

UNIPLEX

Business Software

Uniplex II Plus

USER GUIDE

Vol 3

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About this Guide**◆ About this Guide**

The five volume Uniplex V9 user guide set supersedes the V8.00 user guides plus the **V8.10 User Guide Supplement**. Additional supplementary and technical documentation is provided on-line with the software. The printed manuals include:

Guide Name	Contents
UBS Installation Guide & Supplemental Release Notes	Installation/upgrade directions plus platform-specific release notes.
Uniplex II Plus User Guide Volume 1	Introduction, filing, Word Processor, and Sketch Pad.
Uniplex II Plus User Guide Volume 2	File Manager, printing, and Spreadsheet.
Uniplex II Plus User Guide Volume 3	Database Forms, Database Query, Key Recorder, integration, menu maps, desk maps, ring menus, glossary, and topic index.
Advanced Office System User Guide (Volume 4)	Electronic Mail, Time Manager, Card Index, Personal Organizer, Report Writer, Formfill, printing, integration, menu maps, desk maps, glossary, and topic index.
Advanced Graphics System User Guide (Volume 5)	Presentation Graphics, Presentation Editor, printing, integration, menu maps, desk maps, clip art, glossary, and topic index.



About this Guide

◇ Version Information

Some of the material in these guides will not apply to users of Uniplex releases prior to V9.00. Please contact your Uniplex supplier or Uniplex directly for information about upgrading to the current release. Users upgrading from V8.00 or earlier should consult the **File Manager** chapter for information about a new method for carrying out all folder and file-related operations.

◇ Useful Shortcut Keys

These shortcut keystrokes can be used throughout Uniplex:

Cut and Paste		Insert	
mark top left	Esc (line/row	Ctrl o
mark lower right	Esc)	character	Ctrl e
paste insert	Esc *i	switch insert/overtyp	Esc i
paste overlay	Esc *o		
Delete		Quick Movements	
line/row	Ctrl x	top of screen/list	Esc Ctrl t
work/cell	Ctrl w	next screen/page	Ctrl d
character	Ctrl c	previous screen/page	Ctrl u
		start of line	Esc <-
		end of line	Esc ->
External Windows		Quit without Saving	
access Desk popup	F9 or Esc xd		Esc q
access Utility popup	F12 or Esc xu		
switch processes	Esc xs	Save Work	
list processes	Esc xp	save and continue	Esc w
		save and exit	Esc e
		save to new file	Esc sx
Format Paragraph	Ctrl fp	Undo Last Command	
			Esc u
Hard Return	Esc Return	Enter £ Sign	
			Esc % #
Help	Esc h	F10	
			Esc 0
F1...F9	Esc 1...9	F20 (X/Open prefix)	
F11...F19	Esc Esc 1...9		Esc Esc 0



◇ **The Uniplex User Guide Set**

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Database Forms

Database Forms

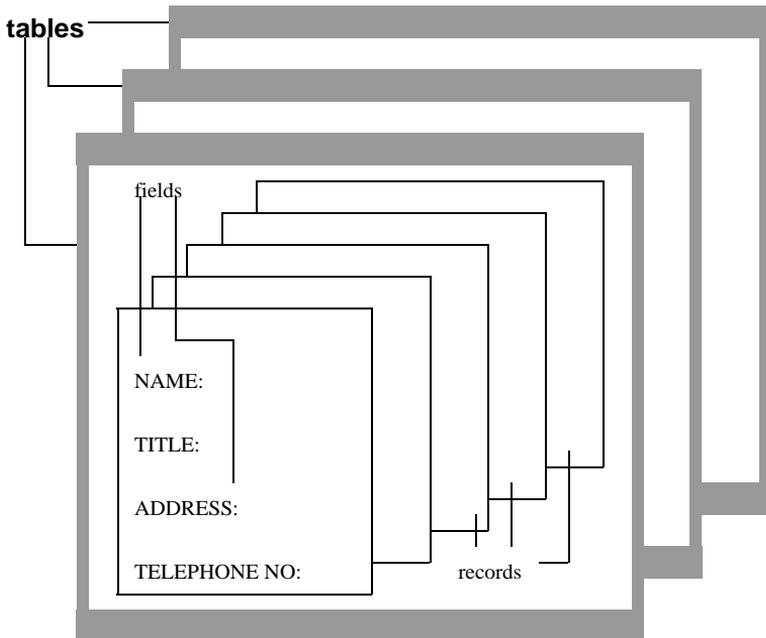
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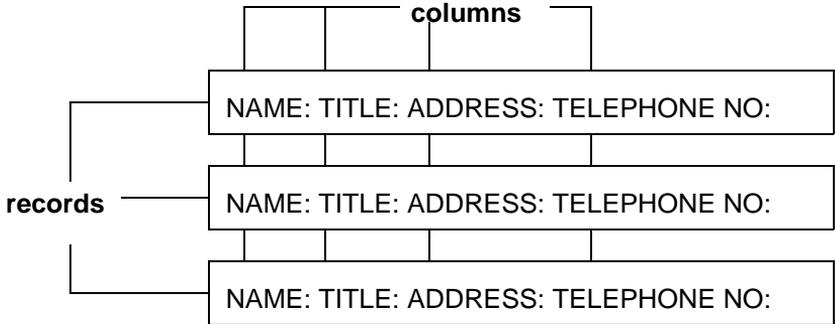
◆ Overview

A database is a tool for storing related information. You use a database to file information you want kept together. Each piece of information you store in a database is called a *field*. A field is a single piece of information, such as a person's name. A series of fields relating to each other, such as name, age, address and telephone number are stored together in a *record*. A number of records, each with the same set of fields are stored in a *table*. Each database contains at least one table. This diagram shows how a database is constructed.



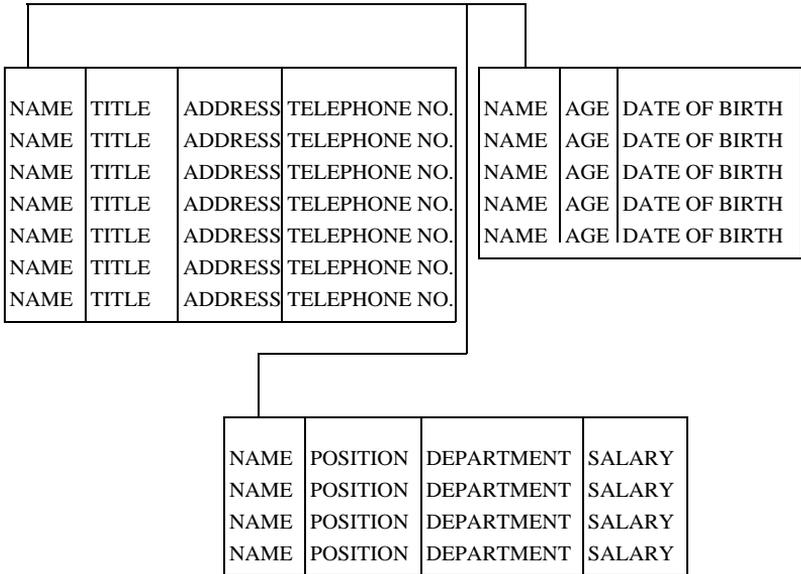
Records form *rows* of information, but a single field taken from each record forms a *column* of information. For example, all the name-fields (one from each record) taken from the records in the diagram above, form a column, so do all the address fields.

Overview



The term *relational*, when used in the phrase relational database, refers to this column structure. In addition columns from one table can relate to columns in another table.

NAME column is universal to all these tables:



The NAME column exists in each of the tables in the previous diagram. This allows you to link information from one table to another. If you need to find the ADDRESS, the DATE OF BIRTH and the SALARY of someone whose details are entered in these tables, you can do so by selecting the NAME from more than one table. A common column in a relational database is very powerful. You can store different areas of information in different tables and find combinations of information by selecting that column. Refer to the **Database Query** chapter for information on joining and linking tables of information, using common columns.

Database Forms provide a simple method of creating databases and storing records. Give the database you create a name, then enter the name of a table to store your records in. You can enter as many different tables as you like in your database, but you create them one at a time. Name the fields you want to list in each record in that table, on the standard form. For example, you can create a table called *stock* and list these fields; *item*, *type*, *quantity*, *location*, *description*, *supplier*.

When you want to enter records into your database Uniplex provides a form containing the fields you specified. You complete one form with the information you require, for each record. For example:

```
item:          fuchsia
type:          "red bell"
quantity:      250
location:      greenhouse 4
description:   purple inner bloom, red outer bloom
               dark green leaves
supplier:      cultivated here
```

You can store vast amounts of information on records in Database Forms. You can retrieve information from the database by specifying the details you are looking for, or use Database Query to find information on databases created using Database Forms. You can also merge that information into other Uniplex applications, including it for example, in reports or using spreadsheets. You can restrict access to database information to particular users.

Overview

This chapter describes how to create a database of information and how to provide easy but controlled access to it.

◇ Access Database Forms

You can access Database Forms from the Main menu, or from any application.

To access Database Forms from the Main menu:

- o Pick and point the Database Forms option.

To access Database Forms from any application:

- 1 Press **ESC xd** or press **F9**.
- 2 Pick and point the Database Forms option.

Uniplex displays the Database menu:

D A T A B A S E M A N A G E M E N T	
TASKS	UTILITIES
1 - Inquire on Records	P - Printing
2 - Amend/Create Records	T - List Tables
3 - Select Customized Forms	L - List Forms
4 - Report Writer	
5 - Database Query (USQL)	S - Select Database
6 - Database/Table Administration	H - Help
7 - Build Customized Forms	Q - Quit

F1=Enter F2=Redraw F4=Quit F8>More

◇ Access Help

You can access on-line help at any time while you are using Database Forms. You can request help about the tasks you can perform from the menu you are in, or you can request more detailed help from within Database Forms itself.

To access help about a menu:

- o Pick and point the Help option from the menu.

Uniplex displays a help screen, detailing the options available from the current menu, and the tasks you can perform.

To access specific help about Database Forms:

- 1 Press **ESC h** at any time while you are working with Database Forms.

Uniplex displays a popup menu showing the list of help topics available.

- 2 Pick and point the help topic you require.

In some cases, Uniplex displays a further popup menu, from which you can pick and point a help topic.

Uniplex displays one, or several, screens of help about the topic you specified.

To return to your task:

- o Press **ESC q**.

Worked Example

The examples in this section are applicable to those using the Uniplex-supplied Informix Database. If you are using another database system, for example, Oracle, some commands may not work or may use a different syntax. See *Use Other Database Systems with Database Forms*.

Worked Example

This section provides a worked example of using Database Forms. Work through this example to become familiar with the basic tasks involved with Database Forms.

✎ *Since the information in the database is not stored in alphabetical order, the ordering of information in some examples may differ from the order shown on your screen.*

1 Invoke Database Forms

Pick and point the Database Forms option.

Uniplex displays the Database Forms menu.

2 Select a Database

There may be a number of databases available on your computer system. You must select the database you want to work with. Provided with Uniplex is a practice database called us_sales.

It contains information on the salespersons, sales, salaries, cars, branch numbers and branch addresses for five branch offices in different fields, grouped together in the following tables:

TABLE	branch	sales_force	car_type	cars	year_end
COLUMNS	branch_name	first_name	car_id	license	surname
	address_1	surname	make	car_id	yr_1984
	address_2	bno	model	repairs	yr_1985
	address_3	salary	type	mileage	yr_1986
	bno	pc	ins	petrol	yr_1987
		total_sal	grade	yearmonth	
		license			



Worked Example

Select this database as follows:

- a) Pick and point the Select Database option.
 - ✎ *If the us_sales database is not in the list of available databases, see your System Administrator.*
- b) Pick and point us_sales.
 - ✎ *If you do not select a database before using any of the options on Database Forms, Uniplex prompts you to select a database before you can proceed.*

Notice that Uniplex displays the following in the status line:

```
Database:  us_sales
```

This indicates the currently selected database, a useful reminder of which database you are using.

3 Find Information in the Database

One of the most useful features of a database is that you can find information in it simply and quickly. Find some information in the database as follows:

- a) Pick and point the Amend/Create Records option.

Uniplex displays the Select Table form. This lists the tables in the database.

- b) Pick and point the sales_force table.

Uniplex displays the following in the status line:

```
Select:  find  add  print  cut
```

Worked Example

In addition, Uniplex displays the following form:

```
first_name[ _____ ]
surname   [ _____ ]
bno       [ ___ ]
salary    [ _____ ]
pc        [ _____ ]
total_sal [ _____ ]
license   [ _____ ]
```

The *Select* line shows the options available. The following steps in this section describe how to use these options with this table. The rest of the form lists the fields in the table with the length of each. For example, *salary* is one field in this table.

Since the salary field has nine spaces, it can contain entries of up to nine characters in length. This field is set up to receive an operator (for example, + or -), a decimal point, a leading zero and up to six decimal digits.

The example sales_force table contains the following information about each member of the sales force:

- o **first_name.** The employee's first name.
- o **surname.** The employee's last name.
- o **bno.** The branch number where the employee works.
- o **salary.** The employee's annual salary.
- o **pc.** The employee's percentage commission.
- o **total_sal.** The employee's total salary.
- o **license.** The license number of the employee's car.



Worked Example

- c) Pick and point the Find option. Uniplex displays:

```
equal, !not equal, >greater/equal, <less/equal, Match, *wild, ?like
```

These are the pattern matching symbols or wildcards you use to find specific records in the table. For example, you can find the record for salesperson Baker, or find all the records with a branch number of 01.

- d) Press **ESC e** to find all records in the table. Uniplex displays the first record it finds in the table. For example:

```
first_name[John_____]
surname   [Baker_____]
bno       [03_]
salary    [14000.0__]
pc        [5.0__]
total_sal [20000.0__]
license   [007 BND_]
```

Uniplex displays this ring menu at the top of the screen:

```
Select :  next previous edit delete find add print  cut
```

These options let you manipulate the database information.

- e) Pick and point the Next option to display the next record. Uniplex displays the next record. For example:

```
first_name[Robert_____]
surname   [Dodd_____]
bno       [02_]
salary    [16000.0__]
pc        [4.5__]
total_sal [20000.0__]
license   [013 ASD_]
```

Worked Example

4 Find Data using a Single Search Condition

You can enter a single search condition to find all records containing the same field. To find all the records where the surname is Dobbs:

- a) Pick and point the Find option. Uniplex clears the form.
- b) Press TAB to move to the surname field and enter the following:

```

first_name[_____]
surname  [=Dobbs_____]
bno      [_____]
salary   [_____]
pc       [_____]
total_sal [_____]
license  [_____]

```

The equals sign indicates you want to find records with the entry Dobbs in the surname field.

- c) Press **ESC e**. Uniplex displays:

```

first_name[Jennifer____]
surname   [Dobbs_____]
bno       [01_]
salary    [18000.0__]
pc        [5.0__]
total_sal [3000.0__]
license   [088 FFD_]

```

5 Find Data using Multiple Search Conditions

You can enter more than one search condition to apply to the search of a table.

Find each salesperson working at branch 01 who has a personal commission rate greater than or equal to 4.5% as follows:



Worked Example

- a) Pick and point the Find option. Uniplex clears the form.
- b) Enter the following in the form:

```
first_name[_____]
surname  [_____]
bno      [=01]
salary   [_____]
pc       [>4.5_]
total_sal [_____]
license  [_____]

```

- c) Press **ESC e**. Uniplex displays:

```
first_name[Jennifer__]
surname    [Dobbs____]
bno        [01_]
salary     [18000.0__]
pc         [5.0__]
total_sal  [3000.0__]
license    [088 FFD_]

```

You use the > and < operators to search fields that contain decimal values.

Find each salesperson with a salary greater than or equal to 20,000 and total sales of less than or equal to 2,000, as follows:

- a) Pick and point the Find option. Uniplex clears the form.

Worked Example

- b) Make the following entries in the form:

```
first_name[_____]
surname  [_____]
bno      [_____]
salary   [>20000__]
pc        [_____]
total_sal [<2000____]
license  [_____]

```

- c) Press **ESC e**. Uniplex displays:

```
first_name[Jenny_____]
surname    [Clendon____]
bno        [04_]
salary     [20000.0__]
pc          [5.0__]
total_sal  [2000.0____]
license    [032 UBH_]

```

6 Find Data using Pattern Matching

You can search for records based on patterns. Uniplex displays the records that match the pattern you give.

For example, you can search for all surnames beginning with A and C, or A or C. You enter a pattern using the = (equals) operator. Alternatively you can find records that do not match a certain pattern using the ! (not equal) operator.

Find all the salespersons with surnames beginning with D as follows:

- a) Pick and point the Find option.



Worked Example

- b) Make the following entries in the form:

```

first_name[_____]
surname   [=D*_____]
bno       [_____]
salary    [_____]
pc        [_____]
total_sal [_____]
license   [_____]

```

- c) Press **ESC e**. Uniplex displays:

```

first_name[Robert_____]
surname   [Dodd_____]
bno       [02_]
salary    [16000.0__]
pc        [4.5__]
total_sal [20000.0__]
license   [013 ASD_]

```

Find all salespersons with surnames beginning with S, with a salary greater than or equal to 20,000, a total sales of less than or equal to 2,000 and a personal commission of 4 as follows:

- a) Pick and point the Find option.
 b) Enter the following in the form:

```

first_name[_____]
surname   [=S*_____]
bno       [_____]
salary    [>20000__]
pc        [=4_____]
total_sal [<2000_____]
license   [_____]

```

Worked Example

- c) Press **ESC e**. Uniplex displays:

```
first_name[Harvey____]
surname  [Stevenson__]
bno      [05_]
salary   [22000.0__]
pc       [4.0____]
total_sal [2000.0____]
license  [117 WGO_]

```

You can use pattern matching to search for a range of records.

Find all the salespersons with surnames in the range A to C as follows:

- a) Pick and point the Find option.
b) Enter the following in the form:

```
first_name[_____]
surname  [= [A-C]*____]
bno      [____]
salary   [_____]
pc       [_____]
total_sal [_____]
license  [_____]

```

- c) Press **ESC e**. Uniplex displays:

```
first_name[John_____]
surname  [Baker_____]
bno      [03_]
salary   [14000.0__]
pc       [5.0____]
total_sal [20000.0__]
license  [007 BND_]

```



Worked Example

You can exclude records from a search using the ! (not equals) operator. Uniplex displays all records which do not match the condition you have entered.

Find all the salespersons with surnames not in the range B to Z as follows:

- a) Pick and point the Find option.
- b) Enter the following in the form:

```

first_name[_____]
surname  [![B-Z]*____]
bno      [____]
salary   [_____]
pc       [_____]
total_sal [_____]
license  [_____]

```

- c) Press **ESC e**. Uniplex displays the first record that matches this condition as follows:

```

first_name[Mark_____]
surname   [Almond____]
bno       [04_]
salary    [14000.0__]
pc        [6.0__]
total_sal [4000.0____]
license   [927 HIL_]

```

You can search for two possible patterns when searching for records, using the comma to separate the patterns.

7 Change Data in the Database

You can change data in the database using the Edit option. You first find the record and display it on the screen with the Find option.

Worked Example

You can use the standard Uniplex editing commands when changing records.

Change the salary field in the record for Baker as follows:

- a) Pick and point the Find option.
- b) Make the following entry to find the record for Baker:

```
first_name[_____]
surname  [=Baker_____]
bno      [_____]
salary   [_____]
pc       [_____]
total_sal [_____]
license  [_____]

```

- c) Press **ESC e**. Uniplex displays the first record that matches this condition as follows:

```
first_name[John_____]
surname   [Baker_____]
bno       [03_]
salary    [14000.0__]
pc        [5.0__]
total_sal [20000.0__]
license   [007 BND_]

```

- d) Pick and point the Edit option. Uniplex places the cursor on the first field of the record.
- e) Use the down arrow key to move the cursor to the salary field.



Worked Example

- f) Overtyping the salary with 28000, as follows:

```
first_name[John_____]
surname  [Baker_____]
bno      [03_]
salary   [28000.0__]
pc       [5.0__]
total_sal [20000.0__]
license  [007 BND_]

```

Press **ESC e**. Uniplex accepts the newly edited version and exits the Edit option.

8 Delete Data from the Database

You delete data from the database using the Delete option. Be careful, you cannot recover deleted records.

Delete the record for Baker from the us_sales database as follows:

- a) Pick and point the Find option.
b) Enter the following in the form:

```
first_name[_____]
surname  [=Baker_____]
bno      [_____]
salary   [_____]
pc       [_____]
total_sal [_____]
license  [_____]

```

- c) Press **ESC e**

Worked Example

- d) Uniplex displays the first record matching this condition as follows:

```

first_name[John_____]
surname   [Baker_____]
bno       [03_]
salary    [28000.0__]
pc        [5.0__]
total_sal [20000.0__]
license   [007 BND_]

```

- e) Pick and point the Delete option. Uniplex displays:

```

Enter '*' to delete the record, QUIT to keep it [ ]

```

- f) Enter * Uniplex deletes the record and exits Delete Mode.

9 Add New Data to the Database

You add data to the database using the Add option.

Add a record for Deborah Tayler as follows:

- a) Pick and point the Add option.

Uniplex displays a blank form. Some fields contain markers to indicate whether a field can be null or not. See later in this chapter for details.

- b) Enter the new record as follows:

```

first_name[Deborah_____]
surname   [Tayler_____]
bno       [03_]
salary    [17000_____]
pc        [5_____]
total_sal [20000.0__]
license   [006 BQR_]

```



Worked Example

- c) Press **ESC e**. Uniplex adds the record to the database.
- d) Press **ESC q** to quit Create mode.

10 Print Records to a File

You print records to a file using the Print option. You can subsequently use this file as a normal Uniplex file, for example, with the Report Writer or the Word Processor or just print it as you would a normal file.

When you use the Print option, Uniplex formats the file in the correct format for use with the Report Writer or the database.

To print all the records for salespersons with surnames in the range A to C:

- a) Pick and point the Print option.

Uniplex displays a blank form.

- b) Enter the following in the form:

```
first_name[_____]
surname   [= [A-C]*_____]
bno       [_____]
salary    [_____]
pc        [_____]
total_sal [_____]
license   [_____]

```

- c) Press **ESC e**. Uniplex displays:

```
Print file name:
```

- d) Enter the name you want to call the file and press RETURN.

Worked Example

When Uniplex finds the first record that matches the condition it displays, for example:

```

first_name[Tom_____]
surname   [Brown_____]
bno       [04_]
salary    [15000.0__]
pc        [4.5__]
total_sal [2000.0__]
license   [090 EGC_]

```

Press : RETURN to select, TAB to skip, ESC E for all or QUIT

- e) Press **ESC e**. As Uniplex processes each record, it displays a running total of the number of records processed. When it has finished, it displays:

```
Records processed: 16
```

Press RETURN. Uniplex places the records in the file you specified.

11 Print a Part of a Record to a File

You can print any part of one or more records to a file.

To print only first_name, surname, bno and salary from the sales_force table:

- a) Pick and point the Print option.

The cursor moves to the beginning of the first_name field:

- b) Press **ESC (** to mark the top of the area you want to print.
 c) Move the cursor to anywhere within the salary field.



Worked Example

- d) Press **ESC** **)**) to mark the bottom of the area you want to print.
- e) Enter the find condition in the surname field:

```

first_name[_____]
surname  [= [A-C]*____]
bno      [_____]
salary   [_____]
pc       [_____]
total_sal [_____]
license  [_____]
```

Press **ESC** **e**. Uniplex displays:

```
Print file name:
```

- f) Enter the name you want to give the file and press **RETURN**. When Uniplex finds the first record, it displays it with a prompt, for example:

```

first_name[Tom_____]
surname   [Brown_____]
bno       [04_]
salary    [15000.0__]
pc        [4.5__]
total_sal [2000.0___]
license   [090 EGC_]

```

Press : **RETURN** to select **TAB** to skip, **ESC** **E** for all or **QUIT**

Press **ESC** **e** to print all the records in the file. Uniplex displays:

```
Records Processed: 16
```

Press **RETURN** to continue. Uniplex prints all the selected records to a file.

12 Integration

You can use information from the database in the Word Processor or Spreadsheet; you can access both applications from Database Forms.

✎ If you have the Uniplex Advanced Office System you can also use database information in Report Writer.

The following exercise shows how Uniplex integrates the Database and Word Processor. Cut some records from the database and then paste them into a word processor document:

- a) Pick and point the Cut option.
- b) Move the cursor to the surname field. Press **ESC (** to mark the beginning of the area you want to cut.
- c) Move the cursor to the salary field. Press **ESC))** to mark the end of the area you want to cut.
- d) Move to the bno field and enter:

=01

Move to the pc field and enter:

>4.5



Worked Example

Press **ESC e**. Uniplex displays the first record which matches the search condition:

```
Press : RETURN to select, TAB to skip, ESC E for all or QUIT
first_name[Jennifer__]
surname  [Dobbs_____]
bno      [01_]
salary   [18000.0__]
pc       [5.0__]
total_sal [3000_____]
license  [088 FFD_]

```

Press **ESC e** to select all the records and write them to the default clipboard (0). Uniplex displays:

```
Records Processed: 3
```

Press RETURN to continue.

- e) Press **ESC xd**. Uniplex displays the Desk Options.
- f) Pick and point the Window WP option.

Uniplex splits the screen in two. The top half contains part of the Database Forms display. The bottom half contains the Document Editing form.

Provided with Uniplex is a file called *integrate*. This file contains some text for you to use in this exercise.

Press RETURN, then merge in the practice document *integrate* by pressing **ESC mi**. Uniplex displays the following prompt:

```
Enter merge document name (DOWNARROW for File Manager):
```

Enter the full pathname for the file *integrate*, for example:

```
/usr/UAP/demo/integrate
```

Worked Example

and press RETURN. Uniplex integrates the file.

✎ *If Uniplex cannot find this document, see your System Administrator.*

- g) Press **ESC b** to move the cursor to the bottom of the document.

Paste the contents of the clipboard into the file by pressing **ESC *i**.

Uniplex integrates the contents of the clipboard into the bottom of the file.

Press **ESC e** to save the file. Uniplex displays:

`Enter document name (DOWNARROW for File Manager):`

Enter a name for the document and press RETURN. Uniplex saves the file and displays the Database Forms screen.

- h) Press **ESC q** twice to leave Database Forms.

You can use information from the database with other Uniplex applications. In this example, the information was pasted into a word processing document. You can use information from the database with the Spreadsheet, Report Writer and other Uniplex applications.

Reference

The examples in this section are applicable to those using the Uniplex-supplied Informix Database. If you are using another database system, for example, Oracle, some commands may not work or may use a different syntax. See *Use Other Database Systems with Database Forms*.

◆ Build a Database

Follow these steps to create a database:

1 Plan the database

See *Build a Database* in the **Database Query** chapter for details of planning a database.

2 Create the database

See *Create a Database*.

3 Create the tables

See *Create a Table*.

4 Enter the data

See *Enter the Data*.

◇ Create a Database

Before you can begin working with a new database, you must identify it to Uniplex by creating it.

To create a database:

1 Pick and point the Database/Table Administration option.

2 Pick and point the Create a Database option.

Uniplex displays the Create Database form.



Build a Database

- 3 Enter the name of the database and press RETURN.

Use only alphabetic characters, digits or underscores (_). Begin the name with an alphabetic character and use no more than 10 characters. (Database names are case independent.)

✎ The actual valid character set for database, table, and column names is database interface dependent. In some cases, capital letters and 8-bit characters are allowed. The character set common to all interfaces is "a-z", "0-9", and "_".

◇ Create a Table

When creating a new database, or changing an existing database, you can create tables for the database.

- 1 Pick and point the Select Database option.
- 2 Pick and point the name of the database for which you want to create a table.
- 3 Pick and point the Database/Table Administration option.
- 4 Pick and point the Create a Table option.

Uniplex displays the Create Table form. For example:

Table Name :

Column Name	Type	Width	Decs	Null
[_____]	[__]	[____]	[__]	[____]
[_____]	[__]	[____]	[__]	[____]
[_____]	[__]	[____]	[__]	[____]
[_____]	[__]	[____]	[__]	[____]

Build a Database

- 5 Enter the table name and press TAB. Use a name that adequately describes the table. Do not use numbers or punctuation marks. Do not use more than 12 characters.
- 6 Make an entry for each column. Press TAB to move to the next field. Press RETURN to move to the next line.

