA-OLQ which rows of data to retrieve for your report. Additional selection criteria are specified in the Additional selection criteria field of the Selection criteria screen.

**Aggregate function.** A function that performs a predefined operation on a group of report rows. Examples of aggregate functions are: average, high value, low value, count, and total.

**ASF (Automatic System Facility).** A tool in CA-IDMS/DB used to create and manage tables. Once you have created a table using CA-OLQ, you can use ASF to modify the table definition.

**ASF dictionary.** An alternate data dictionary used by ASF. You must be using the ASF dictionary when you are creating data tables.

**ASF table.** A presentation of data as a series of rows and columns from a table associated with the IDMSR schema.

**Batch.** Batch processing means that the user doesn't have to interact with the computer system in order to perform a function. Usually, a batch job is set up in advance (such as when you fill out your Batch Processing screen). Once the job has started running, you cannot intervene except to suspend execution.

**Built-in function.** A function that performs a predefined string, arithmetic, date/time, or trigonometric calculation on your report rows. Examples of built-in functions are: substring, Gregorian date, cosine, and square root.

**Code table.** A table defined in the data dictionary that contains corresponding pairs of values. One column in the table lists internal code values that are used to efficiently store the data in the database. The other column in the table lists external values that are used in programs or reports.

For example, a STATE code table could represent the STATE column as 01 in the internal (encoded) expression and Alabama in the external (decoded) expression.

**Column.** A vertical division in a table. A column represents a category of information. For example, employee last name.

**Column alignment.** An editing feature that determines how report data columns align under the column headers. Options are left, right, and center.

**Column header.** A header at the top of each column of report data.

**COMPUTE statement.** An CA-OLQ syntax statement used to perform calculations in the menu facility. Any time you specify a built-in or aggregate function, CA-OLQ creates a COMPUTE statement. You can also provide your own COMPUTE statement.

**Current report.** The report you're working on in an active CA-OLQ session. If you retrieve a saved report, CA-OLQ clears out the current report.

**Data dictionary.** The storage facility used by CA products as a central source for data definitions, modules, and run-time information. Qfile definitions are stored in the data dictionary.

**Database view.** Another term for subschema.

**Destination.** When you print a report, you specify an output destination where the report is to be printed. Usually, the destination is a file associated with a printer.

**Display sequence.** A numeric sequence listed on CA-OLQ report formatting screens. The numbers in the display sequence correspond to the order in which report columns are displayed.

**Element.** The smallest significant unit of data in a CA-IDMS/DB database. Record elements correspond to columns in a table. For example, DEPT-ID-0410 is an element.

**External picture.** A code that defines the way your column value is formatted in your report. The external picture is used to add punctuation (for example, commas) and special characters (for example, dollar signs) to your column data display.

**Group by all.** A report total including all rows in your report. Group by all means the same thing as report total.

**Group computation.** A calculation that CA-OLQ performs on a report group.

**Group field.** A report column whose value is used to divide your report rows into groups. For example, you

---

could list all of the company's employees grouped according to which department they work in. In this case, DEPARTMENT NAME is the group field.

**Input file.** A file that contains input into a batch program.

**Integrated Data Dictionary (IDD).** The CA product used to access definitions stored in the data dictionary.

**Interactive.** A way of performing a function in which the computer system requires the user to provide input and then responds to that input. An example would be CA-OLQ menu mode. Another term to describe interactive processing is online.

**Interrupt count.** The maximum number of records CA-OLQ will retrieve when building a report. If the number of records that meet the selection criteria for that report exceeds the interrupt count, CA-OLQ suspends data retrieval and issues a message asking you if you want to continue to retrieve records.

**Job control language.** A language used to define the special requirements of your batch program to the system. Job control language (JCL) statements name input and output files, the name of your program, and your output destination.

**Join.** A relational operation through which two or more tables are combined. Tables are joined based on columns that the tables have in common.

**Join criteria.** A logical expression that compares like columns in two or more tables.

**Output destination.** Any type of device that receives the report that you have created as a result of your batch job. Output destinations can be a printer, a terminal, or a log.

**Output file.** A file that contains the results of your batch program.

**Page header.** A title at the top of each page of your report.

**Page footer.** A title at the bottom of each page of your report.

**Project.** A relational operation through which only particular columns of a table are accessed.

**Qfile definition.** The CA-OLQ syntax statements stored in the data dictionary when you create your qfile.

**Record.** A group of related elements. Records correspond to rows in a table. For example, DEPT-NAME-0410, DEPT-ID-0410, and DEPT-HEAD-ID-0410 are all grouped into the DEPARTMENT record.

**Report group.** A set of report rows such that each row contains the same value of the group field. For example, the personnel department is a report group with DEPARTMENT NAME as the group field. Each row in this group contains Personnel in the DEPARTMENT NAME field.

**Report subtotal.** A computation applied to a report group. For example, if you grouped your employees by department, you could create report subtotals that compute the average salary in each department.

**Report total.** A computation that includes all of the rows in your report. For example, you could compute the total sales revenue earned by all of your employees. Note that a report total does not have to be a sum. It can also be an average, a counter, a high value, or a low value.

**Row.** A horizontal row in a table. A row represents one data occurrence. For example, information about each employee.

**Retention period.** The number of days your saved report file is kept in your directory. After the retention period has expired, the report file is deleted.

**Saved report.** A report file maintained in your user directory that contains a copy of a current CA-OLQ report.

**Select.** A relational operation through which only particular rows of a table are accessed.

**Selection criteria.** Logical expressions that you use to tell CA-OLQ which rows of data to retrieve for your report. Selection criteria are specified in the Selection criteria field of the Column Select screen.

**Separator character.** A character used to separate group computations from the rest of the report.

**Sort.** A way to order report rows. CA-OLQ sorts the rows in your report based on the value of the sort field that you specify. Rows can be sorted in ascending or descending order.

---

**Sparse/Full option.** A CA-OLQ editing feature that determines how column values that repeat in consecutive rows are displayed:

- **Sparse** displays only the first of a repeating set of column values.
- **Full** displays all occurrences of the repeating value.

**SQL table.** A presentation of data as a series of rows and columns from a table associated with an SQL schema

**Subschema.** A view of the database that contains a subset of the records, elements, sets, and areas that make

up the entire database. A subschema usually views data that is functionally related.

For example, the personnel department uses a subschema that views employee information such as salary, date of hire, and personal information. All of the information is held in the same database, but the personnel department views only the information that it needs.

**Summary computation.** Another term for group computation.

**Summary line.** A report line that displays a group computation.



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