For each column:

- a) In the Column Name field, enter a column name. Do not use more than 18 characters. The column name must be one word, use only alphabetic characters, digits and underscores.
- b) In the Type field, enter the column type. Press the SPACE-BAR until the required data type is displayed. The following data types are available:

Data	Type Description
character	A column containing sets of characters.
decimal	A column containing decimal numbers.
integer	A column containing whole numbers (integers).
date	A column containing dates, entered as characters.
money	A column containing numbers with 2 decimal places (by default).
serial	A column containing unique sequential numbers assigned by Uniplex.
smallint	A column containing integers between -32,767 and +32,767.



Build a Database

Data	Type Description
float	A column containing binary floating point numbers (decimal 16).
smallfloat	A column containing binary floating point numbers (decimal 8).

- c) In the Width field, if required, enter the width of the column in character/integer spaces, up to a maximum number of 60, as follows:
- o **Character.** The maximum number of characters.
 - o **Decimal/Money.** The number of significant digits.
 - o **Serial.** The first serial number.
 - o **Date/Integer.** No width required.
- d) In the Decs field, if the column is a decimal or money column, enter the number of digits preceding and following the decimal point, if required.

If you do not specify the number of decimal places for decimal items, Uniplex assumes that any number (less than the number of significant digits) of decimal places can be used. For example, for money items with a default width of 16, the default number of decimal places is 2.

- e) In the Null field, enter whether the column can contain nulls or not if required. Press the SPACEBAR to select the required setting.
- 7 Press **ESC e** or F1 when you have completed your entries in the form.
- 8 Create additional tables or press **ESC q** to leave this form.

◇ Enter the Data

Once you have created the database and its tables, you can enter the data into it.

To add data to a database:

- 1 Pick and point the Amend/Create Records option.

If you have not already selected the required database, Uniplex displays the Select Database form.

- 2 If the Select Database form is displayed, pick and point the database you want to add data to.

Uniplex displays the Select Table form.

- 3 Pick and point the table to which you want to add.

Uniplex displays the Table Inquiry form, which has a field for each column.

In addition, Uniplex displays the following ring menu along the top of the screen:

```
find  add  print  cut
```

You can add data to a table in two ways:

- o Add data a row at a time
 - o Add data from a clipboard
- 4 To add data a record at a time:
 - a) Pick and point the Add option.
 - b) Enter each line of the record. Press RETURN after each line.

**Build a Database**

- c) Press **ESC e** to add the record to the table.
- d) Add the next record, or press **ESC q** to leave ADD.

To add data from a clipboard:

✎ *You must place the data in the clipboard before you can insert it into a table.*

- a) Pick and point the Add option.
- b) Press **ESC *i** to insert the contents of the clipboard into the table.

The data in the clipboard should be one record per line, with tabs separating each field. For example:

Fred	Smith	24000
Alan	Brown	22000

- 5 Press **ESC q** to leave this option.

◆ Change the Database

You can change the database in the following ways:

- o Change a Table
- o Copy a Table to Another Table
- o Rename a Table
- o Delete a Table
- o Rename a Database
- o Delete a Database

The following sections describe how to use these options.

◇ Change a Table

You can change the following elements of a table:

- o Table Name
- o Column Names
- o Column Data Type
- o Column Widths
- o Decimal Places
- o Null Columns
- o New Columns



Change the Database

To change a table:

- 1 Pick and point the Select Database option.
- 2 Enter the name of the database you want to change.
- 3 Pick and point the Database/Table Administration option.
- 4 Pick and point the Amend Table Schema option.

Uniplex displays the Select Table form.

- 5 Pick and point the table you want to change.

Uniplex displays the Amend Table Schema form with the details of the table you want to change.

- 6 Change the table as you require. Use the TAB and arrow keys to move between fields. Press the SPACEBAR to scroll between the allowable entries in a field.

If you make a mistake, press F3, then F5 to select the Undo softkey. Uniplex undoes the last change you made to the row.

To delete a column, position the cursor on the appropriate column name and press **CTRL x**. Delete a column with caution, since Uniplex removes all data in the column when you delete a column.

To add a column, position the cursor after the last column and enter the new column details. Alternatively, position the cursor on the column name before which the column is to be inserted. Press **CTRL o** to open a new line. Enter the new column details on this line. See *Create a Table* for details.

- 7 Press **ESC e** when you have finished changing the table. Uniplex displays error messages if you attempt invalid changes.

Press RETURN to continue.

You cannot:

- o Change a character column to a numeric column.
- o Change a numeric column to a character column.
- o Change a data column to any other column type.
- o Add a column that is not null.
- o Add a serial column.

If you have created a customized form that uses this table, you must update the customized form to reflect the changes made to the table.

◇ **Copy a Table**

You can copy data from one table to another. This is particularly useful if, for example, you want to experiment with the data. You can make a copy of the table to work on, leaving the original intact.

To copy a table:

- 1 Pick and point the Select Database option.
- 2 Enter the name of the database you want to copy a table from.
- 3 Pick and point the Database/Table Administration option.
- 4 Pick and point the Copy a Table option.

Uniplex displays the Select Table form.

- 5 Pick and point the table you want to copy.

Uniplex displays the Copy Table form, and prompts you to enter a name for the new table.



Change the Database

- 6 Enter the name for the new table and press RETURN.

Uniplex creates a new copy of the table with the name you specify.

◇ Rename a Table

You can rename a table. This is useful if for example, you find that a table name is confusing to work with.

To rename a table:

- 1 Pick and point the Select Database option.
- 2 Enter the name of the database whose table you want to rename.
- 3 Pick and point the Database/Table Administration option.
- 4 Pick and point the Rename a Table option.

Uniplex displays the Select Table form.

- 5 Pick and point the table you want to rename and press RETURN.

Uniplex displays the Rename Table form with the current name of the table.

- 6 Enter the new name of the table and press RETURN.

↘ *Table names are case independent.*

For example:

Current table name: sales_force

New table name: [force]

◇ Delete a Table

You can delete a database table, and all the data it contains.

✎ *Only the table creator, or those with DBA (Database Administrator) privileges can delete a table. See the **Database Query** chapter for details of setting privileges.*

To delete a table:

- 1 Pick and point the Select Database option.
- 2 Pick and point the database whose table you want to delete.
- 3 Pick and point the Database/Table Administration option.
- 4 Pick and point the Delete a Table option.
- 5 Pick and point the table you want to delete and press RETURN.
- 6 Enter * to confirm deletion.

◇ Rename a Database

You can rename a database. This is useful if you decide a database name is inappropriate or you have two databases with similar names.

To rename a database:

- 1 Pick and point the Database/Table Administration option.
- 2 Pick and point the Rename a Database option.
- 3 Pick and point the name of the database you want to rename.
- 4 Enter the new name for the database and press RETURN.



Change the Database

◇ Delete a Database

You can delete a database, and all its data. Take great care when deleting a database. In some cases, it may be a good idea to take a backup of the database before deleting it.

✎ *Only the database creator, or those with DBA (Database Administrator) privilege can delete a database. See the **Data-base Query** chapter for details of setting privileges.*

To delete a database:

- 1 Pick and point the Database/Table Administration option.
- 2 Pick and point the Delete a Database option.
- 3 Pick and point the name of the database you want to delete.
- 4 Enter * to confirm deletion.

◆ Find and Change Data

You can use Database Forms to:

- o Find information in the database. This involves:
 - Finding the table of the database you want to search. See *Find a Table*.
 - Finding either all or specific records in the table. See *Find all Records in a Table* and *Find Specific Records in a Table*.
- o Copy information from the database. You can:
 - Copy records or parts of records to any of the clipboards. See *Copy Records from the Database* and *Copy Parts of Records from the Database*.
 - Copy records to Uniplex files.
- o Change or update information in the database. See *Change Data in the Database*.
- o Print information from the database. See *Print all Records from a Table* and *Print Parts of Records from a Table*.

See the following sections for details of how to carry out these tasks.

Find and Change Data

◇ Find a Table

To find a table in the Database:

- 1 Pick and point the Select Database option.
- 2 Pick and point the database you want to search.
- 3 Pick and point the Inquire on Records option.

Uniplex displays the Select Table form

- 4 Pick and point the table you want to search.
- 5 Pick and point the Find option.

You can display all the records, or use search conditions to find a specific or several specific records. The following sections describe how to specify your search conditions.

◇ Find all Records in a Table

To find all records in a table:

- 1 Find the table you want to search, as described in the previous section Find a Table.
- 2 Pick and point the Find option from the ring menu at the top of the screen.

- 3 Press **ESC e**

Uniplex displays the first record it finds.

- 4 Pick and point the Next option to display subsequent records.

◇ Find Specific Records in a Table

To find specific records in a table:

- 1 Find the table you want to search, as described in *Find a Table*.
- 2 Pick and point the Find option from the ring menu at the top of the screen.

Uniplex displays:

```
equal,!not equal,>greater & equal,<less & equal,Match*,wild,?like
```

These are the symbols you can use to specify your search condition. See *Symbols for Searching*.

- 3 Enter the search condition, using the operators to find the record. Press **ESC e**.

◇ Move through Database Records

After carrying out a search and finding a number of records in Database Forms, the first record which meets your search criteria is displayed.

In earlier versions of Uniplex, you could move to the next record in the sequence, but you could not return to the previous record. You can now return to an earlier record by selecting the **previous** ring menu option.

- ✎ If you **edit** a record and then select **next** followed by **previous** (to return to the edited record), the changes you made are not immediately shown. This is because **next** and **previous** work with copies of records found when you initiated the **find**. Whenever you (re)edit a record, you will see its latest content.



Find and Change Data

◇ Symbols for Searching

Database Forms uses *pattern matching* symbols and *wildcards* to let you specify the group of records you want to find. Pattern matching symbols are mathematical operators which let you find all records that are equal, not equal, greater or less than the entry you make.

You use wildcards to match one or more characteristics in a string of text. For example, you can find records that begin with a particular letter, or end with a certain extension. Wildcards are useful if you do not know the full text entry you are searching for.

You can use pattern matching symbols or wildcards to search for records which have one particular characteristic. For example, you can find all records relating to the same company.

You can also use pattern matching symbols or wildcards to find records with a defined set of characteristics. For example, you can find all the records for a particular company, at a particular branch.

Find and Change Data

The following table shows the pattern matching symbols and wildcards available:

Symbol	Function
=	Equal To. Use this operator to find records matching your entry in this field.
! or ^	Not Equal To. Use this operator to find records not containing your entry in this field.
>	Greater Than or Equal To. Use this operator to find records with an entry in this field that is greater than or equal to your entry.
<	Less Than or Equal To. Use this operator to find records with an entry in this field that is less than or equal to your entry in this field.

You use the remaining symbols to specify pattern matching search conditions as follows:

*	Matches any number of characters, either a single character, a series of characters or no characters.
[<i>n-m</i>]	Matches a single character in the range from <i>n</i> to <i>m</i> .
?	Use a ? symbol anywhere in a pattern to match a single character. For example: A? matches AA, AB, AC, and so on, but not A.

You can use pattern matching symbols and wildcards in combinations to make your search as specific as you need. For example, ???[h-m]* matches all records where the fourth character of the specified field is in the range h to m.

Find and Change Data

◇ Symbols for Searching Examples

To find all salespersons with the surname Dobbs:

```
first_name[_____]
surname  [=Dobbs____]
bno     [____]
salary  [_____]
pc      [_____]
total_sal [_____]
license [_____]

```

To find each salesperson working at branch 01 who has a personal commission rate greater than or equal to 4.5%:

```
first_name[_____]
surname  [_____]
bno     [=01]
salary  [_____]
pc      [>4.5_]
total_sal [_____]
license [_____]

```

To find each salesperson with a salary greater than or equal to 20,000 and total sales of less than or equal to 2,000:

```
first_name[_____]
surname  [_____]
bno     [____]
salary  [>20000____]
pc      [_____]
total_sal [<2000____]
license [_____]

```

Find and Change Data

To find all the salespersons with surnames beginning with D:

```
first_name[_____]
surname   [=D*_____]
bno       [_____]
salary    [_____]
pc        [_____]
total_sal [_____]
license   [_____]

```

To find all salespersons with surnames beginning with S, with a salary greater than or equal to 20,000, a total sales of less than or equal to 2,000 and a personal commission of 4:

```
first_name[_____]
surname   [=S*_____]
bno       [_____]
salary    [>20000____]
pc        [=4____]
total_sal [<2000____]
license   [_____]

```

To find all the salespersons with surnames in the range A to C:

```
first_name[_____]
surname   [= [A-C]*____]
bno       [_____]
salary    [_____]
pc        [_____]
total_sal [_____]
license   [_____]

```



Find and Change Data

To find all the salespersons with surnames not in the range B to Z:

```
first_name[_____]
surname  [![B-Z]*____]
bno      [____]
salary   [_____]
pc       [_____]
total_sal [_____]
license  [_____]

```

To find license numbers beginning with 0 and not ending with D:

```
first_name[_____]
surname  [_____]
bno      [____]
salary   [_____]
pc       [_____]
total_sal [_____]
license  [=0*[^D]_]

```

✎ *This negation does not honor a trailing *.*

To find all the salespersons with surnames beginning with A or C:

```
first_name[_____]
surname  [= [A,C]*____]
bno      [____]
salary   [_____]
pc       [_____]
total_sal [_____]
license  [_____]

```

◇ Copy Records from the Database

You can copy data from the database into a clipboard for use with other Uniplex applications. For example, you could copy some names and addresses from the database into a word processing document.

Find and Change Data

To copy data from the database to a clipboard:

- 1 Pick and point the Amend/Create Records option.
- 2 If you have not selected a database previously, pick and point the database you want to use.
- 3 Pick and point the table you want to use.
- 4 Pick and point the Cut option.
- 5 Select the clipboard to use by pressing:

ESC # *n*

Where *n* is the number of the clipboard from 0 to 9 (the default is 0).

- 6 Enter the find specification. Press **ESC e**. (See *Find Specific Records in a Table* for details of the find specification).

Uniplex displays:

Press: RETURN to select, TAB to skip, ESC E for all or QUIT

- 7 Press one of the following:

RETURN To place the currently displayed record in the clipboard and display the next.

TAB To skip this record and display the next.

ESC q To quit the operation.

ESC e To place all records matching the find specification to a clipboard.



Find and Change Data

◇ Copy Parts of Records from the Database

You can copy parts of records from the database into a clipboard for use with other Uniplex applications. For example, you could copy some names and addresses from the database into a word processing document.

To copy parts of records from a table:

- 1 Pick and point the Amend/Create Records option.
- 2 If you have not selected a database previously, pick and point the database you want to use.
- 3 Pick and point the table you want to use.
- 4 Pick and point the Cut option.
- 5 Select the clipboard to use by pressing:

ESC # *n*

Where *n* is the number of the clipboard from 0 to 9 (the default is 0).

- 6 If required, enter the find specification. (See *Find Specific Records in a Table* for details of the find specification).
- 7 Mark the area you want to copy as follows:
 - a) Move to the beginning of the field you want to cut from. Press **ESC (**
 - b) Move to the beginning of the field you want to cut to. Press **ESC)**

Find and Change Data

c) Press **ESC e**.

Uniplex displays:

Press: RETURN to select, TAB to skip, ESC E for all or QUIT

8 Press one of the following:

RETURN To place the currently displayed record in the clipboard and display the next.

TAB To skip this record and display the next.

ESC q To quit the operation.

ESC e To place all records matching the find specification to a clipboard.

◇ **Change Data in the Database**

If you have the right privileges you can update data in the database. To update data:

- 1 Pick and point the Select Database option.
- 2 Pick and point the name of the database you want to update.
- 3 Pick and point the Amend/Create Records option.

Uniplex displays the Select Table form.

- 4 Pick and point the table you want to update.
- 5 Pick and point the Find option.
- 6 Enter the search specification for the record(s) you want to update. (See *Find Specific Records in a Table* for details). Press **ESC e**.



Find and Change Data

- 7 Pick and point the Edit option.
- 8 Move to the field you want to update.
- 9 Overtyping the information you want included.
- 10 Press **ESC e** when you have made all your changes.

Uniplex saves the newly edited version of the record.

◇ Delete Data from the Database

You can delete records from the database, if you have the right privileges. See your Database Administrator for details of the database privileges you have been assigned.

To delete data from the database:

- 1 Pick and point the Select Database option.
- 2 Enter the name of the database you want to update.
- 3 Pick and point the Amend/Create Records option.

Uniplex displays the Select Table form.
- 4 Pick and point the table you want to update.
- 5 Pick and point the Find option.
- 6 Enter the search specification for the record(s) you want to delete. (See *Find Specific Records in a Table* for details). Press **ESC e**.
- 7 Pick and point the Delete option. Press **ESC e**.
- 8 Press * to confirm this is the record you want to delete.

◇ Print all Records from a Table

You print records to a file using the Print option. You can subsequently use this file as a normal Uniplex file, for example, with the Report Writer or the Word Processor or just print it as you would a normal file. You can also print records directly.

When you use the Print option, Uniplex formats the file in the correct format for use with the Report Writer or the Database.

To print all records from a table:

- 1 Find the table you want to search, as described in *Find a Table*.
- 2 Pick and point the Print option from the ring menu at the top of the screen.
- 3 Enter the find specification. Press **ESC e**.

Uniplex displays:

```
Print file name:
```

- 4 Enter the name you want to call the file or enter **PRINTER** if you want to print the records directly, then press RETURN.

When Uniplex finds the first record that matches the condition it displays the record with the prompt:

```
Press: RETURN to select, TAB to skip, ESC E for all or QUIT
```

Press **ESC e**. Uniplex displays:

```
Records processed: n  
Press RETURN to continue
```

Press RETURN.



Find and Change Data

Uniplex places the records in the file you specified or prints them directly to the default printer.

◇ Print Parts of Records from a Table

You can print any part of one or more records as follows:

- 1 Find the table you want to print from as described in *Find a Table*.
- 2 Pick and point the Print option from the ring menu at the top of the screen.
- 3 Move the cursor to the beginning of the area you want to print. Press **ESC (** to mark the top of the area you want to print.
- 4 Move the cursor to the end of the area you want to print. Press **ESC)** to mark the bottom of the area you want to print.
- 5 Enter the search condition.

Uniplex displays:

`Print file name:`

- 6 Enter the name you want to give the file or enter **PRINTER** if you want to print the records directly, then press RETURN.

When Uniplex finds the first record, it displays it with the following prompt:

`Press: RETURN to select, TAB to skip, ESC E for all or QUIT`

Press **ESC e** to print all the records to the file or directly to the printer.

Use Other Database Systems with Database Forms

◆ Use Other Database Systems with Database Forms

◇ Introduction

Uniplex Datalink allows the exchange of information between third-party database systems and the Uniplex Business Software integrated office suite. Any supported external database may be attached to Uniplex if it is available on the server where Uniplex is running or if it is available on the same network.

Uniplex Datalink integrates the databases so that the information can be read directly into one of the Uniplex applications. This includes accessing data where the information is spread across a number of remote sites; the capabilities of distributed databases such as Informix-Net and Oracle SQL*Net are fully supported. Hence, you can use your corporate or personal database while retaining access to all of the standard Uniplex applications.

This chapter describes how to change a database link and the differences between the standard Uniplex database and the following linked databases:

- o **Informix:** Informix V2.1
Informix-SE V4
Informix-OnLine V4
Informix-SE V5
Informix-OnLine V5
Informix-Net
Informix-Turbo
Turbo-Net
- o **Oracle:** Oracle V6.0
Oracle V7.0
Oracle SQL*Net
- o **Ingres:** Ingres V6



Use Other Database Systems with Database Forms

◇ Change Database Link

This section explains how to change a database link. The system-wide database link determines the general database available in Uniplex. You can specify a different database in the personal database link field. This database is linked into Uniplex instead of the system wide database.

You can link more than one database into Uniplex. For example, you can have a different database in your personal database link from the database entered in the system-wide database link. Alternatively, different users may link to different databases from within the same Uniplex application.

To change the database link:

- 1 From the Uniplex Main Menu, select the System Admin. option.

Uniplex displays the System Administration menu.

- 2 Select the Software Installation option.

Uniplex displays the Installation Options menu.

- 3 Select the Change Database Link option.

Uniplex displays the Show Database Links form. This shows which databases you are currently linked to.

- 4 To change the database links, leave the Change database link field as Yes and press **F1** or **Esc e**

Use Other Database Systems with Database Forms

Uniplex displays the Alter Database Link form. For example:

```

Press SPACEBAR to scroll options.
ENTER DETAILS      A L T E R   D A T A B A S E   L I N K
+-----+-----+
| Database link: | [Uniplex Database_____] |
| Availability:  | [Personal_____]         |
+-----+-----+
F1=Enter  F2=Redraw  F3>Edit  F4=Quit  F5=Expand  F6>Record

```

- 5 To change the database link field, press any key to obtain a pick and point list of the available database links. Select the option you require.

✎ *Select Informix Online when linking Informix-OnLine V4 or higher versions (i.e., Informix-OnLine V5 or Informix Dynamic Server V7).*

- 6 To change the availability field press any key to obtain a pick and point list of the following options:

- Personal
- System wide

✎ *Only the System Administrator can change the list of databases available and the System Wide Database availability.*

- 7 Select the option you require and press **F1** or **ESC e**.

Uniplex changes the link and displays a prompt.

- 8 As prompted, press **RETURN**.

Uniplex returns you to the Installation Options menu.



Use Other Database Systems with Database Forms

◇ Informix

This section describes the differences between Informix V4 (Informix-SE, Informix-OnLine [Dynamic Server], Informix-Net, Informix-Turbo, and Turbo-Net) and subsequent releases and the Informix-SE database bundled with Uniplex

Informix-SE V4

Uniplex allows you to create, access and update databases using Informix-SE V4; however, Uniplex does not support the full Informix V4 extended SQL environment described in the **Informix SQL V4.00 Reference Manual**.

Informix-SE supports two extra data types: **datetime** and **interval**. These data types are recognized by Uniplex, but not actively supported. For example, you can alter existing tables containing these data types, but you cannot create tables containing columns with these data types.

Data types which are supported by Uniplex are: **character, integer, decimal, date, smallint, float, money** and **serial**.

The introduction of these extra data types affects various applications and facilities, as detailed on the following pages.

Customized Forms

You can use Customized Forms to create a standard form for a table containing columns with unsupported data types. Note, however, that such columns are treated as comments (these fields are zero length and the message: *****unsupported data type***** is displayed in their place).

Use Other Database Systems with Database Forms

For Example:

```
Title           [Batman]
Duration        *** unsupported data type *****
Start_Time     [20:05:00]
```

You can use Customized Forms to create a new form from an existing table containing columns with unsupported data types, provided that you do not reference those columns (that is, only use columns with supported data types in your form). If you do reference columns with unsupported data types, when you select the Build a Form options to compile the form, the compilation fails and an error message is returned and written to the error log.

Cut and Paste

You can cut records from a table containing columns with unsupported data types. However, the fields for such columns are zero length. Fields for columns with supported data types are output with the correct length and data.

Database Forms

- o **Columns.** You cannot **add** (create) columns with unsupported data types. You cannot **edit** columns with unsupported data types.
- o **Records.** You can **add** records to a table containing columns with unsupported data types. However, you cannot add values to the fields for the columns with unsupported data types.

You can **copy** records from a table containing columns with unsupported data types. However, the fields for such columns are zero length and, where appropriate, the message ***** unsupported data type ***** is displayed in their place. Fields for columns with supported data types are output with the correct length and data.



Use Other Database Systems with Database Forms

You can **edit** fields in a record, provided that they are for columns with supported data types. You cannot edit fields for columns with unsupported data types.

You can **find** records in a table containing columns with unsupported data types. However, the fields from the columns concerned are zero length and, where appropriate, the message: ***** unsupported data type ***** is displayed in their place. When searching such a table, you cannot specify a search condition for columns with unsupported data types.

You can **print** records from a table containing columns with unsupported data types. However, the fields for such columns will be zero length and, where appropriate, the message: ***** unsupported data type ***** will be displayed in their place. Fields for columns with supported data types will be output with the correct length and data. (Note that the column names will be displayed, if appropriate.) For example:

Title	Duration	Start-Time
-----	-----	-----
Batman	*** unsupported data type *****	20:05:00

- o **Table Schemas.** You cannot **add** (create) columns with unsupported data types. You can add columns with supported data types, even if the table contains other columns with unsupported data types.

You can **amend** the schema of a table. The **Type** field allows you to alter the data type of each column. There is a popup list of supported data types. You can amend a type from unsupported to supported.

You cannot **add** (create) a table containing columns with unsupported data types. You cannot **copy** a table containing columns with unsupported data types.

Use Other Database Systems with Database Forms

- o **Printing.** You can print records from a table containing columns with unsupported data types. However, the fields for any such columns are zero length; fields for columns which have supported data types are output with the correct length and data.

Informix-OnLine V4 (Dynamic Server)

Uniplex allows you to create, access and update databases using Informix V4; however, Uniplex does not support the full Informix V4 extended SQL environment described in the **Informix SQL V4.00 Reference Manual**.

Informix-OnLine supports five extra data types: **datetime** and **interval** (which are also supported by Informix-SE, as described above), **varchar**, **text** and **byte** (**text** and **byte** are Binary Large Objects -BLOBs). These data types are recognized by Uniplex, but not actively supported. For example, you can alter existing tables containing these data types, but you cannot create tables containing columns with these data types.

Data types fully supported by Uniplex are: **character**, **integer**, **decimal**, **date**, **smallint**, **smallfloat**, **float**, **money** and **serial**.

The introduction of these extra data types affects various applications and facilities. In general, the effect is as described in the previous section Informix-SE V4. There are also differences which affect the syntax and use of some SQL statements. See *Using Other Database Systems with Database Query* in the **Database Query** chapter for details.

Informix-Net

Informix-Net enables you to create and use both local and remote databases. Any remote machine you access must run Informix-Net or Turbo-Net. To access a remote database use the **database** statement. The syntax is:

database *//machine_name/database_name"*



Use Other Database Systems with Database Forms

where the DBPATH environment variable is set to include the full pathname for the database. For example, to access a file called Int.sales which is on a machine called IBMSYS, in the directory mktg/accounts you should use one of the following entries. If DBPATH has been set to include the pathname "/mktg/accounts", you should enter:

```
1-> database "//IBMSYS/Int.sales"
```

If DBPATH does not include the full pathname, you should enter:

```
1-> database "//IBMSYS/mktg/accounts/Int.sales"
```

✎ *When you set DBPATH you should include the name of the machine on which the database resides. For more information about setting DBPATH see the **Informix-Net User Guide**.*

Informix-Turbo

Informix-Turbo enables you to reduce the time involved in storing and retrieving data. The databases are stored in *dbspaces*. Dbspaces are raw disc partitions or large regular files. When you use Informix-Turbo you cannot obtain a list of available databases. This means:

- o When you use the **select database** option you need to know the database name beforehand.
- o The **describe names** SQL command is invalid.

Turbo-Net

Turbo-Net enables you to:

- o Create and use both local and remote databases.

Use Other Database Systems with Database Forms

- o Reduce the time involved in storing and retrieving data.

Any remote machines you access must run Informix-Net or Turbo-Net. For details of how to access remote databases, see *Informix-Net*. When you use Turbo-Net you cannot obtain a list of available databases. For more details see *Informix-Turbo*.

Informix Version 7 Products

Version 7 of Informix Dynamic Server (formerly Informix-OnLine) and of Informix-SE contain changes to the internal database format that prevent them from working with Uniplex in their native mode. However, both databases offer a Relay Module feature which allows them to simulate the older Informix interface of Versions 4 and 5.

Informix Dynamic Server V7 and Informix-SE V7 may both be used with Uniplex if the Relay Module feature is activated. Consult your system administrator, your Uniplex support organization and the on-line **Uniplex Technical Guide** for detailed configuration information.



Use Other Database Systems with Database Forms

◇ Oracle

If you have an Oracle V6 database linked to Uniplex, the interface is largely the same. There are, however, a few differences you should know. The following Oracle databases are supported:

- o Oracle Version 6
- o Oracle Version 7

The following subsections explain the differences which affect database forms.

Data Types

Oracle supports the following data types:

character	integer
date	money
decimal	smallint
float	smallfloat

Oracle does not support the **serial** data type.

Access a Database

To gain access to a database:

- 1 Select the Select Database option from the Database Forms menu. The screen shown below is displayed.
- 2 Complete the fields entering the name of the database in the Login Name field.

When you have finished, press **ESC e**.

The name of the database is displayed in the status line.

Use Other Database Systems with Database Forms

Enter your login name

O R A C L E L O G I N

Login Name: [_____]

Password: [_____]

Network: [_____]

F1=Enter F2=Redraw F3>Edit F4=Quit F5=Expand

Change a Table

In Oracle, when amending a table you cannot:

- o Add a column before another column. Oracle adds all new columns to the end of your table.
- o Delete a column. If you need to remove a column see your System Administrator.
- o Rename a column.

Create, Delete, and Rename a Database

Oracle uses a different method to control databases so you cannot use the following options in Database/Table Admin:

- o Create a Database
- o Delete a Database
- o Rename a Database

If you need to create, delete or rename a database, consult your Oracle user guide or see your System Administrator.



Use Other Database Systems with Database Forms

◇ Ingres

This section describes the differences between an Ingres database linked into Uniplex and the standard Uniplex database.

The following subsections explain the differences which affect database forms.

Data Types

Ingres supports the following data types:

character	money
date	smallint
float	smallfloat
integer	

✎ *In Ingres all money values are rounded to two decimal places.*

Ingres does not support the **decimal**, **serial** and **timestamp** data types.

Change a Table

Ingres does not support the **alter table** statement. This means that you cannot:

- o add a column.
- o delete a column.
- o modify a column's data type.

If you need to alter a table, see your System Administrator.

Copy a Table

Ingres uses a different method to copy tables. This means that you cannot copy a table.

Use Other Database Systems with Database Forms

Create and Delete a Database

You cannot use the Database menu to create or delete a database. To do this use the appropriate shell command. For more details, see *Use Other Database Systems with Database Query* in the **Database Query** chapter.

Rename a Table or Database

When you use Ingres, you cannot rename a column, a database or a table.

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◆ Overview

Database Query is a sophisticated relational database language. It is a non-procedural language, based on ANSI standard SQL. You can use it to create databases and subsequently find, add and update the data.

When you have created a database and entered information in it, you can *query* the database. Querying the database means searching for information that is stored in the database.

This chapter is broadly divided into three areas:

- **Worked Example.** Follow the worked example if you have not used Database Query before.
- **Build a Database.** This describes the procedures for building a database on your system.
- **Use a Database.** The remaining sections describe how to use Database Query to add to, update and maintain a database.

◇ Differences between Database Query and Database Forms

Uniplex provides two methods of using databases: Database Query and Database Forms. You can use both these methods on the same database. The major difference is that you use Database Query by entering commands at a prompt and you use Database Forms by making entries in forms. Since Database Forms is screen-based, it provides helpful form layouts and prompts.

Since Database Query is command-based, it provides extended and more complex functionality. Database Query is intended for the more experienced database user, whereas Database Forms can be used by the inexperienced database user.



Overview

Follow these guidelines to decide whether to use Forms or Query:

- o Use Database Query to build and maintain the structure of large or complex databases. For example the database for the personnel records for a large department. Use Database Forms to create and maintain simple databases. For example, a database containing the names and addresses of suppliers.
- o Use Database Query to enter large amounts of information into a database. For example, when you are initially loading the database. Use Database Forms to update the database and enter small amounts of information. For example, to update the price of an item in stock.
- o Use Database Query to maintain database integrity.
- o Use Database Query to build complex *queries* that you want to use repeatedly. For example, for a weekly sales report you create using the Report Writer.

◇ Access Database Query

You can access Database Query from the Database menu or from any application using the Desk menu.

To access Database Query from the Main menu:

- o Pick and point the Database Query option.

To access Database Query from any application:

- 1 Press **ESC xd** or press F9.
- 2 Pick and point the Next Page option.
- 3 Pick and point the Database Query option.

Uniplex displays the Database Query banner and prompt. For example:

```
*****
                UNIPLEX DATABASE vs.9.00
                Uniplex Ltd.  0000001
*****

1->
```

◇ Common Database Query Commands

This chapter describes the Database Query statements in detail. The following table provides an overview of some of the most commonly used commands:

Task	Syntax
Re-execute Statement <i>n</i>	\$ <i>n</i>
Recall Statement <i>n</i>	\$\$ <i>n</i>
Edit Statement <i>n</i>	\$ <i>n/original/new</i>
Display Help	help [<i>topic</i>]
Leave Database Query	quit

◇ Syntax Rules

You must follow the syntax specified for each Database Query statement per the following list:

- o Use any case when specifying database, table, column and index names. Database Query is not case sensitive to these.



Overview

- o Use upper and lowercase, as appropriate, when specifying records of information. Uniplex is case sensitive to these. For example: `smith`, not `smith`.
- o Separate each clause of a statement with a single space. For example:

```
select * from branch order by bno
```

- o Separate multiple parameters within a clause with a comma. For example:

```
select branch_name, first_name from sales_force
```

- o If a statement is too long to fit on a line, continue it on the line below by entering a hyphen at the end of the first line. Include a space before the hyphen. For example:

```
select * from sales_force where -  
salary > 1000 order by bno
```

◇ Access Help

You can access on-line help at any time while you are using Database Query. To access help, enter:

help

at any prompt. Uniplex displays a list of help topics.

To display help about a particular topic, enter:

help *topicname*

where *topicname* is the name of the topic on which you want help.

Worked Example

The examples in this section are applicable to those using the Uniplex-supplied Informix Database. If you are using another database system, for example, Oracle, some commands may not work or may use a different syntax. See *Use Other Database Systems with Database Query*.

◆ Worked Example

Uniplex is delivered with files you can use to build the demonstration database *us_sales*. This section provides examples and exercises of how to extract and manipulate information from this database.

Follow this example to become familiar with Database Query.

Take note of these points before starting:

- o If at any point you want to leave Database Query without completing this exercise, enter **quit** and press RETURN.
- o Database Query displays records in random order, unless you explicitly request otherwise. As a result, the order in which records are shown in this guide, may vary from the display on your screen.
- o The *us_sales* database contains the following tables:

`branch sales_force cars car_type year_end`

See *Overview* in the **Database Forms** chapter for more details about *us_sales*.

In this example, you use *branch* and *sales_force*. The other sections in this chapter show examples of using the other tables.

- o Database Query commands are known as *statements*. To execute a statement, type it in and press RETURN.
- o If a statement is too long to fit on a line, continue it on the line below by entering a space followed by a hyphen at the end of the previous line.



Worked Example

- o Some names used in the database tables consist of two words joined by an underscore. You must include the underscore when entering these names.
- o If you need more help than is provided here, enter **help** and press RETURN.

Complete the following exercise to become familiar with Database Query:

1 Access Database Query

Pick and point the Database Query option.

Uniplex clears the screen and displays the Database Query form. For example:

```
*****
```

```
UNIPLEX DATABASE vs.9.00  
Uniplex Ltd. 0000001
```

```
*****
```

```
1->
```

2 Open the us_sales Database

Enter **invoke us_sales**

If the us_sales database is already built on your system in a directory you have access to, Uniplex displays another Query prompt. See your Database Administrator if you do not have access to us_sales.

Otherwise, Uniplex displays:

```
Database not found or no system permission
```

Worked Example

If Uniplex displays the last prompt, build the database by entering:

```
use /usr/UAP/demo/US.BLD
```

If Database Query does not accept this statement, or you have any other problems building the database, see your System Administrator.

As Uniplex builds the database it displays each command it is executing. When it has finished, it displays the Query prompt. It takes Uniplex between 2 and 10 minutes to build the database.

3 Display the Contents of a Table

The `us_sales` database contains information about the sales staff working for a small company. The company has several branches around the country. The branch table contains information on each branch.

You can use the `select` statement to display information in tables. If you want to display all the records within a table, use the `*` symbol with the statement. To display all the records within branch, enter:

```
select * from branch
```

Uniplex displays all five records from branch as follows:

<code>brno</code>	<code>branch_name</code>	<code>address1</code>	<code>address2</code>	<code>address3</code>
01	L.A	1772 Scott Ave	Newgreen	CA 90232
02	Chicago	2100 Lime Ave	Burlington	IL 08762
03	Dallas	2239 Devray St.	Suite 709JG310	TX 75211
04	Washington	4100 West Rd.	Cambridge	WA 32871
05	New York	Lincoln House	1219 Broadview	NY 34449



Worked Example

4 Select a Specific Record

If you want to display specific records from a table, you use the select statement with a search condition. Select the data record for Washington by entering:

```
select * from branch where branch_name = 'Washington'
```

✎ *You must use the single quote (') specified above, and not the double quote (").*

Uniplex selects the record for Washington as follows:

bno	branch_name	address1	address2	address3
04	Washington	4100 West Rd.	Cambridge	WA 32871

5 Order the Display of a Table

If you want to display the records within a table in a particular order, you use the select statement with ORDER BY.

Display the records for branch, ordered alphabetically by branch_name by entering:

```
select * from branch order by branch_name
```

Uniplex displays:

bno	branch_name	address1	address2	address3
02	Chicago	2100 Lime Ave	Burlington	IL 08762
03	Dallas	2239 Devray St.	Suite 709JG310	TX 75211
01	L.A	1772 Scott Ave	Newgreen	CA 90232
05	New York	Lincoln House	1219 Broadview	NY 34449
04	Washington	4100 West Rd.	Cambridge	WA 32871

As you can see, the default order is ascending, alphabetically (ASC). You can display records in descending order.

Worked Example

Display the records for branch, ordered alphabetically by branch_name descending by entering:

```
select * from branch order by branch_name desc
```

Uniplex displays:

bno	branch_name	address1	address2	address3
04	Washington	4100 West Rd.	Cambridge	WA 32871
05	New York	Lincoln House	1219 Broadview	NY 34449
01	L.A	1772 Scott Ave	Newgreen	CA 90232
03	Dallas	2239 Devray St.	Suite 709JG310	TX 75211
02	Chicago	2100 Lime Ave	Burlington	IL 08762

6 Select Records Using More than One Search Condition

If you want to display the records to match more than one search condition, you use the select statement with the keyword AND as part of the search condition.

Display the record with a branch number of 01 and a branch name of L.A by entering:

```
select * from branch where bno = '01' -  
and branch_name = 'L.A'
```

✎ *This statement is too long to fit on one line, therefore you continue on the next using the hyphen (-).*

Uniplex displays:

bno	branch_name	address1	address2	address3
01	L.A	1772 Scott Ave	Newgreen	CA 90232



Worked Example

In the same way that you use AND to select with multiple conditions, you can use OR to specify that output must meet one of a series of conditions. Display the records that have either a branch name of *New York* or a branch number of *01* by entering:

```
select * from branch where bno = '01'-  
or branch_name = 'New York'
```

Uniplex displays:

bno	branch_name	address1	address2	address3
01	L.A	1772 Scott Ave	Newgreen	CA 90232
05	New York	Lincoln House	1219 Broadview	NY 34449

7 Select Records from One or More Tables

You can join and output data from one or more tables. To join tables, there must be one or more common column in the tables.

Use the select statement to join and output data from more than one table. To reference two tables at once, each with a common column, you must use reference names that are unique.

In the *us_sales* database, both the tables *branch* and *sales_force* contain the column *bno*.

To join and output records from *branch* and *sales_force*, enter:

```
select b.branch_name, s.first_name, s.surname, s.salary, -  
s.total_sal from branch b, sales_force s -  
where b.bno = s.bno and s.bno = '01'
```

Worked Example

Uniplex displays:

branch_name	first_name	surname	salary	total_sal
L.A	Jack	Hill	18000.00	3000.00
L.A	Jennifer	Dobbs	18000.00	3000.00
L.A	Elizabeth	Kingsley	17000.00	3000.00
L.A	Kelvin	Wallace	16000.00	2000.00
L.A	Sarah	Heywood	17000.00	3000.00

In this example, you used the reference names (b for branch and s for sales_force) to apply to the bno column. So, b.bno refers to bno in the branch table and s.bno refers to bno in the sales_force table. Uniplex joins and displays branch_name (from branch) and first_name, surname, salary and total_sal (from sales_force).

8 Recall or Repeat Previously Entered Statements

If you want to repeat or recall statements, you use the history facility (\$) and \$\$). This is particularly useful if you need to repeat complex statements. Each statement is identified by its prompt number. You can repeat a series of statements by giving a range of prompt numbers. Recall your previous statement by entering the range of prompt numbers displayed with them. For example:

\$11-14

Uniplex displays and executes the previous statement. For example:

```
select b.branch_name, s.first_name, s.surname, s.salary, -  
s.total_sal from branch b, sales_force s -  
where b.bno = s.bno and -  
s.bno = '01'
```

You can edit and repeat statements using the history facility.



Worked Example

Add the following to select only the Dobbs record:

\$11-14 and s.surname = 'Dobbs'

Uniplex displays and executes the following statement:

```
select b.branch_name, s.first_name, s.surname, s.salary, -
s.total_sal from branch b, sales_force s -
where b.bno = s.bno and -
s.bno = '01' and s.surname = 'Dobbs'
```

Uniplex displays:

branch_name	first_name	surname	salary	total_sal
L.A	Jennifer	Dobbs	18000.00	3000.00

9 Format Output

You can format the output of tables. You can set the display, specify column headers, show decimal places and set separators between columns.

Turn off headers by entering:

format header end

Repeat one of your previous statements. For example:

\$11-14

Uniplex displays and executes the previous statement. For example:

```
select b.branch_name, s.first_name, s.surname, s.salary -
s.total_sal from branch b, sales_force s -
where b.bno = s.bno and -
s.bno = '01'
```

Worked Example

Uniplex displays:

L.A	Jack	Hill	18000.00	3000.00
L.A	Jennifer	Dobbs	18000.00	3000.00
L.A	Elizabeth	Kingsley	17000.00	3000.00
L.A	Kelvin	Wallace	16000.00	2000.00
L.A	Sarah	Heywood	17000.00	3000.00

For the purposes of formatting, Uniplex assigns each column a number, column 1 being the leftmost column of the output table.

Display column 4 of the previous output as integers by entering:

format column 4 dplaces 0
\$11-14

Uniplex displays and executes the previous statement. For example:

```
select b.branch_name, s.first_name, s.surname, s.salary -  
s.total_sal from branch b, sales_force s -  
where b.bno = s.bno and -  
s.bno = '01'
```

Uniplex displays:

L.A	Jack	Hill	18000	3000.00
L.A	Jennifer	Dobbs	18000	3000.00
L.A	Elizabeth	Kingsley	17000	3000.00
L.A	Kelvin	Wallace	16000	2000.00
L.A	Sarah	Heywood	17000	3000.00

Reset all output formatting to the default by entering:

format end



Worked Example

10 Apply Statistical Criteria to a Select

You can apply the following functions to a select: Average, Sum, Maximum, Minimum and Count.

Find the minimum salary from sales_force:

```
select min(salary) from sales_force
```

Uniplex displays:

```
salary
```

```
12000.00
```

Find the minimum, average and maximum salaries in the sales_force table:

```
select min(salary), avg(salary), max(salary) from -  
sales_force
```

```
12000.00 16369.00 24000.00
```

11 Select General Information about Groups of Records

You can select general information about groups of records using *group by* with the *select* statement.

Find the number of people working at a branch by entering:

```
format column 2 dplaces 0  
select bno, count(*) from sales_force -  
group by bno
```

Uniplex displays:

bno	(count(*))
03	20
02	26
04	24
01	5
05	25

12 Apply a Search Condition to the Groups

Display only records where the maximum salary is greater than 20000 by entering the following:

```
select bno, min(salary), avg(salary), max(salary) -  
from sales_force group by bno -  
having max(salary) > 20000
```

Uniplex displays the following results:

bno	(min)	(avg)	(max)
03	12000	15940.00	22000
02	13000	16234.62	24000
05	12000	17540.00	24000

13 Finish the Session

You have now completed the Worked Example for Database Query. Enter **q** and press RETURN.

Reference

The examples in this section are applicable to those using the Uniplex-supplied Informix Database. If you are using another database system, for example, Oracle, some commands may not work or may use a different syntax. See *Use Other Database Systems with Database Query*.

◆ General Query Statements

The general Query Statements are those you need to use frequently or those that are often useful.

The general Query statements let you do the following:

- o Make a Database Available for Use
- o Close a Database
- o Leave Database Query
- o Echo Entries
- o Execute External Commands
- o Add Comment Lines
- o Recall Previously Entered Statements
- o Re-execute Previously Entered Statements
- o Display Help

The following sections describe these facilities in detail.



General Query Statements

◇ Open a Database

Before you can begin work on a database, you must invoke it. When you invoke a database, Uniplex opens all the necessary files and makes the database available for use.

To invoke a database:

```
invoke database_name
```

where *database_name* is the name of the database. For example:

```
invoke us_sales
```

◇ Close a Database

You must close a database when you have finished using it to ensure that all open files are closed. Uniplex automatically closes the database if you use the *quit* statement to leave Query. Close the current database when you want to begin work on another.

To close a database, enter:

```
close database
```

After you have closed a database you cannot search for data, or change a database, until you open or create another.

◇ Leave Database Query

When you have finished using Database Query, you use the *quit* statement to close all open files, terminate processing and leave Database Query.

To leave Database Query, enter:

```
quit or q
```

◇ Echo Entries

You can echo what you type on the prompt line to the following line. This is useful when building *use* files. Use files are stored sequences of Database Query statements that you can execute in batch. See *Use Database Query* for details. Uniplex echoes any string:

echo [*string*]

where string can include any of the following:

<code>\n</code>	Carriage Return	<code>\r</code>	Linefeed
<code>\t</code>	Tab	<code>\\</code>	Backslash
<code>\b</code>	Backspace	<code>\x</code>	ASCII Character Code

For example, a use file, query1, contains:

```
invoke us_sales
echo selecting salary ranges \n
select min(salary), avg(salary), max(salary) -
from sales_force
```

To execute the file, you enter:

```
use query1
```

Uniplex displays:

```
invoke us_sales

selecting salary ranges

select min(salary), avg(salary), max(salary) -
from sales_force

12000.00    16369.00    24000.00
```



General Query Statements

A use file, query2, contains:

```
invoke us_sales
echo \t \t \t \t salary ranges \n
select min(salary), avg(salary), max(salary) -
from sales_force
```

To execute the file, you enter:

```
use query2
```

Uniplex displays:

```
invoke us_sales
        salary ranges

select min(salary), avg(salary), max(salary) -
from sales_force

12000.00   16369.00   24000.00
```

◇ Execute External Commands

You can run an external operating system command from within Database Query.

To execute an external command, enter:

```
!command
```

where *command* is the operating system command you want executed.

For example:

```
!pwd
!date
```

General Query Statements

You can execute a shell from within the Database Query language by entering:

!sh

Press **CTRL d** or enter **exit** to leave the shell.

◇ **Add Comments Lines**

You can write comments to the screen, but it is more useful to include comment lines when building *use* files where comments can improve readability. Use files are stored sequences of Database Query statements that you can execute in batch. See *Use Database Query* for details. Comment lines are ignored when the file is processed. Start a comment line with the hash symbol (#), for example:

```
# This use file queries the database for product information.
```

◇ **Recall Previously Entered Statements**

You can recall previous database query statements to the screen. Each statement is identified by its prompt number. This command can be particularly useful for writing lengthy or complex statements to *use* files where they can be stored and subsequently used again. Use files are stored sequences of Database Query statements that you can execute in *batch*. See *Use Database Query* for details.

To recall the last 100 statements to the screen, enter:

\$\$

To recall a specified command to the screen, enter:

\$\$n

where *n* is the prompt number of the statement.

To recall a specified range of commands to the screen, enter:

General Query Statements

$$$n-m$

For example:

$$$2-7$

```
2-> select b.branch_name, s.first_name, s.surname, -
3-> s.salary, s.total_sal from branch b, sales_force s -
4-> where b.bno = s.bno and -
5-> s.bno = '01'
6-> write eg.select $$2-5
7-> use eg.select
```

◇ Re-execute Previously Entered Statements

You can execute previously entered Database Query statements using the history facility ($\$$). You identify each statement by its prompt number. You can execute a single or a series of Database Query statements. In addition, you can edit a statement before re-executing it. It is useful to use the history facility in conjunction with *cut*, *write*, or *append* statements for writing the results of a previously entered query to a file.

To re-execute a single Database Query statement, enter:

$\$n$

where n is the prompt number of the statement you want to re-execute.

To re-execute a series of Database Query statements, enter:

$\$n-m$

where $n-m$ is the range of prompt numbers for the series of statements you want to re-execute.

General Query Statements

To edit and re-execute a Database Query statement, enter:

\$n/original_pattern/new_pattern

For example:

```
12-> select * from sales_force where salary > 18000
13-> $12
13-> select * from sales_force where salary > 18000
14-> $13 order by bno
14-> select * from sales_force where salary > 18000
        order by bno
15-> $14/18000/10000
15-> select * from sales_force where salary > 10000
        order by bno
```

To write the result of query 18 to a file:

```
18-> select max(salary) from sales_force
19-> append sales.report $18
```



Build a Database

◆ **Build a Database**

You can create as many databases as you need. The size of the database is only limited by the amount of space available on the disks attached to your computer.

This section describes how to create a database of information and how to provide easy but controlled access to it. Follow these stages to create a database:

- 1 Plan the database. See *Plan a Database*.
- 2 Create the database. See *Create a Database*.
- 3 Create the database tables. See *Create Database Tables*.
- 4 Set up who has access to the database. See *Set Privileges for Access to the Database*.
- 5 Add the information into the database. See *Add Information to the Database*.
- 6 Organize the database going into use. See *Start to use the Database*.
- 7 Ensure that the database information is protected. See *Database Integrity*.

◇ Plan a Database

You must plan your database before you create it. It is recommended that you carry out the following planning stages.

- 1 Decide what information the database will contain.

Find out:

- o The type (for example, numeric) of information.
- o The use of the information.
- o The amount of information.
- o How often it will be accessed and updated.

- 2 Decide who will access the information in the database.

Find out:

- o The personnel who need access to the information.
- o How often they will access the information.
- o Whether you need to restrict access.

- 3 Decide whether your current storage devices have the capacity for the amount of information you want to store.

- 4 Write an implementation plan. This should contain the information you have acquired from the above three planning stages. In addition, include a schedule describing the implementation of the database.

**Build a Database**

- 5 Using the implementation plan, ensure that all the relevant people in your organization are aware of your plans. Make sure:
 - o The information for the database will be available.
 - o The people who will be accessing your database have input into its design and implementation.
 - o You have correct information about who can access the database and how often.

When you have completed the planning stages for the database, you can begin designing it. Using the information you have acquired, make the following decisions:

- o What information is needed most?
- o What information is related and needs to be stored together?
- o What information requires restricted access and by whom?

◇ Create a Database

When you have completed the planning stages described in the previous sections, you are ready to create the database.

- ✎ *It is recommended you create the database using Database Query, since this lets you create a transaction log file. The transaction log file is an important facility for data integrity. See **Database Integrity**.*

To create a database, enter:

```
create database database_name [with log in "filename"]
```

Where *database_name* is the name of the database, it should only contain alphabetic characters, digits and underscores (_). The name should begin with an alphabetic character and contain a maximum of 10 characters. *Filename* is the full path and filename for the transaction log file.

- ✎ *The actual valid character set for database, table, and column names is database interface dependent. In some cases, capital letters and 8-bit characters are allowed. The character set common to all interfaces is "a-z", "0-9", and "_".*
- ✎ *It is recommended that you create the transaction log file on a different device to the device that holds the database.*

See *Database Integrity* for details of the transaction log file.

◇ Create Database Tables

Follow these steps to create a database table:

- 1 Design the table. See the following section.
- 2 Create the table. See *Create a Table*.



Build a Database

- 3 Create indexes for columns in tables for which you want speedy access. See *Create an Index for a Table*.
- 4 Create unique indexes for tables in which you want to prevent duplicate entries. See *Prevent Duplicate Entries in a Column*.

Design a Database Table

The Uniplex database is made up of tables. A table is a collection of information organized in rows and columns. A database contains at least one table and can contain as many as you need.

Each table in a database normally contains a different kind of information. For example, you would probably maintain separate tables for the products you sell, the orders you take and the customers you serve.

You need to store different information for products, orders and customers; that's why you create separate tables. You can add a new table at any time or delete a table you no longer need.

Each row in a table contains all the information about one of the objects the table describes and is normally called a record.

When you create a table, it contains no rows. When you begin to add information to the table, you normally add one row of information at a time.

Each table also includes one or more columns. Each column contains a particular type of information, for example, last name, address, order number. When you create a database table you assign a name to each column.

If you have followed the planning stages, you have the following information:

- o The amount and type of information for the database.
- o Who will access it, for what reasons and how often.

Use this information in the design of the database tables and their relationship with each other.

For example, you are designing a database to hold information about all the products your company produces, the different types of these products, how much they cost and how many you have sold. If the most common request is for pricing information, it is recommended that you store the pricing information with the product information. However, if specification information is required more often, store this together.

You can join tables together if they have a common column. This means there is no need to duplicate the same information in different tables. Joining lets you look at data stored in several tables as if it were all part of a single table. In the previous example, you could join the tables containing the product pricing and product specification information, if they both contain the product number column.

When you have decided what information to store in each table, and how many tables to use, you can design the table.



Build a Database

It is recommended that you design the table on paper before creating it on the system. The design should include the:

- o Number of Columns
- o Names of the Columns
- o Order of the Columns
- o Type of Information Each Column Will Contain
- o Length of Each Column
- o If the Column Can Contain Null Data Items
- o Join Columns
- o Columns to be Indexed for Rapid Access

Create a Database Table

When you have designed the table, you are ready to create it on the system. To create a table, enter:

```
create table tablename (column_name type [not null],...)
  [in pathname]
```

where:

tablename Is the name of the new table.

column_name Is the name of each of the columns in the new table. Do not duplicate column names within a table. However, two tables may each have a column with the same name.

type can be one of:

char(<i>n</i>)	A character column with length <i>n</i> .
integer	A whole number in the range -2,147,483,647 to +2,147,483,647
decimal[(<i>m</i>[,<i>n</i>])]	A decimal value with <i>m</i> significant to the left and <i>n</i> digits to the right of the decimal point. If no decimal places are specified, Uniplex defaults to using 2.
date	A date entered as a character string.
smallint	An integer between -32,767 and +32,767.
smallfloat	A binary floating point number (8 significant digits).
float	A binary floating point number (16 significant digits).
money[(<i>m</i>[,<i>n</i>])]	A decimal number with <i>m</i> significant digits and <i>n</i> digits to the right of the decimal point. If no decimal places are specified, Uniplex defaults to using 2.
serial[(<i>n</i>)]	A unique sequential number assigned automatically by Query. An optional number (<i>n</i>) can be used to specify the initial starting value.

where:

not null	Are optional keywords. If specified, you cannot set the column to a null value.
-----------------	---



Build a Database

and where:

pathname Specifies the full pathname of the file in which you want to store the database table, with no file extension.

↘ *The pathname must be enclosed in quotes (").*

↘ *All table and column names are case independent.*

For example:

```
create table employee -  
(ename char (20), -  
eno char (5), -  
salary decimal(8),-  
position char (20), -  
dept char (20), -  
start_date date)
```

Create an Index for a Table

You can create indexes for columns in database tables. If you select information from a particular column using a select statement and you have indexed that column, Uniplex can find the selected records much more quickly. This is useful if you access similar information from a table repeatedly.

It is recommended that you restrict the number of indexes you create, because:

- o Indexes use disk space.

This is particularly important when making multi-table selects. A large select, involving several large tables each with indexed columns, requires considerably more space.

- o There is a restriction imposed by the operating system on the number of tables and indexes that can be in use simultaneously. Therefore, accessing a table with an index reduces the number of tables that can be accessed at any one time.

Follow these guidelines for when to index:

- o Do not create indexes for tables with fewer than 200 rows. The speed gained does not overcome the time required to open and search the index file.
- o Do not create indexes on a column that has only a few possibilities. For example columns that contain sex, marital status, yes/no responses. Unindexing cannot improve the performance of a query using an index created with this type of data.
- o If you often query a column using a select statement with a where clause imposing a single condition, put an index on that column.
- o If you often query a column using a select statement with a where clause which has a join condition between a single column in two tables, put an index on that column.

To create an index, enter:

```
create index index_name -  
on table_name (column_name [asc|desc],...)
```

where:

index_name Specifies the name of the index to create.

table_name Specifies the table that the index is to refer to.



Build a Database

column_name Specifies the columns whose values are to be put into the index.

asc An optional keyword which maintains the index in ascending order (the default).

desc An optional keyword which maintains the index in descending order.

The maximum number of columns or parts that can be combined to form composite indexes is 8. Any number of indexes can be created on a table.

Prevent Duplicate Entries in a Column

You can prevent duplicate entries in a column by creating a unique index for a column. When a column is uniquely indexed you cannot insert duplicate data into it. For example, if a table contains a unique index on a column containing bicycle part numbers, it is not possible to add new records which duplicate the part number field. In this case, Database Query responds with:

```
Could not insert new row - duplicate value in a UNIQUE INDEX
column
```

To create a unique index, enter:

```
create unique index index_name
on table_name (column_name [asc|desc],...)
```

where:

index_name Is the name for the index. Do not use the same name as an existing index.

table_name Is the table you want to index.

column_name Is the column you want to index on.

- asc** An optional keyword which maintains the index in ascending order (the default).
- desc** An optional keyword which maintains the index in descending order.

For example:

```
create unique index ind1 on parts (partnos)
```

Create Cluster Indexes

You can create a cluster index on a column to automatically order information when you select records from that column. Like regular indexes cluster indexes speed up the search for records when you make a select statement, but they also sort the records.

To create a cluster index, enter:

```
create cluster index index_name -  
on table_name (column_name [asc|desc],...)
```

where:

- index_name* Specifies the name of the cluster index to create.
- table_name* Specifies the table that the index is to refer to.
- column_name* Specifies the columns whose values are to be put into the index.



Build a Database

asc An optional keyword which maintains the index in ascending order (the default).

desc An optional keyword which maintains the index in descending order.

You can only have one cluster index on a table at any time. Clustered indexes can become unclustered as more and more new records are added. If this happens you can recluster an index. To recluster an index enter:

alter index *index_name* to cluster

where:

index_name Is the name of the index you want to recluster.

You can uncluster an index on a table and recluster using different indexes on the same table.

To uncluster an index enter:

alter index *index_name* to not cluster

where:

index_name Is the name of the index you want to uncluster.

You can now recluster the index as you require.

Set Privileges for Access to the Database

◆ Set Privileges for Access to the Database

By default, the person who creates the database is the only person who can access, add, delete and update information in the database.

The database creator can set privileges for access to the following:

- o The Entire Database
- o Specific Tables within the Database
- o Specific Columns within Tables

The database creator can set these privileges for the following:

- o Individual Users
- o Sets of Users
- o All Users

✎ *Uniplex Database privileges are subordinate to the operating system privileges. If you don't have operating system permissions, **grant** will not give you the permissions. If you have operating system privileges, you can remove them with **revoke**.*

The following sections describe how to set privileges.



Set Privileges for Access to the Database

◇ Grant Privileges on a Database

To grant privileges on a database, enter:

```
grant privilege to {public|user_list}
```

where *privilege* can be one, or a combination of the following:

connect	Allows access to tables of the database without permission to create permanent tables.
resource	Allows access to tables of database with permission to create permanent tables and indexes.
dba	Allows full database administrator privileges.

and where:

public Is a keyword to specify access privileges for all users.

user_list Is a list of login names for the users to whom you are granting access privileges. You can enter one login name, or a series of login names, separated by commas.

✎ *If granting multiple privileges, separate them by commas.*

Set Privileges for Access to the Database

For example:

```
grant connect to public
```

```
grant resource to john, andrea
```

The *connect* privilege allows the recipient to interact with the existing tables of the database with all the table-level access privileges except *alter*. The *connect* privilege forbids the recipient from creating tables and indexes.

The *resource* privilege includes the *connect* privilege and permission to create tables and indexes.

The *dba* privilege includes the *resource* privilege, as well as the ability to alter system catalogs, to drop, start, and to roll forward the database, and to grant and revoke *connect*, *resource*, and *dba* privileges to and from other users.

When you create a database, you have *dba* privileges.

◇ Revoke Privileges from a Database

To revoke privileges from a database, enter:

```
revoke privilege from {public|user_list}
```

where *privilege* can be one, or a combination of the following:

connect	Allows access to tables of the database without permission to create permanent tables.
resource	Allows access to tables of database with permission to create permanent tables and indexes.
dba	Allows full database administrator privileges.



Set Privileges for Access to the Database

and where:

public	Is a keyword to specify access privileges for all users.
<i>user_list</i>	Is a list of login names for the users to whom you are revoking access privileges. You can enter one login name, or a series of login names, separated by commas.

✎ *If revoking multiple privileges, separate them by commas.*

For example:

```
revoke dba from john
```

- ✎ *You cannot revoke privileges from yourself.*
- ✎ *Only a dba recipient can revoke DBA privilege from another recipient. If the database creator grants dba privileges to another user, that person can revoke the dba privilege from the database creator.*
- ✎ *Do not execute the revoke statement within a transaction; it cannot be rolled back. See **Database Integrity** for details.*

Set Privileges for Access to the Database

◇ Grant Privileges on a Table

To grant privileges on a table, enter:

```
grant privilege on table_name to {public;user_list}  
[with grant option]
```

where *privilege* can be one, or a combination of the following:

alter	Add or delete columns or modify datatypes of columns.
delete	Delete rows.
index	Create indexes.
insert	Insert rows.
select	Select data.
update	Update data.
all	All the above privileges.

and where:

<i>table_name</i>	Is the name of the table to be used.
public	Specifies privileges for all users. If public is not specified, a list of login-id's must be supplied.



Set Privileges for Access to the Database

user_list Is a list of login names for the users to whom you are granting access privileges. You can enter one or a series of login names, separated by commas.

with grant option An optional extra privilege allowing the user to grant the same privilege to other users.

↘ *If granting multiple privileges, separate them by commas.*

For example:

To grant all privileges to John and Karen to the table `sales_force`:

```
13-> grant all on sales_force to john, karen
```

To grant select privileges to all users:

```
14-> grant select on sales_force to public
```

Set Privileges for Access to the Database

◇ Revoke Privileges from a Table

If you set access to a table using the *grant* command, you can subsequently remove these privileges using the *revoke* command.

To revoke privileges from a table, enter:

```
revoke privilege on table_name from {public|user_list}
```

where *privilege* can be one, or a combination of the following:

alter	Add or delete columns or modify datatypes of columns.
delete	Delete rows.
index	Create indexes.
insert	Insert rows.
select	Select data.
update	Update data.
all	All the above privileges.

and where:

table_name Is the name of the table.

public Removes privileges for all users. If public is not specified, a list of login-id's must be supplied.

user_list Is a list of login names for the users to whom you are granting access privileges. You can enter one login name or a series of login names separated by commas.



Set Privileges for Access to the Database

You can only revoke table-level access privileges if you granted them to another user.

Although you can grant update and select privileges for specific columns, you cannot revoke these privileges column by column. When you revoke update or select privileges from a user, Uniplex revokes all update and select privileges you have granted to the user for the table. You can then re-grant privileges for specific columns.

✎ *If revoking multiple privileges, separate them by commas.*

For example:

```
12-> revoke all on sales_force from public
```

✎ *Do not execute the revoke statement within a transaction; it cannot be rolled back.*

✎ *You cannot revoke privileges from yourself.*

Set Privileges for Access to the Database

◇ Grant Privileges on a Specific Column

You can grant privileges to a user on a specific column, or columns only.

To grant privileges on a specific column or columns enter:

```
grant privilege (column_name,...) on table_name to  
{public|user_list}
```

where *privilege* can be one of the following:

select Select data.

update Update data.

and where:

column_name Is the name of the column or columns you want to grant privileges on. Separate each column name with a comma.

table_name Is the name of the table.

public Removes privileges for all users. If public is not specified, a list of login-id's must be supplied.

user_list Is a list of login names for the users to whom you are granting access privileges. You can enter one login name or a series of login names separated by commas.

✎ *If granting multiple privileges, separate them by commas.*

You cannot revoke privileges column by column. See *Revoke Privileges from a Table*.



Add Information to the Database

◆ Add Information to the Database

When you have created the tables, organize the loading of the information. It is recommended that you follow these steps:

- 1 Make sure the information is prepared and available
- 2 Make sure the facilities needed are available (for example, a terminal and machine time).
- 3 Make sure the necessary personnel resources are available.
- 4 If necessary train the personnel on how to enter the data. Refer them to the following two sections in this chapter.
- 5 Monitor the progress of the data entry.
- 6 Regularly take backup copies of the data during the loading process.

The following sections describe how to insert data into the database.

Add Information to the Database

◇ Insert Data into a Table

You can add information to a database table at any time as long as you have the right privileges. Enter:

insert into *table_name* [(*column_name*,...)] **values** (*constant*,...)

where:

table_name Is the table to insert the row into.

column_name Is a column in the table. Uniplex inserts the constants you supply in the list of values to the columns, in sequence.

✎ *You do not need to specify the column name if values are supplied for all the columns.*

constant Specifies a value to assign to a column. Constants are either string type or numeric type and string constants must be enclosed in single quotes:

123	Numeric Constant
'ABC'	String Constant
'07/14/1998'	Date Constant
null	Null Constant

✎ *The valid date constant depends on how your database is configured. A European valid date constant is '14/07/1998' and an American valid date constant is '07/14/1998'. You do not need to enter the zeroes when you enter a valid date constant, for example, 14/7/1998.*

Those columns not specified are set to null.



Add Information to the Database

Uniplex inserts the *nth* constant you specify into the *nth* column you specify. Therefore, specify the values you want inserted into the table in the same order as the columns you want them inserted into. You must specify an equal number of constants and columns.

If you do not specify column names, Uniplex inserts the constants into the table's columns in the order that they appear in the table. If you use INSERT this way, you must supply constants for all the columns in the table. If you do not know a value, use the keyword *null*.

The datatypes of the constants you want inserted must match those of the columns you want to insert them into. That is, you can only insert a numeric value into a numeric column, and you can only insert a string value into a string or date column. You can insert a null constant into any type of column.

For example:

The following statement will insert data into a table called branch. Since all the columns are to receive data, it is not necessary to specify the column names:

```
insert into branch -  
values ( '05', 'New York', 'Lincoln House', -  
        '1219 Broadview', 'NY 34449' )
```

In the following example only the first two columns in the table are to receive data, so the column names are specified as part of the statement:

```
insert into branch (bno, branch_name) -  
values ('05', 'New York')
```

Uniplex sets the remaining columns to null.

Add Information to the Database◇ **Insert Data from another Table**

You can insert data from one table into another. The table you select the data from is the *source* table. The table you insert the data into is the *target* table. Insert data from a source table into a target table as follows:

```
insert into table_name [(column_name,...)] select_statement
```

where:

table_name Is the name of the target table.

column_name Is the name of a column in the target table. Uniplex inserts the values supplied by the select statement into the columns, in sequence.

select_statement Is a Query *select* statement which will obtain data from the source table. Uniplex inserts each row of data into the target table. You must not use the name of the target table in this statement.

Uniplex inserts the values obtained from the select statement in sequence into the columns. Those columns not specified are set to null. The *nth* select will be assigned to the *nth* column specified. The number of items retrieved for a row by the select statement must match the number of columns specified.

The number of items retrieved for a row must match the number of columns in the target table if no column names are specified. The datatypes of the columns specified must match those of the new values. A numeric value can only be assigned to a numeric column and a string value only to a string column. For example:

```
insert into branch select * from records
```



Add Information to the Database

◇ Insert Data into a Table from a File or a Clipboard

You can insert data into a table from a file or from one of the ten clipboards. The table you insert the data in is the *target* table. The file can be any Uniplex document or operating system file, but it must be in the Database Query format (modify if necessary before inserting). Clipboards are special temporary memory areas used by Uniplex with *cut and paste*. See *Copy Data to a Clipboard* for information about these temporary storage areas.

To insert data from a file, enter:

```
insert into table_name paste from filename
```

where *table_name* is the name of the target table and *filename* is an existing file of data records with fields separated by two spaces or a tab and records separated by a new line, for example:

The file `/usr/fred/records` contains the following records:

```
04 Washington 4100 West Rd. Cambridge WA 32871
05 New York Lincoln House.1219 Broadview NY 34449
```

To insert these records into the branch table:

```
insert into branch paste from /usr/fred/records
```

To insert data from the default clipboard, enter:

```
insert into table_name paste from (0)
```

where *table_name* is the name of the target table.

To insert data from one of the other clipboards, enter:

```
insert into table_name paste from (n)
```

where *table_name* is the name of the table and *n* is the number of the clipboard.

◆ **Start to Use the Database**

When you have created the database and entered the information in it, it is ready for use.

If the database is to be used by people other than you, carry out the following:

- 1 Make sure the facilities needed are available (for example, terminals and machine time).
- 2 If necessary, provide information on what the database contains and how to use it.
- 3 For each person who wants to use the database, make sure their DBPATH environment variable is set correctly, as described in the following section.

◇ **Set DBPATH**

DBPATH is an environment variable which you can set to the pathname of any directory or directories. Uniplex uses DBPATH to search for a database in the directories specified, as well as the current directory. This means you can access databases from more than one directory without changing directories. This is very useful if you frequently use several databases in different directories, or you share use of a database with other people. See the on-line **Uniplex Technical Guide** for more details on the DBPATH variable.



Start to Use the Database

To set DBPATH:

If you use the C Shell:

Enter the following in your `.cshrc` file:

```
setenv DBPATH pathname:pathname:...pathname
```

where *pathname* indicates the directory that contains a database you want to use.

- ✎ *If you specify just one pathname do not follow the name with a colon (:).*

If you use the Bourne Shell:

Enter the following in your `.profile` command:

```
DBPATH=pathname:pathname:...pathname;export DBPATH
```

where *pathname* indicates the directory that contains a database you want to use.

- ✎ *If you specify just one pathname do not follow the name with a colon (:).*

◆ Database Integrity

Since a database can contain large amounts of irreplaceable information, it is important that you take the following preventive action to ensure its safety.

o **Create a Transaction Log File**

Create a transaction log file for the database. Every time a user queries the database, Uniplex takes a log of it in this file.

o **Create an Audit Trail**

Create an audit trail to record transactions and update backup copies.

o **Protect Sequences of Database Operations**

You can check a series of Query statements before executing them, and abort if necessary.

o **Make Regular Backups of the Database Disks**

It is very important that you regularly backup the disks containing the database.

The following sections explain how to carry out each of these data integrity tasks.



Database Integrity

◇ Create a Transaction Log File

When creating the database, make sure you create a transaction log file. See *Create a Database*.

If you do not create the database with a transaction log file, you can subsequently create it by entering the following:

```
start database database_name with log in "filename"
```

where *database_name* is the name of the database, and *filename* is the full path and name you want to give the transaction log file.

✎ *It is recommended that you create the transaction log file on a different device to the device that holds the database.*

You can also use this statement periodically to create a new transaction log file. This is important if your database is heavily used, since the log file will grow in size quickly.

◇ Audit Trails

An audit trail automatically keeps account of every transaction made on a table. You can create, drop or recover an audit trail at any time. This is useful since it allows you to update tables in backup copies, without having to make new backups everytime you update the original tables.

To create an audit trail, enter:

```
create audit for table_name in "filename"
```

where *table_name* is the name of the table and *filename* is the full path and name you want to give the audit trail file.

To recover an audit trail, enter:

recover table *table_name*

To drop an audit trail, enter:

drop audit for *table_name*

You cannot recover an audit trail once it has been dropped.

◇ **Protect Sequences of Database Operations**

When you are making a series of queries using Database Query, you can check the integrity of the statements before committing them and abort if necessary.

To indicate the beginning of a series of statements, enter:

begin work

After checking the statements, and if you are satisfied that the statements are valid, commit all the modifications since the begin work statement by entering:

commit work

If you not satisfied that the statements are valid, undo all the modifications since the the begin work statement by entering:

rollback work



Database Integrity

◇ Make Regular Backups of the Database Disks

It is very important that you make regular backups of the database disks. If there is a system failure and you have a backup, you can recover the majority of lost information.

The frequency with which you make backups depends on how heavily your database is used. This section provides some recommendations for how often to backup your disk for three types of usage. If your usage does not fit into any of these, adapt one of the methods given for your site. Reading data from a database does not affect it and should not be included in your backup strategy.

- o **Frequent Daily Use.** Backup the database disk every day.
- o **Light Daily Use.** Backup the database disk twice a week.
- o **Very Light Daily Use.** Backup the database disk weekly.
- o **New Transaction Log File.** Backup the database disk at once.

It is recommended that you use at least two tapes as backup tapes. Use the following rotation method:

- 1 Use Tape 1 for the first backup. Write the date on the tape label.
- 2 Use Tape 2 for the second backup. Write the date on the tape label.
- 3 Use Tape 1 for the third backup. Overwrite the previous date with today's date.



Database Integrity

- 4 Use Tape 2 for the fourth backup. Overwrite the previous date with today's date.
- 5 Continue with this rotation.

Using at least two tapes for the backups provides additional security, since if one of the tapes gets corrupted, you still have the previous backup to recover with.

Store the backup tapes in a safe place, preferably a fire-resistant safe.

◇ **Recover Data**

If you have corrupted your database you can recover it as follows:

- 1 Use the last backup tape to restore the database on the disk.
- 2 Enter the following Database Query statement:

rollforward database *database_name*

where *database_name* is the name of the database.



Find Data in the Database

◆ Find Data in the Database

You find data in the database using the *select* statement. You specify the tables, search conditions and format of the output.

To find data in the database, you use the select statement as follows:

```
select clause select specification from clause  
[where clause]  
[group by clause]  
[having clause]  
[order by clause]  
[into temp clause]
```

As indicated, the only clauses you must include are the select clause, the select specification and the from clause. The remaining clauses are optional and let you further refine the search, and how you want the output ordered and grouped.

As with other Query statements, syntax is important when using the Select statement. The exact syntax is described in the following sections, but note the following syntax rules:

- o Use only lowercase when specifying the clauses. For example:

```
order by, NOT ORDER BY.
```

- o Use any case when specifying database, table, column or index names, Uniplex is not case sensitive to these. For example:

```
US_SALES Of us_sales.
```

- o Use upper and lowercase, as appropriate, when specifying records of information. Uniplex is case sensitive to these. For example:

```
smith, NOT smith.
```

Find Data in the Database

- o Separate each clause with a single space. For example:

```
select * from branch order by bno
```

- o Separate multiple parameters within a clause with a comma. For example:

```
select branch_name, first_name from sales_force
```

- o If continuing a select statement over more than one line, include a space before the hyphen.

The following table provides an overview of the function and syntax to use with each clause. The following sections describe how to use each clause in detail.

Clause	Syntax	Function
<i>select clause</i>	select [distinct all]	Specifies whether or not you want duplicate records selected. See <i>Select Clause</i> .
<i>select specification</i>	{* <i>select_spec</i> [, <i>select_spec</i>]...}	Specifies the part of the table to select and, if required, a mathematical function to carry out on the records. See <i>Select Specification</i> .
<i>from clause</i>	from <i>table_name</i> [,...] [<i>reference_name</i> [, <i>table_name</i>].]	Specifies the table(s) to select from. Specifies the additional tables when you want to do a multi-table select. See <i>From Clause</i> .

**Find Data in the Database**

Clause	Syntax	Function
<i>where clause</i>	[where <i>search_condition</i>]	Specifies the search conditions. See <i>Where Clause</i> .
<i>group by clause</i>	[group by <i>column_spec</i> [, <i>column_spec</i>]...	Specifies the order in which the records are displayed. See <i>Group By Clause</i> .
<i>having clause</i>	[having <i>search_condition</i>]	Specifies further search conditions. See <i>Having Clause</i> .
<i>order by clause</i>	[order by <i>sort_spec</i> [, <i>sort_spec</i>]...	Specifies the column to sort rows on. See <i>Order Clause</i> .
<i>into temp clause</i>	into temp <i>table_name</i>	Creates a temporary table that contains the results of the select. See <i>Into Temp Clause</i> .

Find Data in the Database◇ **Specify the Selection of Duplicates** (*The Select Clause*)

By default, Uniplex displays all the data matching the search conditions including duplicate records.

To specify whether or not duplicate records are included, include the select clause as follows:

select [distinct|all]

where:

all Specifies that all the retrieved data matching the search_condition is to be displayed. This is the default, so any select that does not specify distinct will automatically display all records including duplicate records.

distinct Specifies that duplicate rows of the output table are to be eliminated.

For example:

To add a duplicate record into the sales_force table:

```
insert into sales_force -  
values ('Joe','Stevenson','03',14000,4.5,2000,'092 HRE')
```



Find Data in the Database

To select all:

```
select first_name, surname from sales_force -  
where surname = 'Stevenson'
```

Uniplex displays:

```
first_name  surname  
  
Joe         Stevenson  
Harvey     Stevenson  
Joe         Stevenson
```

To select distinct:

```
select distinct first_name, surname from sales_force -  
where surname = 'Stevenson'
```

Uniplex displays:

```
first_name  surname  
  
Harvey     Stevenson  
Joe         Stevenson
```

◇ **Specify Part of Table** (*The Select Specification*)

The select specification can be one, or a logical combination of the following:

- | | |
|-----------------------------|--|
| * | All records in all the columns |
| <i>column_name(s)</i> | The column or columns |
| <i>column_expression(s)</i> | A mathematical expression that can include any one or a logical combination of the following: <ul style="list-style-type: none">o Column Nameso Mathematical Operatorso Relational Operatorso Functions |

You can use any single *column_name*, *column_expression* or group of *column_names* or *column_expressions* as a *select_specification*.

You can use the mathematical operators:

- | | |
|---|----------|
| + | Plus |
| - | Subtract |
| * | Multiply |
| / | Divide |



Find Data in the Database

You can use the aggregate functions:

AVG	Average Value
SUM	Total Value
MIN	Smallest Value
MAX	Largest Value
COUNT(*)	Number of Rows Selected

For example:

To select all the columns and all the records in the branch table:

```
select * from branch
```

Uniplex displays:

bno	branch_name	address1	address2	address3
01	L.A.	1772 Scott Ave.	Newgreen	CA 90232
02	Chicago	2100 Lime Ave.	Burlington	IL 08762
03	Dallas	2239 Devray St.	Suite 709JG310	TX 75211
04	Washington	4100 West Rd.	Cambridge	WA 32871
05	New York	Lincoln House.	1219 Broadview	NY 34449

To select all the columns from the branch table where the branch number is 01:

```
select * from branch where bno = '01'
```

Uniplex displays:

bno	branch_name	address1	address2	address3
01	L.A.	1772 Scott Ave.	Newgreen	CA 90232

Find Data in the Database

To select the branch number and branch name for all the records in the branch table:

```
select bno, branch_name from branch
```

Uniplex displays:

```
bno  branch_name
01   L.A
02   Chicago
03   Dallas
04   Washington
05   New York
```

To find salesperson Heywood's salary and multiply it by 100:

```
select salary*100 from sales_force where -
surname = 'Heywood'
```

Uniplex displays:

```
1700000.00
```

To select the average salary for the branch number 02:

```
select avg(salary) from sales_force where bno = '02'
```

Uniplex displays:

```
16234.62
```



Find Data in the Database

To select the minimum, average and maximum salaries for branch number '02':

```
select min(salary), avg(salary), max(salary) -  
from sales_force where bno = '02'
```

Uniplex displays:

```
13000.00  16234.62  24000.00
```

To count the number of people in branch number '02' with salaries higher than \$15,000:

```
select count(*) -  
from sales_force where bno = '02' -  
and salary > 15000
```

Uniplex displays:

```
15
```

◇ Specify Table (*The From Clause*)

You use the from clause to specify the table or tables you want to select data from as follows:

```
from table_name [...]
```

where *table_name* is the name of the table you want to select data from.

You can select from more than one table, see *Where Clause*.

◇ **Specify Search Condition** (*The Where Clause*)

By default, Uniplex selects all the data in the table. You can specify search conditions to restrict the search using the where clause as follows:

where condition

A *condition* is a collection of one or more search conditions.

A search condition can be one of the following:

- o A Comparison Condition
- o A Join Condition
- o A Condition with a Subselect

A search condition can be made up of the following:

- o **Expressions** (created from)
 - Column Names
 - Row Numbers
 - Constants
 - Arithmetic Operators
 - + Addition
 - Subtraction
 - * Multiplication
 - / Division



Find Data in the Database

o Relational Operators

=	Equal
!= or <>	Not Equal
>	Greater Than
>=	Greater Than or Equal
<	Less Than
<=	Less Than or Equal
matches	Matches
between	Between
is null	Is Null
is not null	Is Not Null

o Logical Operators

and
or
not

The following sections describe how to create the different kind of search conditions:

◇ **Comparison Conditions** (*In the Where Clause*)

There are a number of different ways you can specify a comparison condition, each of these is described below:

Syntax 1 - Simple Comparison Condition

expression relational_operator [*expression*]

For example:

```
select * from sales_force where surname = 'Stevenson'
```

Find Data in the Database

Uniplex displays:

<code>first_name</code>	<code>surname</code>	<code>bno</code>	<code>salary</code>	<code>pc</code>	<code>total_sal</code>	<code>license</code>
Joe	Stevenson	03	4000.00	4.50	2000.00	092 HRE
Harvey	Stevenson	05	22000.00	4.00	2000.00	117 WGO
Joe	Stevenson	03	4000.00	4.50	2000.00	092 HRE

Syntax 2 - Select Ranges

expression **[not] between** *expression* **and** *expression*

You can use the `between` keyword to specify a numeric or character range as the search condition for a select.

You can use the keywords **not** and **between** to exclude records from a select.

For example:

To select only those salespersons with surnames in the range A to M, who earn between 18,000 and 20,000:

```
select first_name, surname, salary, pc, total_sal from -  
sales_force where surname matches '[A-M]*' and salary -  
between 18000 and 20000 order by surname asc
```



Find Data in the Database

Uniplex displays:

first_name	surname	salary	pc	total_sal
David	Ball	18000.00	4.50	3000.00
Simon	Bridey	18000.00	4.50	3000.00
Jenny	Clendon	20000.00	5.00	2000.00
Karen	Dicken	20000.00	5.00	3000.00
Jennifer	Dobbs	18000.00	5.00	3000.00
Sally	Donaldson	20000.00	5.00	4000.00
Jonathan	Green	18000.00	6.00	2000.00
Jack	Hill	18000.00	3.00	3000.00
Julie	Holland	18000.00	5.50	4000.00
Steve	Hurst	18000.00	5.00	2000.00
Kathleen	Jacobson	18000.00	5.00	4000.00
David	Jones	20000.00	6.00	4000.00
Clive	Magnuson	18000.00	5.50	3000.00
Alvin	Moon	18000.00	5.00	3000.00
William	Morris	18000.00	5.00	3000.00

Syntax 3 - In List Condition

expression [not] in (*list*)

For example:

```
select bno from branch where branch_name in ("L.A", "New York")
```

Uniplex displays:

```
bno  
  
01  
05
```

Syntax 4 - Pattern Matching

column_name [not] like "*string*"

You use the like keyword to specify a pattern to apply to records in the database. Records are output if they match the specified pattern. The permitted patterns, which must always be enclosed in quotes, are:

'*n*%'

 matches all records where the specified field begins with *n*

'%*n*'

 matches all records where the specified field ends with *n*

_

 can be used to pad the beginning of the match, so:

'_h%' would match all records where the fourth character of the specified field is h.

The matches keyword wildcards may also be used to specify a pattern to apply to records in the database. See next syntax for further details.



Find Data in the Database

Syntax 5 - Pattern Matching

column_name [not] matches "*string*"

You use the matches keyword to specify a pattern to apply to records in the database. Records are output if they match the specified pattern. The permitted patterns, which must always be enclosed in quotes, are:

'*n*' matches all records where the specified field begins with *n*

'**n*' matches all records where the specified field ends with *n*

'[*n-m*]*' matches all records where the specified field begins with a character in the range *n* to *m*

⚡ Some systems allow negated matching so '[^*F-M*]*' will match any field that begins with a character NOT in the range *F* to *M*.

? can be used to pad the beginning of the match, so:

'???[*h-m*]*' would match all records where the fourth character of the specified field was in the range *h* to *m*.

⚡ *Matches* is not an ANSI SQL keyword and will not work with all interfaces.

Find Data in the Database

Multiple matches can also be specified.

For example:

To find all records in sales_force where Surname begins with 'A':

```
select * from sales_force where surname matches 'A*'
```

Uniplex displays:

first_name	surname	bno	salary	pc	total_sal	license
Mark	Almond	04	14000.00	6.00	4000.00	927 HIL

To find all records in sales_force where Surname begins with 'A' or 'C':

```
select * from sales_force where surname matches '[AC]*'
```

Uniplex displays:

first_name	surname	bno	salary	pc	total_sal	license
Jenny	Clendon	04	20000.00	5.00	2000.00	032 UBH
Alison	Common	02	16000.00	4.50	2000.00	359 PHN
Mark	Almond	04	14000.00	6.00	4000.00	927 HIL
Michael	Calderwood	02	17500.00	5.00	3000.00	789 LPP



Find Data in the Database

To find all records in sales_force where Surname is in the range 'A' to 'C':

```
select * from sales_force where surname matches '[A-C]*'
```

Uniplex displays:

first_name	surname	bno	salary	pc	total_sal	license
John	Baker	03	14000.00	5.00	20000.00	007 BND
Tom	Brown	04	15000.00	4.50	2000.00	090 EGC
Martin	Brownlow	02	15000.00	4.50	2000.00	644 OMJ
Jackie	Barry	04	15000.00	4.00	3000.00	647 DNM
Jenny	Clendon	04	20000.00	5.00	2000.00	032 UBH
Simon	Bridey	02	18000.00	4.50	3000.00	513 KNM
Alison	Common	02	16000.00	4.50	2000.00	359 PHN
Eric	Blair	02	17000.00	4.50	3000.00	498 DAW
Mark	Almond	04	14000.00	6.00	4000.00	927 HIL
David	Ball	02	18000.00	4.50	2000.00	125 HUR
Winston	Bronson	05	15000.00	4.00	2000.00	890 DLA
Robert	Browning	02	13000.00	4.00	4000.00	945 JTW
Lucy	Barrow	04	15000.00	4.00	4000.00	938 TIP
William	Beckett	03	17800.00	5.00	3000.00	395 COP
Olive	Brumwick	02	14000.00	5.00	4000.00	939 PVS
Beverly	Boyce	03	16000.00	5.00	4000.00	878 JHJ
Michael	Calderwood	02	17500.00	5.00	3000.00	789 LPP

Find Data in the Database

To find all records in sales_force where Surname is in the ranges 'A' to 'C' and 'E' to 'F':

```
select * from sales_force where surname matches '[A-C,E-F]*'
```

Uniplex displays:

first_name	surname	bno	salary	pc	total_sal	license
John	Baker	03	14000.00	5.00	20000.00	007 BND
Tom	Brown	04	15000.00	4.50	2000.00	090 EGC
Maria	Ellis	02	14000.00	4.50	3000.00	133 VHB
Martin	Brownlow	02	15000.00	4.50	2000.00	644 OMJ
Jackie	Barry	04	15000.00	4.00	3000.00	647 DNM
Jenny	Clendon	04	20000.00	5.00	2000.00	032 UBH
Simon	Bridey	02	18000.00	4.50	3000.00	513 KNM
Ann	Franklin	03	16000.00	6.00	2000.00	569 KJH
Alison	Common	02	16000.00	4.50	2000.00	359 PHN
Allen	Fetch	04	14000.00	5.00	3000.00	965 PUT
Eric	Blair	02	17000.00	4.50	3000.00	498 DAW
Mark	Almond	04	14000.00	6.00	4000.00	927 HIL
David	Ball	02	18000.00	4.50	3000.00	125 HUR
Winston	Bronson	05	15000.00	4.00	300.00	890 DLA
Robert	Browning	02	13000.00	4.00	4000.00	945 JTW
Lucy	Barrow	04	15000.00	4.00	4000.00	938 TIP
William	Beckett	03	17800.00	5.00	3000.00	395 COP
Olive	Brumwick	02	14000.00	5.00	4000.00	939 PVS
Beverly	Boyce	03	16000.00	5.00	4000.00	878 JHJ
Michael	Calderwood	02	17500.00	5.00	3000.00	789 LPP



Find Data in the Database

To find all records in sales_force where the third character of Surname is 'a':

```
select * from sales_force where surname matches '??a*'
```

Uniplex displays

first_name	surname	bno	salary	pc	total_sal	license
Ann	Franklin	03	16000.00	6.00	2000.00	569 KJH
Robert	Smails	03	16000.00	4.00	2000.00	567 ORK
Eric	Blair	02	17000.00	4.50	3000.00	498 DAW
Roy	Dearman	05	14000.00	4.50	2000.00	530 WIG

To find all records in sales_force where the third character of Surname is either 'a' or 'e':

```
select * from sales_force where surname matches '??[ae]*'
```

Uniplex displays:

first_name	surname	bno	salary	pc	total_sal	license
Joe	Stevenson	03	14000.00	4.50	2000.00	092 HRE
Suzanne	Oxendale	05	14000.00	5.00	4000.00	539 NDP
Jenny	Clendon	04	20000.00	5.00	2000.00	032 UBH
Jonathan	Green	05	18000.00	6.00	2000.00	021 DKX
Ann	Franklin	03	16000.00	6.00	2000.00	569 KJH
Jocasta	Greek	02	16000.00	5.00	4000.00	713 PGI
Robert	Smails	03	16000.00	4.00	2000.00	567 ORK
Julian	Phelps	02	20000.00	6.00	4000.00	791 HFP
Sidney	Queensland	04	20000.00	4.00	2000.00	991 GUT
Eric	Blair	02	17000.00	4.50	3000.00	498 DAW
Sonia	Svenson	05	20000.00	5.00	4000.00	892 GTF
Harvey	Stevenson	05	22000.00	4.00	2000.00	117 WGO
Roy	Dearman	05	14000.00	4.50	2000.00	530 WIG

Find Data in the Database

To find all records in `sales_force` where Surname ends in 'ood':

```
select * from sales_force where surname matches '*ood'
```

first_name	surname	bno	salary	pc	total_sal	license
Sarah	Heywood	01	17000.00	5.00	3000.00	196 MUL
Michael	Calderwood	02	17500.00	5.00	3000.00	789 LPP

Syntax 6 - Null Conditions

column_name is [not] null

For example:

Insert the following data into the `year_end` table:

```
insert into year_end values -
('Jones', 123, 125, 165, null)
```

Select this record from the table as follows:

```
select * from year_end where yr_1987 is null
```

◇ Join Conditions (*In the Where Clause*)

You can specify a join condition in the where clause to perform a multi-table query.

A multi-table query requests information on records contained in more than one table, enabling you to join tables on output.

To perform a multi-table query, join tables with columns of the same type. For example, in the `us_sales` database the `branch` and `sales_force` tables both have columns of the same type named `bno`.



Find Data in the Database

To join tables, use the syntax:

```
select clause from table, table2 where condition
```

The where condition must include columns from both tables, connected by a relational operator. For example:

```
select make, model, mileage from car_type, cars -  
where car_type.car_id = cars.car_id
```

To create a reference name for a table in place of *table_name* use *table_name reference_name* (you must leave a space after the table name)

where:

reference_name Is the character or characters you want to use to identify the column. You can use up to eight characters.

Some confusion can arise when referencing column and table names during multi-table queries, particularly when referencing the same column_name in two or more tables. You can use reference names to distinguish between columns with identical names, for example:

```
select t.make, t.model, c.mileage from car_type t, cars c -  
where t.car_id = c.car_id
```

To use a reference name with a column in place of *table_name* use *reference_name.column_name* (make sure you put a period (.) between the reference name and the column name)

where:

reference_name Is the character or characters you want to use to identify the column. You can use up to eight characters.

Find Data in the Database

For example:

To select the branch name (from the branch table), and the first_name, surname, salary, and total_sal (from the sales_force table), for branch number '01':

```
select b.branch_name, s.first_name, s.surname, s.salary, -  
s.total_sal from branch b, sales_force s -  
where b.bno = s.bno and -  
s.bno = '01'
```

Uniplex displays:

branch_name	first_name	surname	salary	total_sal
L.A	Jack	Hill	18000.00	3000.00
L.A	Jennifer	Dobbs	18000.00	3000.00
L.A	Elizabeth	Kingsley	17000.00	3000.00
L.A	Kelvin	Wallace	16000.00	2000.00
L.A	Sarah	Heywood	17000.00	3000.00

Make sure you use the same reference name for columns from the same table.

Using reference names allows the database to identify the column names in the correct table.

The reference name is always temporarily assigned for the duration of the query.

You can choose any reference name, but this name must identify the columns and tables without ambiguity.

Find Data in the Database

To select the branch name (from the branch table) and the first name and surname (from the sales_force table) where the personal commission rate is greater than 5 and the branch number is 04:

```
select b.branch_name, s.first_name, s.surname -  
from sales_force s, branch b -  
where s.pc > 5 and -  
b.bno = s.bno and -  
b.bno = '04'
```

Uniplex displays:

branch_name	first_name	surname
Washington	Julian	Phelps
Washington	Mark	Almond
Washington	Stephen	Wonder
Washington	Simone	Rocha
Washington	Julie	Holland
Washington	Clive	Magnuson

◇ Conditions with a Subselect (*In the Where Clause*)

The where clause of a select statement can itself contain a select statement. This latter select is known as a subselect. It is contained within a main select.

The advantage of this is that information returned from the subselect is used by the main select.

Subselects can be used in the *where* clauses of *select*, *update* and *delete* statements.

◇ Subselects and Single Values

No special syntax is required in the statement *provided* the subselect will return a single value.

To find the surname and branch number of all salespersons with the same branch number as Hill:

```
select bno, surname from sales_force -  
where bno = (select bno from sales_force -  
where surname = 'Hill')
```

Uniplex displays:

```
bno  surname  
  
01   Hill  
01   Dobbs  
01   Kingsley  
01   Wallace  
01   Heywood
```

In this example a single value (Hill's branch number) is output by the subselect and used by the main select.



Find Data in the Database

◇ Subselects and a Series of Values

If a subselect may return more than one value, the keywords *all* or *any* must be used.

all Specifies that the subselect is true for each of the values returned.

any Specifies that the subselect is true for at least one of the values returned.

This example will display the surnames of all salespersons who earn more than everyone in branch 01;

```
select surname from sales_force where salary > all -  
(select salary from sales_force where bno = '01')
```

The following additional keywords can be used in subselects:

where (*expr*) [not] in (*select statement*)

Queries whether the *expr* is among the values returned by the *select_statement*.

where [not] exists (*select_statement*)

Queries whether there are any rows returned by the *select_statement*.

Find Data in the Database◇ **Specify Order of Rows** (*The Group By Clause*)

The where clause returns information on particular rows stored in the database. You can use the *group by* clause to select general information about groups of rows.

The select will specify column(s) to select from, column_expression(s) to apply to the column(s), and a method for grouping the selected data.

All the column names used to group the data must be specified in the select_specification part of the select.

For example:

To find the average salary for each branch in the sales_force table:

```
select bno, avg(salary) from sales_force group by bno
```

Uniplex displays:

```
bno
03      15940.00
02      16234.62
04      15479.16
01      17200.00
05      17540.00
```

To find, for each make of company car, how many cars are in use:

```
format column 2 dplaces 0
select make, count(*) from car_type -
group by make
```



Find Data in the Database

Uniplex displays:

```
make
Cadillac          10
Dodge             10
```

To find each personal commission rate and the number of salespersons working at each rate:

```
format column 2 dplaces 0
select pc, count(*) from sales_force -
group by pc order by pc
```

Uniplex displays:

```
pc
3.00      1
4.00     24
4.50     18
5.00     47
5.50      2
6.00      8
```

To find the total salaries paid out for each branch in the sales_force table:

```
format end column 2
select bno, sum(salary) from sales_force -
group by bno order by bno
```

Uniplex displays:

```
01      86000.00
02     422100.00
03     318800.00
04     371500.00
05     438500.00
```



Specify Further Search Conditions (*The Having Clause*)

The group by clause is used to select general information about groups of records. The having clause is used to apply a search condition to the groups.

To specify the having clause, use the syntax:

having *condition*

where *condition* is a search condition. See *Where Clause* for details of search conditions.

For example:

To find the maximum salary for each personal commission rate, where the maximum salary is greater than 22,000:

```
select pc, max(salary) from sales_force -  
group by pc having max(salary) > 22000 order by pc
```

Uniplex displays:

pc

4.00	24000.00
5.00	24000.00

To find the maximum salary for each branch in the sales_force table, where the maximum salary is greater than 18,000:

```
select bno, max(salary) from sales_force -  
group by bno having max(salary) > 18000 order by bno
```



Find Data in the Database

Uniplex displays:

`bno`

```
02    24000.00
03    22000.00
04    20000.00
05    24000.00
```

To find each personal commission rate and the number of salespersons working at each rate, where the number is greater than 10:

```
format column 2 dplaces 0
select pc, count(*) from sales_force -
group by pc having count(*) > 10 order by pc
```

Uniplex displays:

`pc`

```
4.00      24
4.50      18
5.00      47
```

To find the total salaries paid out for each branch, where the total is greater than 320,000:

```
select bno, sum(salary) from sales_force -
group by bno having sum(salary) > 320000 order by bno
```

Uniplex displays:

`bno`

```
02    422100.00
04    371500.00
05    438500.00
```

◇ Specify Order of Columns (*The Order By Clause*)

The order by clause specifies a column by which the rows of the output table are to be sorted.

This is either a column name as defined previously or a number. If it is a column name, it refers to a column name following the select keyword. If it is a number, it refers to the corresponding column number in the output table.

The default order is asc, (ascending); descending order can be specified with desc. Any output table can be sorted in ascending or descending order; any column or columns can be sorted in ascending or descending order.

Specify the order by clause as follows:

order by *sort_spec*[,*sort_spec*...]

For example:

To order the output table by surname:

```
select b.branch_name, s.first_name, s.surname -  
from sales_force s, branch b -  
where s.pc > 5 and -  
b.bno = '04' order by surname
```

Uniplex displays:

branch_name	first_name	surname
Washington	Mark	Almond
Washington	Julie	Holland
Washington	Clive	Magnuson
Washington	Julian	Phelps
Washington	Simone	Rocha
Washington	Stephen	Wonder



Find Data in the Database

You can output the same table, specifying a number instead of a column name in the select. For example:

```
select b.branch_name, s.first_name, s.surname -  
from sales_force s, branch b -  
where s.pc > 5 and b.bno = '04' order by 3
```

Uniplex displays:

branch_name	first_name	surname
Washington	Mark	Almond
Washington	Julie	Holland
Washington	Clive	Magnuson
Washington	Julian	Phelps
Washington	Simone	Rocha
Washington	Stephen	Wonder

To reverse the order of display, specify the select with the keyword desc. For example:

```
select b.branch_name, s.first_name, s.surname -  
from sales_force s, branch b -  
where s.pc > 5 and b.bno = '04' order by 3 desc
```

Uniplex displays:

branch_name	first_name	surname
Washington	Stephen	Wonder
Washington	Simone	Rocha
Washington	Julian	Phelps
Washington	Clive	Magnuson
Washington	Julie	Holland
Washington	Mark	Almond

Find Data in the Database◇ **Specify a Temporary Table for Output** (*The Into Temp Clause*)

You can use the into temp clause to create a temporary table that contains the query results. Uniplex deletes the temporary table when you leave Database Query.

✎ Refer to **Use Other Database Systems with Database Query** if you are using the Oracle or Ingres databases.

Specify this clause as follows:

```
into temp table_name
```

It saves time to create a temporary table when you need the same query results several times.

◇ **Join Select Statements**

You can combine select statements, so that they are treated as a single statement as follows:

```
select statement union [all] select statement [union [all] select statement ...]
```

where:

union Is a keyword that selects all rows from both queries, removes duplicates and returns what is left.

all Is an optional keyword that leaves the duplicates.

You can place the union operator between each member of a sequence of more than two select statements. For example:

```
select distinct order_num from products -  
where total_price > 3000 -  
union select order_num from orders -  
where date > "6/09/1997" order by 1
```



Find Data in the Database

There are the following restrictions with the union operator:

- o The number of items in the select list of each select statement must be the same and the corresponding items in each select list must have identical data types.
- o Corresponding items need not have the same identifier.
- o If you use an order by clause, it must follow the last select statement and you must use an integer reference, not an identifier.
- o You cannot include union operators inside a subquery or in the definition of a view.
- o The column names of the resulting output are the same as those from the first select statement.

◆ Create and Use Views

Views are dynamic *windows* into the database. They appear to be tables, but are not. They allow you to do the following:

- o Provide different users with different views on the database.
- o Use different columns from different tables or show values that are functions of the values from columns.
- o Query a view as if it were a table in the database.
- o Limit access to sensitive information.
- o Allow users to update, insert and delete databases. The organization of these modifications matches that of the view while you are using the view.

You can modify the database using a view, with the following restrictions:

- o If the view was created with a group by clause, the distinct keyword or an aggregate function, you cannot modify the database using this view.
- o You can only update a view if it is derived directly from a table and not as the result of an expression or a multi-table join.



Create and Use Views

◇ Create a View

You can create a view of a table based upon existing tables and views in the database, as follows:

```
create view view_name [(column_list)]  
as select_statement [with check option]
```

where:

view_name Is the name you want to give the view. This name must not already be used as the name for existing tables or views.

column_list Is a list of one or more identifiers that name the columns of *view_name*.

select_statement Is the select statement to create the view. This statement must not include an order by, or union clause.

For example:

```
create view force05 -  
as select * from sales_force -  
where bno = '05'
```

To use this view:

```
select * from force05
```

You can use the resulting view in any Database Query statement that uses tables, apart from:

- o Alter Table
- o Create Index
- o Drop Index
- o Lock Table
- o Rename Table
- o Revoke

The view behaves exactly like a table having the name *view-name* and consisting of the set of rows and columns returned by the select statement.

The view reflects changes to the underlying tables apart from if the view is created with a select * clause. If new columns are added to the underlying tables, they do not appear in the view.

If you do not specify a column list, the view inherits the columns names of the underlying tables. In addition the view inherits the data types of the underlying table columns.

The with check option clause instructs Database Query to ensure that all modifications to the underlying tables made through the view satisfy the definition of the view.

You cannot rollback a create view statement.



Create and Use Views

◇ Delete a View

You can delete a view as follows:

drop view *view_name*

where *view_name* is the name of the view.

You can only delete a view you have created. When you delete a view, Uniplex deletes all views that have been defined in terms of the view name.

You cannot rollback a drop view statement.

◆ Dates

The following date functions are available:

DATE(*expr*) (*expr*) must evaluate to a date-type value, for example:

date(123)

returns the 123rd day after December 31, 1899.

DAY(*date-expr*) Returns the day of the month.

MDY(*expr1,expr2,expr3*) The expressions must evaluate to 3 integers representing month, day and year.

MONTH(*date-expr*) Returns the month of the year.

WEEKDAY(*date-expr*) Returns the day of the week (0 is Sunday, 1 is Monday etc.).

YEAR(*date-expr*) Returns the year.



Modify Data in the Database

◆ Modify Data in the Database

This section describes how to change the data in the database as follows:

- o Update Information in the Database
- o Delete Information from the Database
- o Lock Information in the Database

◇ Change or Update the Data

You update the data in the database by updating the rows in tables. You either specify the rows you want updated or Uniplex updates all the rows in the table.

To update data in a table, enter:

```
update table_name set {column_name = expression [,...]  
{(column_name1, column_name2, ...) ! *} = (expr1, expr2, ...)}  
[where_condition]
```

where:

<i>table_name</i>	Is the name of the table you want to update.
<i>column_name</i>	Is the column to update.
<i>expression</i>	Is the expression to update the record with.
<i>where_condition</i>	Is the row or rows to update. If no <i>where_condition</i> is specified, all rows are modified.

Modify Data in the Database

For example:

To update the salary for Stevenson:

```
update sales_force -  
set Salary = 24000 where Surname = 'Stevenson'
```

To give all salespersons a 10% rise:

```
update sales_force -  
set Salary = Salary*1.1
```



Delete Information

You can delete the following:

- o A Database
- o A Table
- o A Row
- o An Index on a Table

Delete a Database

You can delete an existing database. Always do this with extreme caution, since all the tables of data contained within the database are deleted. You must close a database, using *close database*, before deleting a database.

You can only delete a database if you created it or have been granted *dba* (Database Administrator) privilege.



Modify Data in the Database

To delete a database, enter:

```
drop database database_name
```

where *database_name* is the database name.

For example:

```
drop database sales
```

Delete a Table

You can delete an existing table. Always do this with caution as all the data in the table is deleted.

You can only delete a table if you created it or if you have been granted *dba* (Database Administrator) privilege.

To delete a table, enter:

```
drop table table_name
```

where *table_name* is the table name.

For example:

```
drop table sales_force
```

Delete an Index on a Table

You can delete an index on a table. You can delete an index only if you created it or if you have been granted *dba* (Database Administrator) privileges.

Modify Data in the Database

To delete an index on a table, enter:

```
drop index index_name
```

where *index_name* is the name of the index reference.

For example:

```
drop index i_branch_name
```

You cannot rollback a drop index statement.

Delete a Row from a Table

You can delete data from the database by specifying the rows in the tables as follows:

```
delete from table_name -  
[where search_condition]
```

where:

table_name Specifies the name of a table from which rows are to be deleted.

search_condition Specifies which rows to delete.

✎ *If you do not specify a search condition, Uniplex deletes all rows from the table.*

For example:

```
delete from sales_force -  
where Surname = 'Dodd'
```



Modify Data in the Database

◇ Prohibit Access to a Table

You can prohibit access to a table while you are working on it. It is useful to prohibit access while you are working on a table so that other users cannot disturb what you are doing.

↘ *When you finish a Database Query session, Uniplex removes any locks you have made.*

If you want to permanently disallow users access from a table, use the *grant* and *revoke* statements. See *Grant Privileges on a Database* and *Revoke Privileges from a Database*.

To prohibit access to a table:

lock table *table_name* in {**share**!**exclusive**} **mode**

where:

table_name Is the table you want to lock.

share Indicates that users have read access to the table but cannot modify the contents.

exclusive Indicates that users cannot read or modify the data in the table.

For example:

To give *sales_force* read only access:

```
23> lock table sales_force in share mode
```

To prohibit all access to *sales_force*:

```
24> lock table sales_force in exclusive mode
```



◇ **Allow Access to a Table**

You can allow access to a table you previously prohibited access to as follows:

unlock table *table_name*

For example:

```
41-> unlock table sales_force
```



Change the Database

◆ Change the Database

This section describes the ways you can modify the database (not the data it contains) as follows:

- o Display the Schema of a Database, Table, or Index
- o Add a Column to a Table
- o Remove a Column from a Table
- o Change the Datatype of a Column
- o Create a Synonym for a Table or View
- o Rename a Database
- o Rename a Table
- o Rename a Column

Anyone can display schemas, but you can only perform the last seven items in this list if you created the database or have *dba* (Database Administrator) privileges.

The following sections describe each of these facilities in detail.

◇ Display a List of Databases

You can display a list of databases as follows:

describe names

The names displayed are the databases residing in DBPATH and the current working directory.

◇ Display the Schema of a Database

You can display a list of the tables and indexes of a database as follows:

describe database *database_name*

where *database_name* is the database name.

◇ Display the Schema of a Table

You can display a list of the columns in a table, with their datatype, datalength and whether null values are allowed, as follows:

describe table *table_name*

where *table_name* is the table name.

For example:

The following statement will display a schema of the `sales_force` table showing column names, data types and lengths:

```
describe table sales_force
```



Change the Database

Uniplex displays:

column_name	type	length	Dec places	Nulls
first_name	character	11		null
surname	character	11		null
bno	character	3		null
salary	decimal	6	any	null
pc	decimal	2	any	null
total_sal	decimal	6	any	null
license	character	8		null

◇ Display the Schema of an Index

You can display the indexed tables and columns as follows:

describe index *index_name*

where *index_name* is the index name.

For example:

Create an index for the table `sales_force` as follows:

```
create index ind1 on sales_force (first_name desc)
```

Display the schema of index as follows:

```
describe index ind1
```

Uniplex displays:

table name	index type	column name	order
sales_force	duplicates	first_name	desc

◇ Add a Column to a Table

You can add a column to a table using the *alter table* statement as follows:

```
alter table table_name add (column_name type [before  
column_name])
```

where:

table_name Is the name of the table.

column_name Is the name of the new column.

type Is the datatype and length for the column. See *Create a Table* for a list of the datatypes available.

You can specify the *before* clause if you want to specify the position of the column in the table.

◇ Remove a Column from a Table

You can remove a column from a table using the *alter table* statement as follows:

```
alter table table_name drop (column_name)
```

where:

table_name Is the name of the table.

column_name Is the name of the column to delete.



Change the Database

◇ Change the Datatype of a Column

You can change the datatype of a column using the *alter table* statement, as follows:

```
alter table table_name modify (column_name type)
```

where:

table_name Is the name of the table.

column_name Is the name of the column to change.

type Is the new datatype and length for the column. See *Create a Table* for a list of the available datatypes.

◇ Create a Synonym for a Table or View

You can create a synonym for either a table or a view. This is most useful if the name you have given the table or view is long, or repeatedly used. When you create a synonym you can use it until you drop it again (unlike a reference name which only lasts for the statement you use it in). For example, in *us_sales* you could change the table *branch* to *b*. When you make a statement, *b* is easier to enter than *branch*.

To create a synonym, enter:

```
create synonym synonym_name for table_name
```

Only the creator of a synonym can use it.

To drop a synonym, enter:

```
drop synonym synonym_name
```

You can only drop a synonym if you created it.

◇ Rename a Database

You can rename a database and invoke this database for use. None of the attributes of the database are changed apart from the name.

To rename a database, enter:

```
rename database database_name to new_database_name
```

For example:

```
rename database us_sales to sales
```

◇ Rename a Table

You can rename a table as follows:

```
rename table table_name to new_table_name
```

For example:

To rename the branch table of the us_sales database:

```
rename table branch to office
```



Change the Database

◇ Rename a Column

You can rename a column as follows:

```
rename column table_name.column_name1 to column_name2
```

where:

table_name Is the name of the table in which the column is to be changed.

column_name1 Specifies the column to be changed.

column_name2 Specifies the new descriptions of the columns.

For example:

```
rename column sales_force.pc to pcr
```

◆ Use Query

There are several different ways of using Database Query:

- o Enter and execute one statement at a time.
- o Enter a series of statements, check them and then either execute or abort them.
- o Create a file containing Database Query commands and execute this file.

The following sections explain how to use Database Query in each of these different ways.

◇ Enter and Execute One Statement at a Time

This is the default way of using Database Query. To enter one statement at a time, simply enter the statement and press RETURN.

- ✎ *If the statement is longer than the screen width, continue it to the next line by entering a hyphen (-) at the end of the first line.*



Use Query

◇ Enter a Series of Statements

You can enter a series of statements and then execute them, rather than executing one statement at a time. This provides an extra level of integrity when using Database Query since you can ensure the statements are correct before executing them.

↘ *You must have created a transaction log file if you want to enter a series of commands in this way.*

To mark the start of a series of statements:

- 1 Mark the start of the statements by entering:

begin work

- 2 Enter the statements.
- 3 Check the statements are correct.
- 4 Execute the statements by entering:

commit work

or

Abort the statements by entering:

rollback work

◇ Execute Statements from a File

You can create a file containing Database Query statements and execute this file. It is particularly convenient for storing often used, lengthy, or complex queries. The file to be used should contain only database query commands.

A file containing Database Query statements is referred to as a *use file*.

To execute a file containing Database Query statements, enter:

```
use filename
```

where *filename* is the name of the file.

↘ *You can re-execute a use statement when re-executing statements using the history statement.*

For example:

```
1-> invoke us_sales
2-> select First_name, Surname, Salary, PC, Total_Sal -
3-> from sales_force where Surname matches '[A-M]*' and -
4-> Salary between 18000 and 20000 order by Surname desc
5-> write sal.query $$1-4
6-> use sal.query
```



Specify the Medium for Output

◆ Specify the Medium for Output

You can output data from the database to the following:

- o **Clipboard**

You can subsequently paste the contents of the clipboard while using other Uniplex facilities.

- o **File**

You can subsequently use this file with other Uniplex facilities, including the Word Processor and Spreadsheet. For example, you could write a monthly status report with the Word Processor and include some data from the database in this. Additionally, you could draw a graph of this data using the Graphics applications for inclusion in the report.

- o **Report Writer**

You can use output from the database to create reports using the Report Writer.

- o **Mail Merge**

You can run a mail merge using data from the database.

This section describes these different methods.

◇ **Copy Data to a Clipboard**

You can cut the result of select, history or use statements and place them in one of Uniplex's 10 clipboards. If no options are specified, the output table is placed in the default clipboard (0). The *paste* command can then be used to paste the contents of a clipboard to a file or into the Word Processor or Spreadsheet.

Specify the Medium for Output

To cut some data, enter:

```
cut option {select_statement | use_statement | history_statement}
```

where *option* can be:

<i>n</i>	Cut to clipboard <i>n</i> .
append	Cut append to default clipboard.
append <i>n</i>	Cut append to clipboard <i>n</i> .

Uniplex places the single output table in a clipboard if you use the *cut* statement with the *select statement*. Uniplex places all output tables from *select* commands which have been directly or indirectly executed within the *use* file in a clipboard if you use the *cut* statement with a *use* statement. Uniplex places the output in a clipboard without the history prompt numbers if you use the *cut* statement with the history command (*\$\$* command).

For example:

To place the result of the select in the default clipboard (0):

```
invoke us_sales
cut select bno, min(salary), avg(salary), -
max(salary) from sales_force -
group by bno
```

To cut the output from the select and write it to clipboard 1:

```
cut 1 select * from branch
```

To cut the output from the select and append it to clipboard 1:

```
cut append 1 select * from sales_force
```



Specify the Medium for Output

◇ Copy Data to a File

You can write the resulting output from a *select*, *use* or *history* statement to a file as follows:

```
write [append] filename
{select_statement;use_statement;history_statement}
```

where *filename* is the name of the file to write to.

If the file specified does not exist, Uniplex creates it. If the file does exist, Uniplex overwrites it, unless you specify the optional append keyword, in which case the Uniplex appends the output to the file.

For example:

To write the result of a select statement:

```
write names select * from branch
```

To write the result of a use statement:

```
write report use monthly
```

To write the result of a history statement:

```
1-> invoke us_sales
2-> select first_name, surname, salary, pc, total_sal -
3-> from sales_force where surname matches '[A-M]*' and -
4-> salary between 18000 and 20000 order by surname desc
5-> write sal.query $$1-4
6-> use sal.query
```

Specify the Medium for Output**◇ Append Data to a File**

You can append output from a *select*, *use* or history statement to a file, as follows:

append *filename*

{*select_statement*;*use_statement*;*history_statement*}

where *filename* is the name of the file to append to.

Using the *append* statement with history statements is particularly useful for building scripts interactively. As commands are tested, they can be appended to a file for subsequent use, with the *use* statement.

For example:

To append the result of a select statement:

```
append report select * from branch
```

To append the result of a use statement:

```
append report use monthly
```

To append the result of a history statement:

```
1-> invoke us_sales
2-> echo Selecting salespersons with surnames A - C
3-> select * from sales_force where surname matches -
4-> '[A-C]*' order by surname
5-> append sales.team $$1-4
```



Specify Format of Output

◆ Specify Format of Output

You can specify the format of tables and columns when they are output as a result of Database Query statements.

The default format is:

Table	Width as defined in terminfo or termcap, usually the width of the screen.
Separator	Two spaces between columns.
Dplaces	Two decimal places.

The following sections describe the different ways you can specify output.

◇ Set Format for Tables

You can set the output of tables as follows:

o Set Separator between Columns

You can specify the separator to use between columns as follows:

format separator '*string*'

where *string* can be any string and can include any of the special separators:

\n	Carriage Return
\t	Tab
\b	Backspace
\r	Linefeed
\\	Backslash
\x	ASCII Character Code

Specify Format of Output

- o **Set Width for Output Table**

You can specify the width of the output table as follows:

format width *n*

where *n* is an integer. A value of **0** can be entered to set no width limit.

- o **Set Column Names as Headers**

By default, column names are displayed as headers for each column when a select statement is run. You can cause column names not to be displayed as follows:

format header end

- ◇ **Set Format of Columns**

For the purposes of formatting columns, each column in the output table is assigned a number, the leftmost column being column 1.

You can set the format of the columns as follows:

- o **Set the Number of Decimal Places for a Column**

You can set the number of decimal places for a column as follows:

format column *n* dplaces *integer* [trunc]

where *n* is the column number, *integer* is the number of decimal places and the keyword **trunc** is optional. If you use **trunc**, Uniplex truncates to the specified number of places. By default, Uniplex rounds decimal values.



Specify Format of Output

- o **Set a Column Header other than the Column Name**

You can set a column header other than the column name as follows:

format column *n* header 'string'

where *n* is the column number and *string* is the column header you want to assign to this column.

- o **Set Column Width**

You can set the width, as follows:

format column *n* width *integer*

where *n* is the column number and *integer* is the column width you want to set.

- o **Set the Leading Zeros for a Column**

You can set the display of leading zeros for a column, as follows:

format column *n* zeros

where *n* is the column number.

Specify Format of Output

o Set the Display for Columns Containing Dates

You can set the display for columns containing dates as follows:

format column *n* date 'string'

This will specify an alternate format to use to display *date* fields. The '*string*' specified can be a combination of text and codes. The codes are as follows:

MM	Month (not zero padded)
DD	Day (not zero padded)
YY	Year (two digits)
YYYY	Year (four digits)
0M	Month (zero padded to 2 digits)
0D	Day (zero padded to 2 digits)
MONTH	Month Name in Full
MON	Month Name Abbreviated
DAY	Day Name in Full
DY	Day Name Abbreviated

Use the format DD/MM/YY unless your system is configured to accept another date format. Date formats must be in the form expected by the underlying database. If not, they are not seen as dates and cannot be used.

◇ Reset Formats to the Default

To reset column headers to display column names, enter:

format header start

To reset all formats to the defaults, enter:

format end



Specify Format of Output

◇ Reset Formats for a Particular Column

To reset all formats for a particular column, enter:

format end column *n*

where *n* is the column number.

For example:

```
3-> select surname, bno, salary from sales_force -
4-> where surname matches 'C*'
```

surname	bno	salary
Clendon	04	20000.00
Common	02	16000.00
Calderwood	02	17500.00

```
5-> format header end
6-> $3-4
```

Clendon	04	20000.00
Common	02	16000.00
Calderwood	02	17500.00

```
7-> format separator '\t'
8-> $3-4
```

Clendon	04	20000.00
Common	02	16000.00
Calderwood	02	17500.00

```
9-> format column 3 dplaces 0
10-> $3-4
```

Clendon	04	20000
Common	02	16000
Calderwood	02	17500

Specify Format of Output

```
11-> format end
12-> $3-4
```

surname	bno	salary
Clendon	04	20000.00
Common	02	16000.00
Calderwood	02	17500.00

◇ Set Number of Lines per Output Page

You can set the number of lines shown on the screen at a time. The default is the screen length as defined in termcap or terminfo.

To set the number of lines per page output to the default, enter:

page

To set the number of lines per page output to a set number, enter:

page *n*

where *n* is the number of lines.

To set the number of lines per page back to the default, enter:

page end

The following prompt is displayed between pages:

```
Press "*" to stop. RETURN to continue
```



Reserved Words



Reserved Words

The words you use in Database Query to manipulate information are *reserved* words. Reserved words make up the syntax you use in Database Query commands, for example:

```
select * from branch
```

where `select` and `from` are reserved words.

You cannot use reserved words for names of databases, tables, or columns. Reserved words have specific functions. Reserved words are case insensitive.

These are the reserved words in Database Query:

Reserved Word

Reserved Word

ADD	COMMIT
ALTER	CONNECT
ALL	CONTINUE
AND	COUNT
ANY	CREATE
APPEND	CURRENT
AS	CURSOR
ASC	CUT
AUDIT	DATE
AUTH	DAY
AVG	DBA
BEFORE	DECIMAL
BEGIN	DECLARE
BETWEEN	DELETE
BY	DPLACES
CHAR	DESC
CHECK	DESCRIBE
CLOSE	DISCONNECT
CLUSTER	DISTINCT
COBOL	DOUBLE
COLUMN	DROP

Reserved Word	Reserved Word
ECHO	MODULE
END	MONEY
ESCAPE	MONTH
EXCLUSIVE	NAMES
EXISTS	NOT
FETCH	NULL
FLOAT	NUMERIC
FOR	OF
FORMAT	ON
FORTRAN	OPEN
FOUND	OPTION
FROM	OR
GO	ORDER
GOTO	OUTER
GRANT	PAGE
GROUP	PASCAL
HAVING	PASTE
HEADER	PLI
HELP	PRECISION
IN	PRIVILEGES
INDEX	PROCEDURE
INDICATOR	PUBLIC
INSERT	QUIT
INTEGER	REAL
INTO	RECOVER
INVOKE	RENAME
IS	RESOURCE
LANGUAGE	REVOKE
LIKE	ROLLBACK
LOCK	ROLLFORWARD
LOG	SCHEMA
MATCHES	SECTION
MAX	SELECT
MDY	SEPARATOR
MIN	SERIAL
MODE	SET
MODIFY	SHARE

**Reserved Words****Reserved Word****Reserved Word**

SMALLFLOAT

UNIQUE

SMALLINT

UNLOCK

SOME

UPDATE

SQL

USE

SQLCODE

USER

SQLERROR

VALUES

START

VIEW

STATISTICS

WEEKDAY

SUM

WHENEVER

SYNONYM

WHERE

TABLE

WIDTH

TEMP

WITH

TO

WORK

TODAY

WRITE

TRUNC

YEAR

UNION

ZEROS

Use Other Database Systems with Database Query

◆ Use Other Database Systems with Database Query

◇ Introduction

Uniplex Datalink allows the exchange of information between third-party database systems and the Uniplex Business Software integrated office suite. Any supported external database may be attached to Uniplex if it is running on the server where Uniplex is running or if it is available on the same network.

Uniplex Datalink integrates the databases so that the information can be read directly into one of the Uniplex applications. This includes accessing data where the information is spread across a number of remote sites; the capabilities of distributed databases such as Informix-Net and Oracle SQL*Net are fully supported. Hence, you can use your corporate or personal database while retaining access to all of the standard Uniplex applications.

This chapter describes how to change a database link and the differences between the standard Uniplex database and the following linked databases:

- o **Informix:** Informix V2.1
Informix-OnLine V4
Informix-SE V5
Informix-OnLine V5
Informix-Net
Informix-Turbo
Turbo-Net
- o **Oracle:** Oracle V6.0
Oracle V7.0
Oracle SQL*Net
- o **Ingres:** Ingres V6



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◇ Change Database Link

This section explains how to change a database link. The system-wide database link determines the general database available in Uniplex. You can specify a different database in the personal database link field. This database is linked into Uniplex instead of the system wide database.

You can link more than one database into Uniplex. For example, you can have a different database in your personal database link from the database entered in the system-wide database link. Alternatively, different users may link to different databases from within the same Uniplex application.

To change the database link:

- 1 From the Uniplex Main Menu, select the System Admin. option.
Uniplex displays the System Administration menu.
- 2 Select the Software Installation option.
Uniplex displays the Installation Options menu.
- 3 Select the Change Database Link option.
Uniplex displays the Show Database Links form. This shows which databases you are currently linked to.
- 4 To change the database links, leave the Change database link field as Yes and press **F1** or **Esc e**

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Uniplex displays the Alter Database Link form. For example:

```

Press SPACEBAR to scroll options.
ENTER DETAILS      A L T E R   D A T A B A S E   L I N K
+-----+-----+
| Database link: | [Uniplex Database_____] |
| Availability:  | [Personal_____]        |
+-----+-----+
F1=Enter  F2=Redraw  F3>Edit  F4=Quit  F5=Expand  F6>Record

```

- To change the database link field, press any key to obtain a pick and point list of the available database links. Select the option you require.

✎ *Select Informix Online when linking Informix-OnLine V4 or higher versions (i.e., Informix-OnLine V5 or Informix Dynamic Server V7).*

- To change the availability field press any key to obtain a pick and point list of the following options:

- Personal
- System wide

✎ *Only the System Administrator can change the list of databases available and the System Wide Database availability.*

- Select the option you require and press **F1** or **ESC e**.

Uniplex changes the link and displays a prompt.

- As prompted, press **RETURN**.

Uniplex returns you to the Installation Options menu.



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Informix

This section describes the differences between Informix V4 (Informix-SE, Informix-OnLine [Dynamic Server], Informix-Net, Informix-Turbo, and Turbo-Net) and subsequent releases and the Informix-SE database bundled with Uniplex.

Informix-SE V4

Uniplex allows you to create, access and update databases using Informix-SE V4; however, Uniplex does not support the full Informix V4 extended SQL environment described in the **Informix SQL V4.00 Reference Manual**.

Informix-SE supports two extra data types: **datetime** and **interval**. These data types are recognized by Uniplex, but not actively supported. For example, you can alter existing tables containing these data types, but you cannot create tables containing columns with these data types.

Data types which are supported by Uniplex are: **character**, **integer**, **decimal**, **date**, **smallint**, **float**, **money** and **serial**. The introduction of these extra data types affects various applications and facilities, as detailed on the following pages.

Database Query (usql)

- o **Columns.** You cannot **add** (create) columns with unsupported data types to a table. You can **modify** a column's data type from unsupported to supported. You cannot **modify** a column's data type from supported to unsupported.
- o **Records.** You can **add** (insert) records in a table containing columns with unsupported data types, provided that you use the following syntax:

insert into *table_name* **values** ("*constant*", ...)

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That is, the entry for fields with unsupported data types must be in the form of a string (enclosed in quotes). For example, a record containing fields of data types **character**, **interval** and **datetime** could be added using the following `usql` statement:

```
insert into tvprograms values -  
("Batman","0:26:34","1998-6-29 02:05:00")
```

For full details of the syntax of the **datetime** and **interval** data types, refer to the **Informix SQL V4.00 Reference Manual**.

You can **cut** or **select** records from a table containing columns with unsupported data types, but the fields for such columns will be zero length. The column headings will be displayed if appropriate. You can **update** records in a table containing columns with unsupported data types by using this syntax:

```
update table_name set column_name = "expression"
```

Entries for columns with unsupported data types must be in the form of strings (i.e., enclosed in quotes), as described at the beginning of this section. You can **write** records to a file from a table containing columns with unsupported data types, but the fields for such columns will be zero length. The column headings will be displayed if appropriate.

- o **Tables.** You cannot **add** (create) tables containing columns with unsupported data types.

Report Writer

You can use Database Query commands to process the data required to produce a report. For details of how use of Informix-SE affects such activities as selecting data, see *Database Query (usql)*.

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Spreadsheet

You can embed Database Query commands within a spreadsheet (so that the results are returned to the spreadsheet when it is calculated). For details of how use of the Informix-SE affects such activities as selecting data, see *Database Query (usql)*.

Informix-OnLine V4 (Dynamic Server)

Uniplex allows you to create, access, and update databases using Informix V4; however, Uniplex does not support the full Informix V4 extended SQL environment described in the **Informix SQL V4.00 Reference Manual**.

Informix-OnLine supports five extra data types: **datetime** and **interval** (which are also supported by Informix-SE, as described above), **varchar**, **text** and **byte** (**text** and **byte** are Binary Large Objects -BLOBs). These data types are recognized by Uniplex, but not actively supported. For example, you can alter existing tables containing these data types, but you cannot create tables containing columns with these data types.

Data types which are fully supported by Uniplex are: **character**, **integer**, **decimal**, **date**, **smallint**, **smallfloat**, **float**, **money** and **serial**. The introduction of these extra data types affects various applications and facilities as described in *Informix-SE V4*. Any differences between Informix-SE and Informix-OnLine when using Uniplex are detailed below.

Database Query (usql)

The following restrictions apply to the use of BLOBs (that is, data types **text** and **byte**):

- o You cannot specify fields from columns with BLOB data types in Boolean expressions (for example, in a search) unless they are being tested for NULL.

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- o You cannot specify fields from columns with BLOB data types in arithmetic or string expressions (for example, in a search).
- o **Indexes.** You cannot perform index functions on tables and columns with BLOB data types.
- o **Insert.** You can **insert** (add) records in tables containing columns with BLOB data types. However, you cannot add values to the fields for the columns with unsupported data types, they must be null.
- o **Select.** You cannot use aggregate functions (i.e., **avg** or **sum**), the keywords **in**, **matches**, and **like**, or the **group by** clause with fields or columns that have BLOB data types.
- o **Update.** You cannot **update** fields or columns which have BLOB data types with quoted text strings, numbers or any other actual values. You cannot assign literals to columns with BLOB data types (using the **set** clause of **update**).
- o **Views.** You can create a **view** of tables containing columns with unsupported data types. However, the restrictions described for the **select** clause above apply.

The following usql statements cannot be used when accessing an Informix-OnLine database:

- o **start** *database with log in file*
- o **create audit for** *table in "file"*
- o **drop audit for** *table*
- o **recover** *table*
- o **rename** *database*
- o **rollforward database** *database*

Use Other Database Systems with Database Query

Informix-Net

Informix-Net enables you to create and use both local and remote databases. Any remote machine you access must run Informix-Net or Turbo-Net. To access a remote database use the **database** statement. The syntax is:

```
database "//machine_name/database_name"
```

where the DBPATH environment variable is set to include the full pathname for the database. For example, to access a file called Int.sales which is on a machine called IBMSYS, in the directory mktg/accounts you should use one of the following entries. If DBPATH has been set to include the pathname "/mktg/accounts", you should enter:

```
1-> database "//IBMSYS/Int.sales"
```

If DBPATH does not include the full pathname, you should enter:

```
1-> database "//IBMSYS/mktg/accounts/Int.sales"
```

✎ *When you set DBPATH you should include the name of the machine on which the database resides. For more information about setting DBPATH see the **Informix-Net User Guide**.*

Informix-Turbo

Informix-Turbo enables you to reduce the time involved in storing and retrieving data. The databases are stored in *dbspaces*. Dbspaces are raw disc partitions or large regular files. When you use Informix-Turbo you cannot obtain a list of available databases.

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This means:

- o When you use the **select database** option you need to know the database name beforehand.
- o The **describe names** SQL command is invalid.

Turbo-Net

Turbo-Net enables you to:

- o Create and use both local and remote databases.
- o Reduce the time involved in storing and retrieving data.

Any remote machines you access must run Informix-Net or Turbo-Net. For details of how to access remote databases, see *Informix-Net*. When you use Turbo-Net you cannot obtain a list of available databases. For more details see *Informix-Turbo*.

Informix Version 7 Products

Version 7 of Informix Dynamic Server (formerly Informix-OnLine) and of Informix-SE contain changes to the internal database format that prevent them from working with Uniplex in their native mode. However, both databases offer a Relay Module feature which allows them to simulate the older Informix interface of Versions 4 and 5.

Informix Dynamic Server V7 and Informix-SE V7 may both be used with Uniplex if the Relay Module feature is activated. Consult your system administrator, your Uniplex support organization and the on-line **Uniplex Technical Guide** for detailed configuration information.



Use Other Database Systems with Database Query

◇ Oracle

This section describes the differences between an Oracle database linked into Uniplex and the standard Uniplex database. The following subsections explain the differences which affect SQL statements. The following Oracle databases are supported:

- o Oracle Version 6
- o Oracle Version 7

Access a Database

To gain access to a database you use the invoke statement. To do this, use the following syntax:

invoke *database_name*/*password* [*database specification*]

where:

database_name is the name of the database you want to use.

password is your password to access the database.

For the correct syntax for the database specification, see your System Administrator.

Audit Trails

Oracle uses audit trails to monitor user activity on a database. As these trails are generated differently from Uniplex's standard database audit trails, the following audit statements are invalid:

- o **create audit**
- o **recover table**
- o **drop audit**

See the Oracle **SQL Language Reference Manual** for more details.

Use Other Database Systems with Database Query

Change a Table

When you use the **alter table** statement you cannot:

- o **Add** a column **before** another column. Oracle adds all new columns to the end of your table.
- o Use the **add** and **modify** clause in the same statement.
- o **Drop** a column. If you need to remove a column see your System Administrator.
- o **Rename** a column.

Create, Delete, and Rename a Database

Oracle uses a different method to control databases. This means you cannot use the following statements:

- o **create database** *database_name* [**with log in** "*filename*"]
- o **drop database** *database_name*
- o **rename database** *database_name* **to** *new_database_name*

If you need to create, delete or rename a database see your System Administrator.

Data Types

Oracle supports the following data types:

character	integer
date	money
decimal	smallint
float	smallfloat

Oracle does not support the **serial** data type.



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Date

Oracle uses the date format DD-MON-YY. For example, 15-May-99. This means you use this format when entering the date or using the following date functions:

- o **date**
- o **day**
- o **month**
- o **weekday**
- o **year**

The function **mdy** is not affected.

Describe a Database

In Oracle, you can use the following describe statements:

- o **describe database**
- o **describe table** *table_name*
- o **describe index** *index_name*

You cannot use the **describe names** statement.

Indexes

Oracle has the following restrictions when you are using indexes:

alter index This statement is not available. To alter the index you should remove the current index and then create another index. See the Oracle user manuals for details.

create index The **cluster** option is not available. This is because Oracle's cluster option operates differently from Uniplex's standard database clustering process.

Use Other Database Systems with Database Query

List Separator

Oracle uses the string concatenation operator (||) and the comma as list separators. The string concatenation operator is used to concatenate individual characters or words. For example, if you want to obtain a list of surnames and first names you could enter the following statement, with the result:

```
3-> select first_name, surname from sales_force
FIRST_NAME  SURNAME
-----
Robert      Dodd
Pam         Wilkinson
Clive       Dicken
```

If you use the string concatenation operator, you would enter the following statement, with the result:

```
3-> select first_name||surname from sales_force
FIRST_NAME||SURNAME
-----
RobertDodd
PamWilkinson
CliveDicken
```

Multi-table Queries

To perform outer join multi-table queries use the following syntax:

*select clause from table1, table2 where -
table1.column_name (+) = table2.column_name -
group by column_names in select clause*

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For example, you could use an outer join on the tables `branch` and `sales_force`, to establish the total annual salary for the sales force in each branch including those branches with no `sales_force`. To do this, enter the following statement, with the result:

```
5-> select branch.bno, branch_name, sum(salary) from sales_force, branch -
6-> where sales_force.bno (+) = branch.bno -
7-> group by branch.bno, branch_name
BNO BRANCH NAME                SUM (SALARY)
-----
02 City                          211050.00
03 Bloomsbury                    159400.00
04 Bristol                       185750.00
05 Manchester                     219250.00
06 Glasgow                          null
```

Query Specification

When you use the query specification element, you can use the string concatenation operator. This is used in query expressions and insert statements. See *List Separator* for an example.

Recover Data

Oracle uses a different method for recovering data. This means the following statements are not applicable:

- o **rollforward**
- o **start database**

For more details, see the chapter on recovering data in the Oracle **Administrator's Guide**.

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Recover Transactions

If you are using Oracle Version 6, you can insert savepoints in your current transaction to aid data recovery. Savepoints are markers in your transaction which enable you to undo already executed statements. The syntax to enter a savepoint is:

savepoint *savepoint_name*

You can use a savepoint name more than once in the current transaction. At any time while executing the current transaction you can rollback to a savepoint. All changes appearing after the savepoint are undone. If you have used a savepoint name more than once, Oracle only undoes changes up to the latest occurrence of the savepoint name, if it is used in a rollback command. The transaction can then resume execution. The syntax to rollback to a savepoint is:

rollback to *savepoint_name*

For example, if you want to add some people to the `sales_force` table, you can enter a savepoint after each person. The SQL statements are:

```
begin work
insert into sales_force (first_name,surname,bno,salary,pc,total_sal,car_reg) -
values ('Richard','Abeldon',02,12500,4.5,15500,'080 EGA')
savepoint sal1
insert into sales_force (first_name,surname,bno,salary,pc,total_sal,car_reg) -
values ('Olivia','Dabbros',02,15500,5,19000,'739 FAA')
savepoint sal2
insert into sales_force (first_name,surname,bno,salary,pc,total_sal,car_reg) -
values ('Ellen','Petifier',01,13000,4.5,17000,'155 ETT')
savepoint sal3
```

Use Other Database Systems with Database Query

As you have not used the **commit** statement yet, you can rollback to one of the savepoints in the transaction. For example, to change the entry for Ellen Petifier you can rollback to savepoint sal2. The SQL statement is:

```
9-> rollback to sal2
```

If you are using Oracle Version 5 these commands are not available. For details of how to recover transactions see the Oracle **Database Administrator's Guide** or your System Administrator.

Set Database Privileges

The grant statement is used to give each database user access rights. A user must have a name for the database and password. For more details, see your System Administrator.

Sort Data

Data is sorted when you use the **order by** clause in the select statement.

If you are using Oracle Version 5, the records with null values in the selected column appear at the beginning, regardless of whether it is an ascending or descending sort.

If you are using Oracle Version 6, the null values are treated as having the highest value in the selected column. This means that in an ascending sort, records with a null value appear at the end and in a descending sort appear at the beginning.

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For example, you can sort the following records in ascending order:

Branch Number	Branch Name
05	Manchester
03	Bloomsbury
02	City
06	Glasgow
null	Exeter
04	Bristol

If you are using Oracle Version 5, the following is displayed:

```
15-> select bno, branch_name from branch order by bno
BNO      BRANCH_NAME
-----  -
null     Exeter
02       City
03       Bloomsbury
04       Bristol
05       Manchester
06       Glasgow
```

If you are using Oracle Version 6, the following is displayed:

```
15-> select bno, branch_name from branch order by bno
BNO      BRANCH_NAME
-----  -
02       City
03       Bloomsbury
04       Bristol
05       Manchester
06       Glasgow
null     Exeter
```



Use Other Database Systems with Database Query

Temporary Tables

Oracle does not permit you to create temporary tables. This means the following statements are invalid:

- o *select clause* **from** *table_name* **into temp** *filename*
- o **create temp table** *table_name* (*column_name type, ...*)

Transaction Log Files

Oracle refers to a transaction log file as a redo log file. This file is generated automatically and is used when you are recovering your database. For details, see the chapter on database recovery in the Oracle **Administrator's Guide**.

Unlock

Oracle does not support the **unlock table** statement. This is because it automatically unlocks a table when you use either the **commit** or **rollback** statement.

Update Statistics

This statement is not supported by Oracle.

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◇ Ingres

This section describes the differences between an Ingres database linked into Uniplex and the standard Uniplex database. The following subsections explain the differences which affect SQL statements.

Audit Trails

Ingres uses a journal as an audit trail. This means the following audit trail statements are invalid:

- o **create audit**
- o **recover table**
- o **drop audit**

For more details on journals, see the Ingres **SQL Reference Manual** or your System Administrator.

Autocommit

Autocommit determines if you need to enter the commit work statement for a change to the database to become apparent. If you do not set autocommit, Ingres assumes that it is set to off.

To have every successfully executed SQL statement take affect immediately, enter the following:

set autocommit on

Otherwise, enter:

set autocommit off

↘ *If autocommit is set to off you must enter the commit work statement for any changes to the database to take affect.*

For more details, see the Ingres **SQL Reference Manual**.



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Change a Table

The following restrictions apply when you are changing a table.

alter table Ingres does not support this statement. This means you cannot:

- **Add** a column.
- **Drop** a column.
- **Modify** a column's data type.

To alter a table you should create another table and then remove the current table. For more details, see the Ingres **SQL Reference Guide** or your System Administrator.

rename Ingres does not support this statement. This means you cannot rename:

- **Column**
- **Database**
- **Table**

synonym Ingres does not support the use of synonyms.

Create a Table

When you create a table be aware of the following differences.

- o The table name cannot exceed 30 characters.
- o Ingres automatically determines where the table is stored. This means the following syntax is invalid:

create table *table_name* (*column_name type*) **in**
directory_name

- o Ingres does not support the data types **decimal**, **serial** or **time-stamp**. For more details see *Common Elements*.

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- o If autocommit is set to off, you must enter the commit work statement to include a new table in a database.

Create and Delete Databases

In Ingres you use the:

- o **createdb** command from the shell to create a database.
- o **destroydb** command from the shell to delete a database.

For more details, see the Ingres **SQL Reference Manual** or your System Administrator.

Data Types

Ingres supports the following data types:

character	money
date	smallint
float	smallfloat
integer	

In Ingres all money values are rounded to two decimal places. This means the syntax for money is:

create table *table_name* *column_name* **money**

Ingres does not support the **decimal**, **serial** and **timestamp** data types.

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Date

Ingres does not support any of the date functions. These are:

- o **date** (*value expression*)
- o **day** (*value expression*)
- o **mdy** (*value expression, value expression, value expression*)
- o **month** (*value expression*)
- o **weekday** (*value expression*)
- o **year** (*value expression*)

Indexes

As Ingres does not support clustering, the following statements are not available:

- o **alter index**
- o **create cluster index**

Multi-table Queries

Ingres does not support outer joins. This means that the following syntax is invalid:

```
select table2.column1, column2 from outer table1, table2 -  
where table1.column1 = table2.column1  
group by table2.column1, column2
```

Pattern Matching

Ingres uses a different method to find records which match a specified pattern. This means when you use the matches keyword the permitted patterns are:

- | | |
|---------------|---|
| ' <i>n</i> '* | Matches all records which begin with <i>n</i> in the specified field. |
| ** <i>n</i> ' | Matches all records which end with <i>n</i> in the specified field. |

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- ✎ *To match a record which contains spaces after n you must specify the spaces in the search pattern, unlike Uniplex's standard database.*

- ** n *** Matches all records which contain n in the specified field.
- '[n - m]*'** Matches all records which begin with a character in the range n to m for the specified field.
- ?** Can be used to pad the beginning of the match.

Prohibit Access to a Table

As Ingres automatically locks and unlocks tables as required, you cannot explicitly prevent other users accessing the same table. This means that the following statements are not available:

- o **lock table**
- o **unlock table**

Recover Data

Ingres uses a different method for recovering data. This means the following statements are not available:

- o **rollforward**
- o **start database**

For more details, see the Ingres **SQL Reference Manual**.

Recover Transactions

A transaction in Ingres is a series of statements which are processed as a single database statement when the commit command is entered. Ingres does not use the begin work command to indicate the beginning of a transaction. Instead, Ingres does not make the changes visible via the select statement until the commit work state-

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ment is entered unless autocommit is set to on. See *Autocommit* for more details.

To aid in rolling back part of a transaction which fails or is incorrect you can insert savepoints. Savepoints are markers in your transaction which enable you to undo already executed statements. The syntax to enter a savepoint is:

savepoint *savepoint_name*

You can use a savepoint name more than once in the current transaction. At any time while executing the current transaction you can rollback to a savepoint. All changes appearing after the savepoint are undone. If you have used a savepoint name more than once, Ingres only undoes changes up to the latest occurrence of the savepoint name if it is used in a rollback command. The transaction can then resume executing statements. The syntax to rollback to a savepoint is:

rollback to *savepoint_name*

For example, if you want to add some people to the `sales_force` table, you can enter a savepoint after each person. The SQL statements are:

```
insert into sales_force (first_name_column, surname_column, bno_column, -
salary_column, pc_column, total_sal_column, license_column) -
values ('Richard', 'Abeldon', '02', 12500, 4.5, 15500, '080 EGA')
savepoint sal1
insert into sales_force (first_name_column, surname_column, bno_column, -
salary_column, pc_column, total_sal_column, license_column) -
values ('Olivia', 'Dabbros', '02', 15500, 5, 19000, '739 FAA')
savepoint sal2
insert into sales_force (first_name_column, surname_column, bno_column, -
salary_column, pc_column, total_sal_column, license_column) -
values ('Ellen', 'Petifier', '01', 13000, 4.5, 17000, '155 ETT')
savepoint sal3
```

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As you have not used the **commit** statement, you can rollback to one of the savepoints in the transaction. To remove the entry for Ellen Petifier you rollback to savepoint sal2. The SQL statement is:

```
9-> rollback to sal2
```

To process the entries for Richard Abeldon and Olivia Dabbros, enter the following SQL statement:

```
10-> commit work
```

Ingres updates the database and makes the changes visible to users when they use the select statement.

Set Database Privileges

Ingres does not support privilege setting for a database. Instead you set privileges on individual tables. This means the following statements are invalid:

- o **grant** *privilege to public*!user_list
- o **revoke** *privilege from public*!user_list

Set Table Privileges

When you are setting the privileges for a table, Ingres does not support the following clauses:

- o **with grant option**
- o **alter**
- o **index**

This means the syntax for grant privileges is limited to:

```
grant privilege on table_name to public!user_list
```



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where privilege can be one, or a combination of the following:

- o **delete**
- o **execute**
- o **insert**
- o **update**
- o **all**

Temporary Tables

Ingres does not permit you to create temporary tables. This means the following statements are invalid:

- o *select clause from table_name into temp filename*
- o **create temp table** *table_name (column_name type, ...)*

Transaction Log Files

Ingres uses a journal as a transaction log file. A journal is set up for each database when it is created. See the appropriate Ingres reference manual for details.

Update Statistics

Ingres does not support this statement.

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Chapter 10

Key Recorder

Key Recorder

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◆ Overview

Key Recorder lets you store a sequence of keystrokes or commands. The keystrokes or commands are stored on *Key Tapes*. By pressing only one or two keys you can play back the Key Tape and automatically repeat the same series of keystrokes and commands.

Using Key Recorder you can:

- o Repetitively perform a long or complicated sequence of keystrokes or commands by pressing only one or two keys.

For example, using the Word Processor, you can delete a ruler, add a new ruler, then reformat the paragraph below.

- o Store a sequence of commands which performs a common task in a standardized way.

For example, using the Word Processor, you can create standard headers and footers for use with all documents within a department. You can recall these quickly and easily.

- o Build collections of Key Tapes for different tasks.

For example, using the Spreadsheet, you can create a collection of Key Tapes which perform all the repetitive tasks you need to format, add titles, and edit a spreadsheet for your monthly accounts.

- o Assign a Key Tape to a softkey for even faster performance.
- o Delete a Key Tape.



Overview

These are some of the advantages of using Key Recorder:

- o Save valuable time by using Key Tapes to perform long or complicated tasks repetitively at the touch of a button.
- o Make it easy for your whole group or department to perform common tasks in a standardized way.
- o Let inexperienced users perform complex tasks.

Worked Example

Worked Example

This section shows you how to use the different options available with Key Recorder. When you have worked through the example, you can start to use Key Tapes to speed up time consuming or repetitive tasks.

1 Record a Key Tape

You can record a Key Tape at any time, in most applications. When it is recorded, you can play it back, repeatedly if required.

A Key Tape can consist of keystrokes, commands and text, in any combination. Simply perform the task you want to record, exactly as you want it to be repeated.

To record a Key Tape, first prepare a test document:

- a) Pick and point Word Processor from the Main menu.
- b) Pick and point the Create a Document option.
- c) Enter:

SALES ANALYSIS REPORT

Now begin the recording:

- a) Place the cursor on the S of Sales.
- b) Press **ESC k b**.

All the keystrokes you make from now on are recorded. Uniplex displays the message, **RECORD A KEYSAPPE** in the top left corner of the screen.

- c) Press **ESC < a**.

Uniplex effects the line in effect a (bold).

Worked Example

- d) Press **ESC right arrow** to move the cursor to the end of the line, and press **ESC >**.

Uniplex switches off the effect.

- e) Press **CTRL f**, then **c**.

Uniplex centers the text.

- f) Press **ESC k e** to end the recording.

2 Play Back a Recording

Once a Key Tape has been recorded, you can play it back. This lets you repeat the series of commands and keystrokes you have just performed, quickly and easily.

To play back the recording you have just made:

- a) Move the cursor to the beginning of the next line.
b) Enter:

PRODUCTION PROGRESS REPORT

- c) Place the cursor on the **P** of Production.
d) Press **ESC k p** or **CTRL t**

Uniplex plays back the Key Tape, automatically effecting the text and centering it.

3 Save a Recording

Once you have made a recording, you can save it to use at any time.

To save the recording you have just made:

- a) Press **ESC k s**.

Uniplex prompts for a Key Tape name.

- b) Enter:

Demonstration

- c) Press RETURN. If there is already a Key Tape called Demonstration, Uniplex prompts you to press * to confirm you want to overwrite the existing Key Tape.

Uniplex saves the recording.

- d) Press **ESC e** or **ESC q** to leave the document. If you press ESC e, enter a name for the document.

4 Recall the Key Tape

You can easily recall any Key Tape you have saved even when you have logged in and out again.

To recall the Key Tape you have just saved:

- a) Pick and point the Create a Document option.

- b) Enter:

MARKETING STRATEGY REPORT

- c) Press **ESC k r**

Uniplex displays a list of Key Tapes that are available. The Key Tape called Demonstration is on the list.

- d) Pick and point the Demonstration Key Tape.

Worked Example

- e) Place the cursor on the **M** of Marketing.
- f) Press **ESC k p** to play back the Key Tape.

Uniplex plays back the Demonstration Key Tape, automatically effecting and centering the text you have entered.

- g) Press **ESC e** or **ESC q** to leave the document. If you press **ESC e**, enter a name for the document.

5 Continue the Recording

Once you have recorded a Key Tape, you can add to it using the Continue Recording command.

To continue the Key Tape you recorded:

- a) Pick and point the Create a Document option.
- b) Enter:

MEETING OF THE BOARD OF DIRECTORS

Press RETURN.

- c) Place the cursor on the **M** of Meeting.

Now continue the recording:

- a) Press **ESC k c**

Uniplex plays back the current recording, then displays the message **RECORD A KEYPAPER** at the top of the screen. Any keystrokes you make from now on are added to the recording.

- b) Press RETURN twice.

- c) Type in:

Agenda

- d) Press **ESC k s** to save the extended recording.

Uniplex prompts for a filename and enters Demonstration by default. Press RETURN to select it, and press * to confirm that you want to save the extended recording.

The Demonstration Key Tape now includes this additional information.

6 Attach a Key Tape to a Softkey

If you want to use a particular Key Tape very frequently, you can recall it quickly and easily by assigning it to a softkey.

When you press the softkey you have attached the Key Tape to, it is played back immediately.

To attach the current Key Tape to a softkey:

- a) Press **ESC k a**

Uniplex displays a list of softkey numbers, with the names of any Key Tapes assigned to them.

- b) Pick and point 1.

Uniplex attaches the Demonstration Key Tape to softkey F1.

To play back a Key Tape using a softkey:

- a) Move the cursor to the beginning of a new line.



Worked Example

b) Enter:

ANNUAL GENERAL MEETING

c) Place the cursor on the **A** of Annual.

d) Press **ESC k m** to display the Key Recorder Softkey Menu.

e) Press F1.

Uniplex plays back the Key Tape, effecting and centering the text you have entered, then moves two lines down, and enters Agenda.

You have now completed the Worked Example and can start to use Key Recorder to perform your own tasks.

Reference

◆ Use Key Recorder

You can record a Key Tape at any time in most applications. When it is recorded, you can play it back, repeatedly if required.

✎ *You cannot use the Key Recorder in the Sketch Pad, Database Query, the Presentation Editor, or while using a popup.*

A Key Tape can consist of keystrokes, commands, and text in any combination. You can record up to one thousand keystrokes in each Key Tape. Each character or command counts as a single keystroke. Simply perform the task you want to record exactly as you want it to be repeated.

Key Tapes can be used in most applications, though you cannot use Key Tapes created in one application in a different application. For example, you cannot use a word processing Key Tape within a spreadsheet.

You can build collections of Key Tapes for different purposes. For example, you can build a collection of Key Tapes which you use when you are producing a monthly budget and a different collection for producing the weekly newsletter.

◇ Record a Key Tape

You can record a Key Tape at any time, in any application.

To record a Key Tape:

- 1 Press **ESC k b**
- 2 Enter the exact sequence of keystrokes which performs the task you want to record.
- 3 Press **ESC k e** to end the Key Tape.

Use Key Recorder

◇ Play Back a Key Tape

When you have recorded a Key Tape, you can play it back whenever you want. Uniplex automatically repeats the keystrokes, tasks and commands you recorded.

To play back a Key Tape:

- o Press **ESC k p** or **CTRL t**

Uniplex automatically repeats the last series of keystrokes you recorded or the last Key Tape you used.

◇ Save a Key Tape

When you have recorded your Key Tape, you can save it for use at any time.

To save a Key Tape:

- 1 Press **ESC k s**

Uniplex prompts for a Key Tape name.

- 2 Enter a filename for your Key Tape. You can use a maximum of 14 letters. Press RETURN.

If you name your Key Tape *start*, Uniplex automatically loads the tape when you enter Uniplex. This is useful if you have a particular Key Tape that you are more likely to use than other tapes.

◇ Recall a Key Tape

You can recall the Key Tapes you have saved. Remember that Key Tapes you save are for that application only. For example, if you save a Key Tape while you are using the Word Processor, you can only recall that Key Tape while using the Word Processor.

To recall a Key Tape:

- 1 Press **ESC k r**

Uniplex displays a pick and point list of Key Tapes.

- 2 Pick and point the Key Tape you want to use.
- 3 Move the cursor to the position to begin playback.
- 4 Press **ESC k p**

Uniplex plays back the Key Tape you have recalled.

◇ Continue Recording a Key Tape

You can add further commands to a recorded Key Tape. For example, you may want to perform the same task, and then ask Uniplex to move to the beginning of the next paragraph.

To continue recording a Key Tape:

- 1 Move the cursor to the position to continue recording.
- 2 Press **ESC k c**

Uniplex plays back the current Key Tape and stays in record mode. All the keystrokes you make are recorded until you press **ESC k e** to end the recording.

The additional keystrokes become part of the original recording.



Use Key Recorder

◇ Create Key Tapes with Prompts

You can build Key Tapes which incorporate a prompt to let you enter text as a part of the tape. For example, a Key Tape may set up standard headers and footers for a report, but you want to enter a different date on the header each time you play back the Key Tape. To build a Key Tape incorporating a prompt:

- 1 Begin to record the Key Tape by pressing **ESC k b**.
- 2 At the point in the recording where you want to incorporate the prompt, press **ESC k i**.
- 3 Continue the recording. Finish the recording by pressing **ESC k e**. Save the recording by pressing **ESC k s**.

When you play back the tape, at the point at which you pressed **ESC k i**, Uniplex prompts:

```
Enter text: Press RETURN to continue
```

- 4 Enter any text you require. Press RETURN when you have finished. Uniplex continues playing back the Key Tape.

◇ Assign a Key Tape to a Softkey

You can assign a Key Tape to a softkey so it can be recalled quickly and easily at any time. This is particularly useful if you have recorded a number of Key Tapes that you use very often.

Each collection of Key Tapes has its own set of softkeys. If you attach a Key Tape to a softkey, it is attached to the set of softkeys belonging to the collection of Key Tapes you are currently using. See *Use a Collection of Key Tapes*.

To assign a Key Tape to a softkey:

- 1 Press **ESC k a**

If you have not saved the Key Tape, Uniplex prompts for a filename. Enter the filename and press RETURN.

Uniplex displays a list of softkeys.

- 2 Enter the number of the softkey to which you want the current Key Tape attached.

To access the Key Recorder Softkey Menu:

- o Press **ESC k m**

When you access the Key Recorder Softkey Menu, Uniplex displays the Key Tapes you have assigned. You can recall the Key Tapes by pressing the appropriate softkey.

You cannot record or save Key Tapes while the Key Recorder Softkey menu is displayed.

You cannot use your usual softkeys while the Key Recorder Softkey menu is displayed.

- o Press **ESC k m** or **F8** to return to the usual softkey menu.

◇ Use a Collection of Key Tapes

All Key Tapes that you create belong to a collection. Everyone has their personal collection of Key Tapes. Other collections may have been set up for your system.

Talk to your System Administrator if you want to set up a new collection. For example, you can set up a collection of Key Tapes for producing a monthly budget and a collection of Key Tapes for writing the weekly newsletter.

Use Key Recorder

When you start to use Key Recorder, Uniplex automatically places you in your own collection. All the Key Tapes you use are from that collection. Each collection has its own set of softkeys to which you can attach Key Tapes. See *Assign a Key Tape to a Softkey*.

You can move to another collection or library of Key Tapes:

To do this:

- 1 Press **ESC k l**

Uniplex displays a pick and point list of all the available collections.

- 2 Pick and point the collection you want to use.

You can use any of the Key Tapes in the collection you have selected.

If you attach a Key Tape to a softkey, it is attached to the set of softkeys for that collection. See *Assign a Key Tape to a Softkey*.

◇ Delete a Key Tape

From File Manager, you can delete a Key Tape from one of your Key Tape collections.

✎ See the *File Manager* chapter for details of File Manager use.

To delete a Key Tape:

- 1 From File Manager, choose **View → Open Folder...** to display the Open Folder pop-up.
- 2 In the **Folder to open** field, choose the Key Tape collection that contains the Key Tape to delete.

Use Key Recorder

For example, if you want to delete the Word Processor Key Tape called **Letter-head**, choose **Word Processor Key Tapes** from the list.

- 3 Press **F1 (Esc e)**.

The appropriate Key Tape folder opens in File Manager.

The contents of the Key Tape folder are shown in the Folder list (the right-hand list).

- 4 In the Folder list, highlight the Key Tape to delete and choose **File → Delete....**
- 5 Press **Y** or ***** to confirm deletion.

✎ *For more details about Key Tape collections, such as creating additional collections, see the **File Manager** on-line help.*

Use Key Tapes

◆ Use Key Tapes

The Worked Example uses an example taken from the Word Processor. However, you can use Key Recorder within most Uniplex applications. This section contains more ideas of the different ways you can use Key Tapes. You can use Key Tapes for any tasks that you frequently have to perform.

◇ Word Processor

1 Replace one ruler with another, and reformat the paragraph below it:

- a) Press **ESC r r** and select any ruler from the default rulers you have for your system.

Make sure the cursor is on the left edge of the ruler.

- b) Press **ESC k b** to begin the Key Tape.
- c) Press **CTRL x** to delete the ruler.
- d) Press **ESC r r** and select a new ruler from the set of default rulers you have.
- e) Move the cursor down to the next line.
- f) Press **CTRL f p**.
- g) Press **ESC k e** to end the Key Tape.

You can use the Key Tape repeatedly to reformat an entire document with new rulers. Press **ESC k s** to save the Key Tape if you want to use it on future occasions.

2 Draw a standard-sized box:

- a) Press **ESC k b** to start the Key Tape.

Use Key Tapes

- b) Press **ESC (** to mark the top left of the area you want to box.
- c) Move the cursor to the bottom right corner of the area you want to box.
- d) Press **ESC) *** to mark the bottom right corner of the area you want to box.
- e) Press **ESC k e** to end the Key Tape.

You can play back the Key Tape whenever you want to draw a standard-sized box in a document. Press **ESC k s** to save the Key Tape to use on future occasions.

◇ Spreadsheet

To round all values in a spreadsheet:

- 1 Move onto a cell which contains a formula.
- 2 Press **ESC k b** to begin the Key Tape.

Uniplex displays a RECORD message on the status line.

- 3 Enter the following series of keystrokes:
 - a) Press the Edit softkey.
 - b) Press **ESC i** to go into Insert mode.
 - c) Move the cursor one space to the right. Enter:

r n d (

- d) Press **ESC right arrow** to move to the end of the line.



Use Key Tapes

e) Enter:

, 2)

Press RETURN.

4 Press **ESC k e** to end the Key Tape.

5 Press RETURN.

Use the Key Tape whenever you want to round a formula in a spreadsheet.

◇ Database Forms

To find all the records with a particular set of characteristics:

For example if you had a database form with Title, Name, Street, and Town fields, you could do the following:

- 1 Pick and point the Database Forms option.
- 2 Pick and point Select Database.
- 3 Pick and point the database you want to use.
- 4 Pick and point the Inquire on Records option.
- 5 Pick and point the table you want to use.
- 6 Pick and point the Find option.
- 7 Press **ESC k b** to start the Key Tape.

Use Key Tapes

8 Enter the search condition you want. For example, if you are working with a name and address form, you can make the following entries:

a) In the Title field enter:

!Mr.

b) In the Name field enter:

= [F-P]*

c) In the Town field enter:

!LONDON*

d) Press **ESC e** to begin the search.

9 Press **ESC k e** to end the Key Tape.

Use this Key Tape whenever you want to find the records of all the females living outside London with surnames beginning with the letters F to P. Press **ESC k s** to save the Key Tape if you want to use it on future occasions.

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Integration

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◆ Overview

This chapter describes how to transfer skills and information between Uniplex applications and how to switch between them. There are four key components of Uniplex integration:

- o **Consistent Command Structure.** Uniplex uses the same command set in all its different applications. This means, for example, that you use the same commands to edit a piece of text created with the Word Processor and an area of the Spreadsheet. You use the same commands to find a record stored in the database and find a file in the File Manager.
- o **External Windows.** The External Windows facility lets you switch between two or more Uniplex tasks or applications quickly and efficiently. For example, you can work with the Word Processor or the Spreadsheet and have your calendar always at hand or you can work with two different word processor documents, transferring information between them.
- o **Cut and Paste.** You can cut out a portion of text, data, or graphics from any Uniplex application and transfer it to a different application. For example, you can cut out the result of a database inquiry, perform calculations on it using the Spreadsheet, and incorporate it in a report using the Word Processor.
- o **Desk Options.** You can use the desk options to perform Uniplex tasks directly from another application. For example, you can add an event to your calendar while you are working in the Spreadsheet or you can search through the database while you are preparing a report using the Word Processor.

Use Common Commands

◆ Use Common Commands

Uniplex has a common command set. This means that you can use the same commands to perform many common tasks, whichever application you are in. In this way, the commands you learn in one application are applicable to other Uniplex applications.

Uniplex has common commands to perform the following tasks:

- o Save Commands
- o Move Around the Screen
- o Edit Text, Data, and Graphics
- o Search for Files and Records
- o Record and Playback Key Tapes
- o Switch between Processes

The following sections describe each of these sets of common commands.

◇ Save Commands

You can use these commands in any Uniplex application:

Task	Command
Quit	ESC q
Save and Exit	ESC e
Save and Continue Work	ESC w

◇ Move around the Screen

Use these commands to move around the screen in all Uniplex applications:

Task	Key
Move Up a Line	Up Arrow
Move Down a Line	Down Arrow
Move One Character Left	Left Arrow
Move One Character Right	Right Arrow
Go to Start of Line	ESC Left Arrow
Go to End of Line	ESC Right Arrow
Move to Previous Word	CTRL p
Move to Next Word	CTRL n
Move to Top of File	ESC t
Move to Bottom of File	ESC b

◇ Miscellaneous Common Commands

You can use these commands in any Uniplex application:

Task	Command
Redraw the Screen	ESC v
Display Help	ESC h



Use Common Commands

◇ Edit Commands

You can use these commands in any of the following applications:

- o Word Processor
- o Spreadsheet
- o Electronic Mail
- o Card Index
- o File Manager
- o Database Forms

Task	Command
-------------	----------------

Switch between Insert and Overwrite Mode	ESC i
Insert a Character	CTRL e
Delete Character to Left	DEL or RUBOUT
Delete Current Character	CTRL c
Delete Line/Clear Field	CTRL x
Delete to Start of Line	ESC dl
Delete to End of Line	ESC dr
Delete Word	CTRL w
Undo Last Delete or Insert	CTRL r
Reset All Fields to Defaults	ESC ds

◇ Key Recorder Commands

You can use these commands in any Uniplex application:

Task	Command
Start a Key Tape	ESC kb
End a Key Tape	ESC ke
Playback a Key Tape	ESC kp
Save a Key Tape	ESC ks
Recall a Key Tape	ESC kr

◇ External Window Commands

You can access the desk options from any Uniplex application. You can use External Windows to switch between any of the following applications:

- o Word Processor
- o Spreadsheet
- o Database Forms
- o Card Index
- o Time Manager
- o Electronic Mail

Task	Command
Switch between Processes	ESC xs
List Current Processes	ESC xp
Access the Desk Popup	ESC xd
Access the Utility Popup	ESC xu

↘ *For more detailed information about External Windows see **External Windows** and **Use External Windows**.*



Use Common Commands

◇ Common Searching Commands

These modules incorporate powerful searching facilities which can be used to find specific files, documents, tasks, or records:

- o Database Forms
- o Card Index
- o File Manager
- o Electronic Mail

Operator	Function
=	Equal To. Find data containing the specified item.
!	Not Equal To. Find data that does not contain the specified item.
>	Greater Than or Equal To. Find data that is greater than or equal to the specified item.
<	Less Than or Equal To. Find data that is less than or equal to the specified item.
x*	Find data where the specified field begins with x.
*x	Find data where the specified field ends with x.
[m-p]*	Find data where the specified field starts with a character in the range m through p.
?	Pad the beginning of the match, matching each ? with a single character.

◆ External Windows

External Windows is used to perform multiple tasks during a work session. It makes switching between tasks as simple as pressing a couple of keys and then it is just as easy to switch back to the original task. Several different Uniplex tasks may be performed in rapid succession using this feature to switch between any of the following applications:

- o Word Processor
- o Spreadsheet
- o Database Forms
- o Card Index
- o Time Manager
- o Mail
- o Presentation Graphics

You do not have to switch between different applications. You can perform a task, for example, with two word processing documents, or with two spreadsheets. Use External Windows provides the following advantages:

- o Saves valuable time when performing two or more tasks.
- o Lets you keep the context in which you are working; the cursor returns to the position you were at when you switched tasks.

The way you use External Windows depends on the type of work you perform with Uniplex. For example, you can:

- o Easily cut and paste information between documents.
- o Have your personal calendar constantly at hand while you work on the Spreadsheet or Word Processor.
- o Use Card Index and Electronic Mail in conjunction with each other to send a series of mail messages.
- o Use the Spreadsheet and the Database together and transfer information between them.



External Windows

◇ Use External Windows

You can use External Windows whenever you want to perform two or more Uniplex tasks at the same time. You can switch to a new application or task without quitting from the one you are using. When you switch back to your original task, the cursor is in the same position as when you switched. You can switch to a new task while you are working by using the Desk Popups. See *Start New Tasks using the Desk Popups*. In addition, you can switch to a new task using the main menu. See *Start New Tasks using the Main Menu*.

◇ Start New Tasks Using the Desk Popups

To start a new task and switch between the original and the new task, follow these steps:

- 1 Access the first task in the usual way. For example, if you want to use the Word Processor, pick and point the Create a Document option from the Word Processor Menu.
- 2 When you want to start to perform a second task, do not exit from the first. Instead, press **ESC xd** to access the Desk Popup, or **ESC xu** to access the Utilities Popup. See **Appendix B** for details of the Desk and Utility popup menus.
- 3 Pick and point the option you want to use from the Popup menu displayed. You can use any of the following options:

o Word Processor	o Card Index
o Window WP	o Time Manager
o Spreadsheet	o Electronic Mail
o Window SS	o Presentation Graphics
o Database Forms	
- 4 When you want to switch to the previous task, press **ESC xs**.
- 5 When you want to switch back, press **ESC xs**.

◇ Start New Tasks Using the Main Menu

You do not have to select new options through the Popup menus; you can select options from the Uniplex menu in the usual way. For example, to have your personal calendar at hand while you work with the Spreadsheet or the Word Processor:

- 1 Pick and point the Time Manager option from the menu.
- 2 Press **ESC xs** to switch back to the menu.
- 3 Pick and point the option you want to use, for example the Spreadsheet or the Word Processor. Whenever you want to refer to your calendar, press **ESC xs**.

◇ Work with Multiple Tasks

Task switching is limited to two tasks by default but can be expanded to any number by the system administrator. To work with three or more tasks:

- 1 Access the first task in the usual way. For example, if you want to use the Word Processor, pick and point the Create a Document option from the Word Processor menu.
- 2 When you want to start to perform a second task, do not exit from the first. Instead, press **ESC xd** to select the Popup Desk or **ESC xu** to select the Utilities Popup.
- 3 Pick and point the option you want to use from the Popup menu.
- 4 If you want to begin another task repeat steps 2 to 3, then pick and point the application you want to use from the Popup menu.
- 5 Press **ESC xs** to switch between the two most recent tasks you have performed.
- 6 Press **ESC xp** to switch to an earlier task. Uniplex displays a pick and point list of all available tasks.



External Windows

7 Pick and point the task to which you want to return.

✎ *The message **Process limit reached: use quit to leave this program** means the system limit on multiple tasks has been exceeded.*

◇ Exit from a Task

When you want to exit from a task, you use the usual Uniplex commands. When you want to exit from Uniplex, you must exit from all the individual tasks you have performed. Uniplex makes sure you do this before you are able to exit. To exit from a task:

- 1 Press **ESC e** if you want to exit and save any changes you have made. Press **ESC q** if you want to exit without saving changes.
- 2 Uniplex automatically switches you to the parent task. The parent task is the task from where you started the current task.

◇ Exit from Uniplex

If you want to exit from Uniplex, you must exit from each individual task you have performed. Follow these steps:

- 1 Pick and point the Quit option. Uniplex displays a pick and point list of all open tasks.
- 2 Pick and point a task and continue work or exit.
- 3 When you exit the final task Uniplex terminates.

◆ Cut and Paste

One of the most useful features of Uniplex is that you can cut out blocks of text, data, or graphics. You can move the block to a different part of the document or file where you are working, or you can transfer the block to a different file or document.

You can cut out a block from one type of Uniplex application, and paste it into a different application. For example, you can cut out some data from the database, transfer it to a spreadsheet and perform some calculations on it. You could then produce a graph of the results and transfer them into a report that you have prepared using the Word Processor.

◇ Cut a Block

You use the same commands to cut a block, whichever application you are in. Follow these steps:

- 1 Move the cursor to the top left corner of the block to be cut.
- 2 Press **ESC (**
- 3 Move the cursor to the bottom right corner of the block you want to cut.
- 4 Press **ESC)**

Uniplex displays the following prompt:

```
MARK: Blank Leave Remove Write Append *-Box Erase_box Others
```

- 5 Press one of the following:

- B** To remove the block and leave blank space in its place.
- L** To leave the block as it is.
- R** To remove the block and close up the space left.



Cut and Paste

- W** To leave the block in its place and place a copy of it in a file. Uniplex prompts for a filename.
- A** To leave the block in its place and place a copy of it in a file, appending it to the end of the file. Uniplex prompts for a filename.
- *** To draw a box, with the start and end points of the block as the top left and bottom right corners of the box.
- E** To remove a box, with the start and end points of the block to be removed as the top left and bottom right corners of the box.
- O** To display additional options. These let you check spelling, add effects, remove effects, fill an area, change to uppercase or change to lowercase.

Uniplex automatically places the block you have cut in a *clipboard* and carries out the option you select. See *Clipboards*.

◇ Paste a Block

You can paste a block in the same document or file or in a different document or file.

To paste a block that you have cut out:

- 1 Move the cursor to the area of the file or document where you want to place the block.
- 2 Press **ESC ***

Uniplex displays the following:

```
PASTE:  Overlay Insert Elbow Box
```

- 3 Press one of the following:
- O** To overlay the block at the current cursor location, replacing existing text.
 - I** To insert the block at the current cursor location, pushing existing text further down in the document.
 - E** To insert the block at the current cursor location, pushing existing text across to the right.
 - B** To draw a box, with the start and end points of the block as the top left and bottom right corners to the box.

◇ Clipboards

When you cut out a block from any application, Uniplex automatically places it in the current clipboard. You can use up to 10 different clipboards, to store 10 blocks at the same time.

By default, Uniplex places the area you cut in clipboard 0. When you want to use a different clipboard, change the current clipboard *before* you begin to cut or paste.

To change clipboards:

- o Press **ESC # *n***

where *n* is the number of the clipboard where you want to place the block. For example, if you want to place a block in clipboard 6, enter

ESC#6

You can view the contents of all the clipboards. This is particularly useful if you are using several clipboards at the same time.



Cut and Paste

To view the contents of all the clipboards:

- 1 Press **ESC xu** or F12 to access the Utilities Popup menu.

Uniplex displays the Utilities Popup.

- 2 Pick and point the View Clipboards option.

Uniplex displays the first line of the contents of all the clipboards.

Use the softkeys to select a clipboard and to view the entire contents of any clipboard.

The default clipboard has an additional use. Uniplex allows you to copy your current screen display and append it to the bottom of the default clipboard. You can use this, for example, to print Uniplex forms or menus.

To append your current screen display:

- o Press **ESC:d**

Uniplex copies the screen display and appends it to the bottom of clipboard 0.

✎ *Any softkeys currently shown on the screen display are not copied into the clipboard.*

◆ Desk Options

You can use Uniplex desk options directly from any Uniplex application. You can access other Uniplex applications from here, in addition to many other Uniplex features and facilities. For example, you can access the Word Processor while you are using the Spreadsheet.

Desk options are sometimes referred to as *popups*. This is because when you select desk options, a menu pops up on the screen, temporarily overwriting a portion of the screen. You can return to your original task at any time.

There are two types of desk menus: Integration and Utility. The Integration menus provide access to other applications. The Utility menus provide access to options that are useful while using any application, for example List Documents. The Integration options are found on the Desk Popup, and the Utility options are on the Utilities Popup.

◇ Access Desk and Utilities Popups

You can access either the Desk Popup or the Utilities Popup, while you are working in any Uniplex application:

- 1 Press **ESC xd** to access the Desk Popup or **ESC xu** to access the Utilities Popup.

Uniplex displays the Desk options.

- 2 Pick and point the option you want to use.



Desk Options

The following options are only provided on the Desk menus:

Option	Explanation
View Clipboards	Displays a list of your clipboards, showing the first line of each. Press ESC q to leave the display.
Clock	Displays the on-line clock, showing the current time, which is updated every second. Press ESC q to leave the clock.
Phone/Information List	Displays information which can be set up by the System Administrator.

The remainder of the options on this menu are also provided on other Uniplex menus. However, when an option includes the word window, for example Window WP, it indicates that Uniplex will invoke this option in a window. When an option is invoked in a window, it only takes up a small proportion of the screen. When an option does not include the word window, this means Uniplex invokes the option in the normal way, that is, it takes up the entire screen.

◆ Personal Productivity Tools

Uniplex has three personal productivity tools which can help you while you are performing other Uniplex tasks. These tools are:

- o Calculator
- o Calendar
- o Clock

You can use any of these tools while you are performing other Uniplex tasks. For example, you can:

- o Perform calculations just like with a pocket calculator. You can transfer the results of the calculation directly into the task you are performing.
- o Use the Popup Calendar to quickly view the current month, and dates for several years ahead.
- o Refer to the clock to find out the current time in hours, minutes and seconds.

◇ Calculator

The calculator can be used like any pocket calculator to perform simple or complex calculations which may then be transferred directly into a Uniplex task.

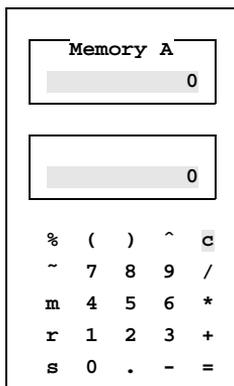
Access the Calculator

- 1 Press **ESC xu** or F12 while in any Uniplex application.

Uniplex displays the Utilities Popup.

Personal Productivity Tools

- Pick and point the Calculator option. Uniplex displays the calculator:



Use the Calculator

The calculator works in a similar way to a pocket calculator.

There are two ways to make a calculation:

- o Move the cursor over the number, letter, or sign of your choice. Press RETURN.
- o Use the calculator display for information only and type in the numbers, letters, and signs directly.

Uniplex displays the number you have entered in the first display row above the calculator keys. The top row is used to display the value in memory.

To clear the calculator display, select **c** from the calculator.

Calculator Operators

The calculator uses the standard operators:

+	add	()	parentheses
-	subtract	^	power
*	multiply	~	negate
/	divide	%	percent

The percent operator works by taking % to mean *percentage of first value*. The following examples illustrate this usage:

100-5%	means	100	less 5 percent of 100	=	95
50/25%	means	50	divided by 25 percent of 50	=	4
25/25%	means	25	divided by 25 percent of 25	=	4
50*50%	means	50	times 50 percent of 50	=	1,250

Calculator Memories

The calculator has 26 memories. You can identify a memory with an UPPER CASE character in the range A-Z. When you first start to use the calculator, memory A is in use. To select a memory, press the UPPER CASE letter of your choice. The following memory functions are provided:

Key	Function
-----	----------

s	Stores the current value in memory.
m	Adds the current value to the memory.
r	Stores the contents of the current memory.



Personal Productivity Tools

Return to a Uniplex Task

Press **ESC e** to transfer the result of the last calculation to the application you are working in.

Press **ESC q** to quit from the calculator without transferring any information.

◇ **Popup Calendar**

You can refer to the Popup Calendar whenever you want to find out a date, either in the current month or for several years in advance.

Access the Popup Calendar

- 1 Press **ESC xu** or F12 while working in any Uniplex application. Uniplex displays the Utilities Popup.
- 2 Pick and point the Personal Organizer option.
 - ✎ *This option is only available if you have Uniplex Advanced Office System installed.*
- 3 Pick and point the Popup Calendar option. Uniplex displays the popup calendar, showing the current month. For example:

July							1999			
SU	MO	TU	WE	TH	FR	SA				
					1	2	3			
4	5	6	7	8	9	10				
11	12	13	14	15	16	17				
18	19	20	21	22	23	24				
25	26	27	28	29	30	31				

Move around the Display

The popup calendar display is for reference only. Use the following keys to move around it.

Key	Function
Right Arrow	Displays the next month.
Left Arrow	Displays the previous month.
Down Arrow	Displays the current month of the next year.
Up Arrow	Displays the current month of the previous year.

Return to a Uniplex Task

Press **ESC q** to return to your Uniplex task.

◇ Clock

Uniplex has a clock that you can refer to while you work. The clock displays the current time in hours, minutes and seconds.

Access the Clock

- 1 Press **ESC xu** or F12 while in any Uniplex application.

Uniplex displays the Utilities Popup.

- 2 Pick and point the Clock option.

Uniplex displays the digital clock display.

Return to a Uniplex Task

Press **ESC q** to return to your Uniplex task.

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Appendix A

Menu Maps



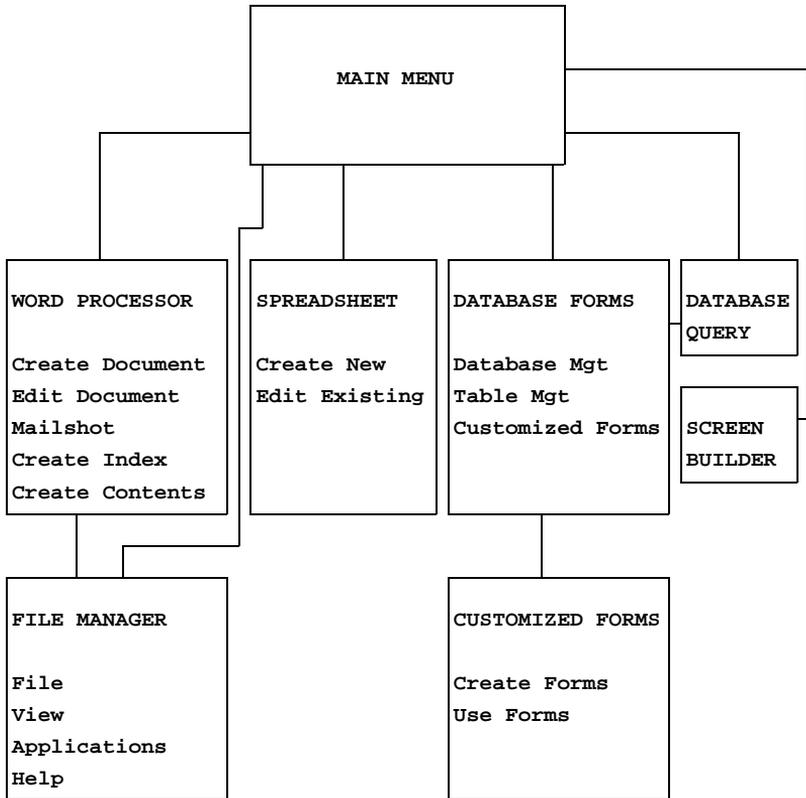
This appendix contains menu maps for all Uniplex combinations. Each map shows how you can access the major applications and utilities. The illustration of each menu shows the major functionality accessible from the menu, but does not list each option available from the menu.

There are menu maps for the following Uniplex combinations:

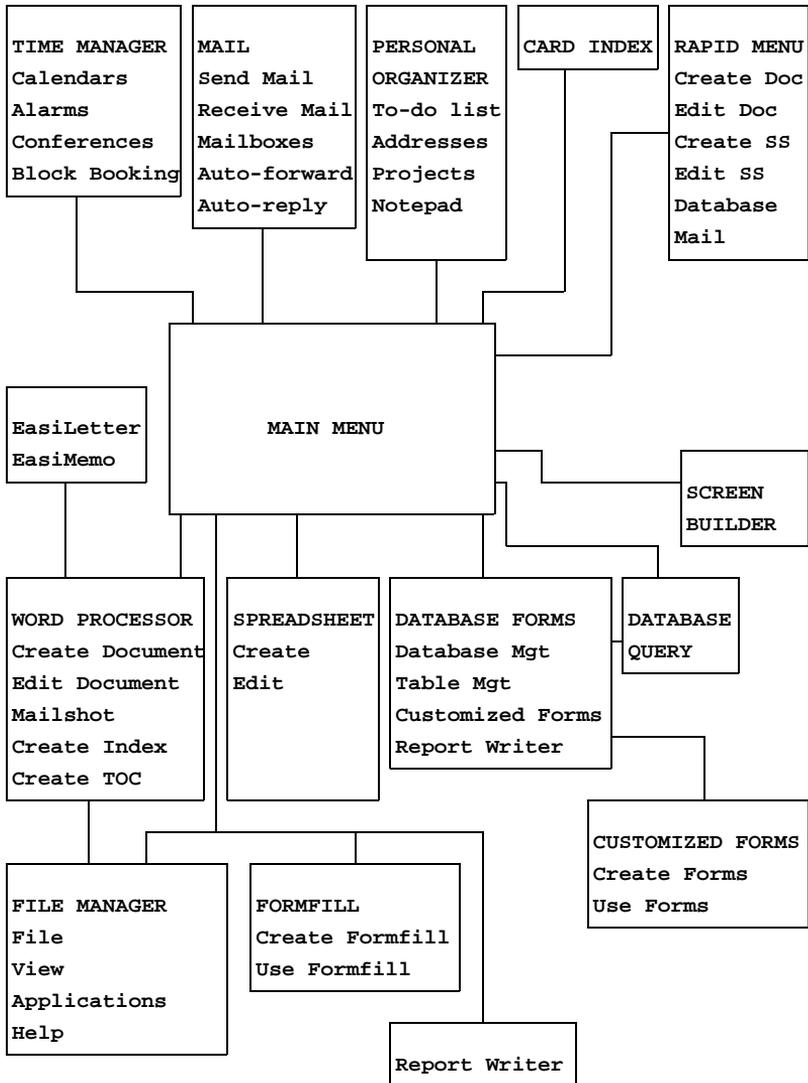
- o Uniplex II Plus
- o Uniplex II Plus with Uniplex Advanced Office System
- o Uniplex II Plus with Uniplex Advanced Office System and Uniplex Advanced Graphics System
- o Uniplex II Plus with Uniplex Advanced Graphics System



Uniplex II Plus Menu Map

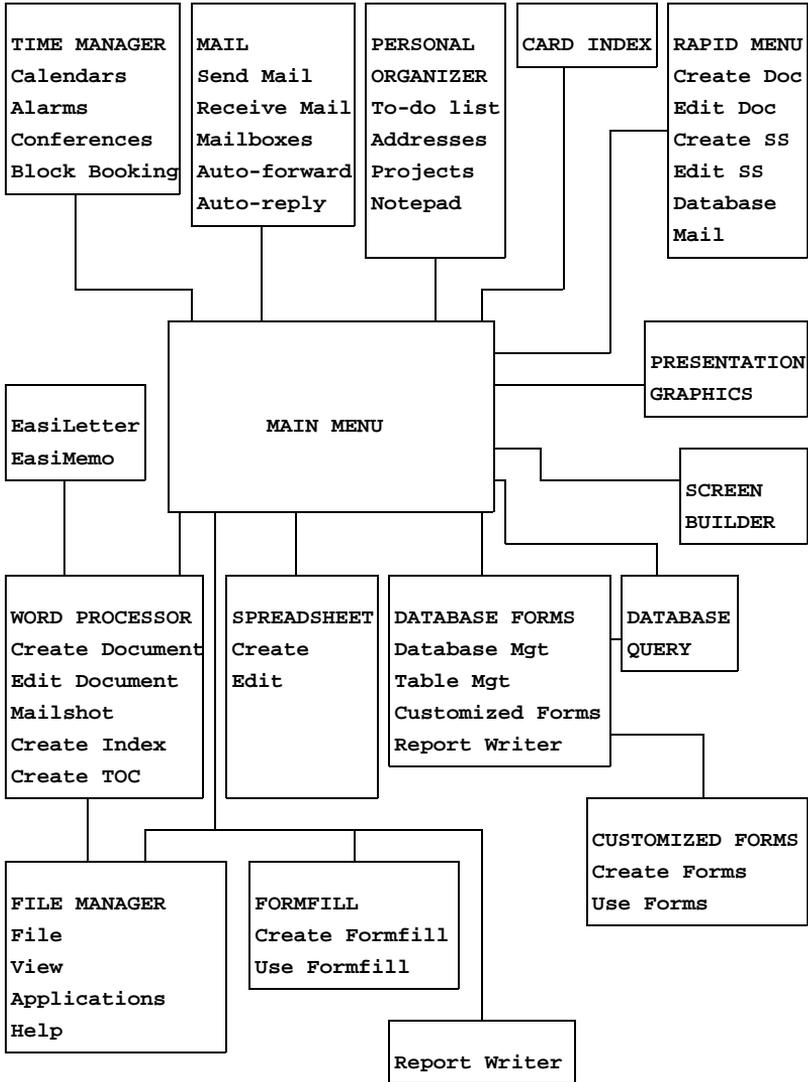


Uniplex II Plus with Advanced Office System Menu Map



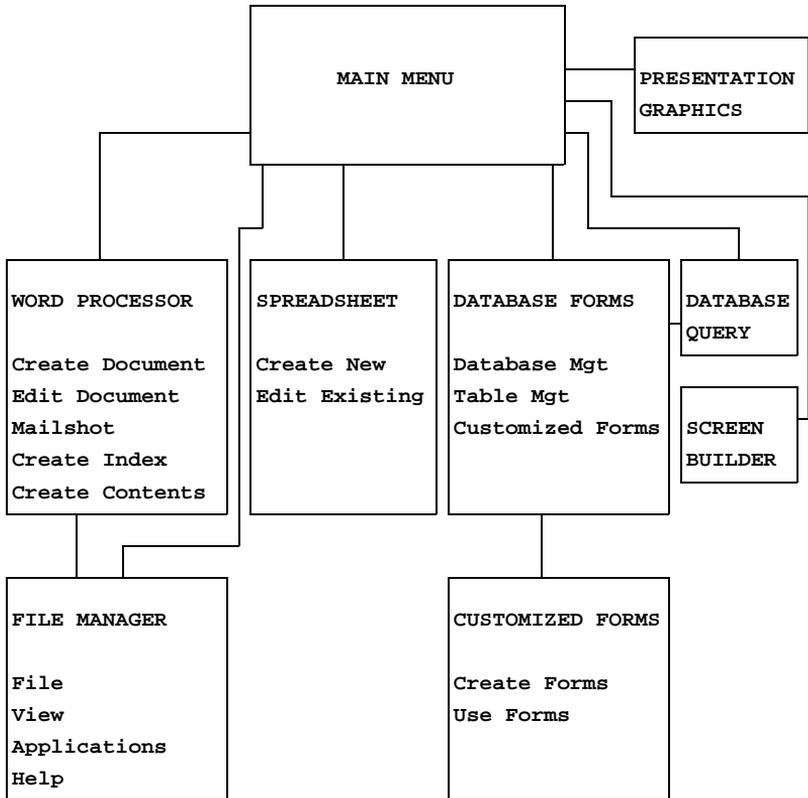


**Uniplex II Plus with Advanced Office System and
Advanced Graphics System Menu Map**





Uniplex II Plus with Advanced Graphics System Menu Map



Appendix B

Desk Maps



This appendix shows the Desk and Utility popup menus available. The options available on these menus depend on which Uniplex products are installed on your system. See your System Administrator for details.

You can access the Desk popup from any Uniplex application as follows:

- o Press **ESC xd** or **F9**

The Desk pops up on your screen. Press **9** to display the next page of the menu. Press **0** to display the previous page of a menu.

You can access the Utility popup from the Desk popup, and you can access them directly from any Uniplex application as follows:

- o Press **ESC xu** or **F12**

Move through the menus to find the option you require. See the maps below to see how the Desk and Utility popups are organized.



Uniplex II Plus Desk Maps

Uniplex DESK: Page 1 of 1

- 1 = Window WP
- 2 = Spreadsheet
- 3 = Database Forms
- 4 = Word Processor
- 5 = Window Spreadsheet
- 6 = Database Query
- 7 = Sketchpad

9 > Next Page
0 > Previous Page

ESC Q to Quit

Uniplex UTIL: Page 1 of 2

- 1 = List Files
- 2 = View Clipboards
- 3 = Clock
- 4 = File Manager
- 5 = Calculator

9 > Next Page
0 > Previous Page

ESC Q to Quit



Uniplex UTIL: Page 2 of 2

- 1 = Print Form
- 2 = Show Print Defaults
- 3 = Set Print Defaults
- 4 = Create New Print Style
- 5 = Edit Print Style
- 6 = Copy Print Style
- 7 = Delete Print Style
- 8 = Show Print Requests

9 > Next Page

0 > Previous Page

ESC Q to Quit



Uniplex II Plus with Advanced Office System Desk Maps

Uniplex DESK: Page 1 of 2

- 1 = Mail
- 2 = Add Calendar Event
- 3 = Phone/Information List
- 4 = Send a Letter
- 5 = While-you-were-out
- 6 = Window WP
- 7 = Spreadsheet
- 8 = Database Forms

- 9 > Next Page
- 0 > Previous Page

ESC Q to Quit

Uniplex DESK: Page 2 of 2

- 1 = Word Processor
- 2 = Window Spreadsheet
- 3 = Database Query
- 4 = Sketchpad
- 5 = Formfill
- 6 = Full Time Manager

- 9 > Next Page
- 0 > Previous Page

ESC Q to Quit



Uniplex II Plus with Advanced Office System Desk Maps

Uniplex UTIL: Page 1 of 2

- 1 = List Files
- 2 = View Clipboards
- 3 = Clock
- 4 = File Manager
- 5 = Calculator
- 6 = Phone & Address List
- 7 = Card Index
- 8 = Personal Organizer

- 9 > Next Page
- 0 > Previous Page

ESC Q to Quit

Uniplex UTIL: Page 2 of 2

- 1 = Print Form
- 2 = Show Print Defaults
- 3 = Set Print Defaults
- 4 = Create New Print Style
- 5 = Edit Print Style
- 6 = Copy Print Style
- 7 = Delete Print Style
- 8 = Show Print Requests

- 9 > Next Page
- 0 > Previous Page

ESC Q to Quit



Uniplex II Plus with Advanced Graphics System Desk Maps

Uniplex DESK: Page 1 of 1

- 1 = Window WP
- 2 = Spreadsheet
- 3 = Database Forms
- 4 = Word Processor
- 5 = Database Query
- 6 = Sketchpad
- 7 = Presentation Graphics
- 8 = Presentation Editor

- 9 > Next Page
- 0 > Previous Page

ESC Q to Quit

Uniplex UTIL: Page 1 of 2

- 1 = List Files
- 2 = View Clipboards
- 3 = Clock
- 4 = File Manager
- 5 = Calculator

- 9 > Next Page
- 0 > Previous Page

ESC Q to Quit



Uniplex II Plus with Advanced Graphics System Desk Maps

Uniplex UTIL: Page 2 of 2

- 1 = Print Form
- 2 = Show Print Defaults
- 3 = Set Print Defaults
- 4 = Create New Print Style
- 5 = Edit Print Style
- 6 = Copy Print Style
- 7 = Delete Print Style
- 8 = Show Print Requests

9 > Next Page

0 > Previous Page

ESC Q to Quit



Uniplex II Plus with Advanced Office System and Advanced Graphics System Desk Maps

Uniplex DESK: Page 1 of 2

- 1 = Mail
- 2 = Add Calendar Event
- 3 = Phone/Information List
- 4 = Send a Letter
- 5 = While-you-were-out
- 6 = Window WP
- 7 = Spreadsheet
- 8 = Database Forms

- 9 > Next Page
- 0 > Previous Page

ESC Q to Quit

Uniplex DESK: Page 2 of 2

- 1 = Word Processor
- 2 = Window Spreadsheet
- 3 = Database Query
- 4 = Sketchpad
- 5 = Formfill
- 6 = Full Time Manager
- 7 = Presentation Graphics
- 8 = Presentation Editor

- 9 > Next Page
- 0 > Previous Page

ESC Q to Quit

Uniplex II Plus with Advanced Office System and Advanced Graphics System Desk Maps

Uniplex UTIL: Page 1 of 2

- 1 = List Files
- 2 = View Clipboards
- 3 = Clock
- 4 = File Manager
- 5 = Calculator
- 6 = Phone & Address List
- 7 = Card Index
- 8 = Personal Organizer

- 9 > Next Page
- 0 > Previous Page

ESC Q to Quit

Uniplex UTIL: Page 2 of 2

- 1 = Print Form
- 2 = Show Print Defaults
- 3 = Set Print Defaults
- 4 = Create New Print Style
- 5 = Edit Print Style
- 6 = Copy Print Style
- 7 = Delete Print Style
- 8 = Show Print Requests

- 9 > Next Page
- 0 > Previous Page

ESC Q to Quit

Appendix C

Word Processor Ring Menus



Word Processor Ring Menus

◆ Command Main Menu

Layout Edit File Goto Search Tools Print Options Undo

◇ Layout Menu

Rulers Format Page EffectSet_Font Uppercase-lowercaseComments

Rulers

Recall Create Save

Format

Paragraph All Remainder Next Stop Go Keep_together

Page

Layout Header/Footer Width Footnotes Bins Set_Number

Footnotes

Marker Text Save Place

Bins

One Two



Word Processor Ring Menus

◇ Layout Menu (continued)

Effect

Start End Word Block Uneffect Describe

Word

Bold_Word Underline_Word Italicise_Word Large_Word Quit

Set_Font

Font-start Reset-Font

Uppercase-lowercase

Uppercase_convert Lowercase_convert

◇ Edit Menu

Insert Delete Move Copy Paste Line-Format Edit-Print

Insert

Line Page_Break Blank_Lines Character Mode

Delete

This_Line Sentence Word Character Left Right Area Blank-lines



Word Processor Ring Menus◇ **Edit Menu** (continued)**Move**

Line	Sentence	Paragraph	Text	Block	Word
------	----------	-----------	------	-------	------

Copy

Line	Sentence	Paragraph	Text	Block	Word
------	----------	-----------	------	-------	------

Paste

Block_Cut	Serial_Cut	Paste	Clipboard	View
-----------	------------	-------	-----------	------

Paste

Overlay	Insert	Elbow
---------	--------	-------

Line-Format

Split	Join	Center	Right	Upper	Lower
-------	------	--------	-------	-------	-------

◇ **File Menu**

Exit	Save	Quit	Duplicate	Merge	New	Re-edit	Import	Xport
------	------	------	-----------	-------	-----	---------	--------	-------

Merge

Insert	Overlay	Print_Time_Merge	Graph_Merge
--------	---------	------------------	-------------



Word Processor Ring Menus

◇ File Menu (continued)

Import

Insert-ASCII Overlay-ASCII

Xport

ASCII

◇ Goto Menu

Down Up End Top Sentence Paragraph Number Bookmark

Sentence

Start End Next

Paragraph

Start End Next

Bookmark

Create Find

◇ Search Menu

Search Next



Word Processor Ring Menus

◇ Tools Menu

Spell Thesaurus Index/Contents Calculate Box/Draw Graph

Spell

Remainder All Block Dictionaries Language Stop Go

Index/Contents

Index Contents

Calculate

Calculate_Numbers Add_Block

Box/Draw

Lines Box Fill Erase

Lines

Draw-mode Erase-mode Normal-mode

Graph

Merge-graph View-graph Build-graph

◇ Print Menu

Print Use_Form Set-up Display Return_to_Display Format



Word Processor Ring Menus

◇ Options Menu

Modes Windows Numbering Paragraph_Numbers DeskUtil_DeskEdit_Menu

Windows

Open Switch Close External_Window

Appendix D

Spreadsheet Ring Menus



Spreadsheet Ring Menus

◆ Command Main Menu

Worksheet Range Copy Move File Print Graph Data Integrate Undo Quit

◇ Worksheet Menu

Global Insert Delete Column Erase Titles Window Modes View-cell

Global

Format Column-Width Recalculation Protection Modes

Format

Fixed Money Percent , DateLine-up Zero Hide Effect Sci Opt Reset

Recalculation

Natural Col Row Auto Manual Iterate Oneshot Precision Section Full

Column

Set-width Reset-width Hide Display

Titles

Borders Unset_Borders Header Row Column Display Move Quit

Window

Move Horizontal Vertical Link Unlink Next Switch Join Reset



Spreadsheet Ring Menus

◇ Worksheet Menu (continued)

Modes

Recalculate Stat-line View Cursor Move Interface General Quit

Recalculate

Natural Col Row Auto Manual Iterate Oneshot Precision Section Full

◇ Range Menu

FormatLine-upEraseName Remove-name Protect Unprotect Input Value

◇ File Menu

Retrieve Save Combine Xtract Use List Import Export Options

Combine

Copy Data-copy Add Subtract Lock-copy

Xtract

Formulas Values

List

All Data Formulas Graphs Specific-range



Spreadsheet Ring Menus

◇ File Menu (continued)

Import

```
Ascii 123 DIF
```

Export

```
Ascii DIF
```

◇ Print Menu

```
Setup Print Use_Form File Quit
```

Setup

```
Page-format Entire-file Specific-range Compressed Normal Reset
```

Page-format

```
Length Width Cols Indent Top Dbl Single Bar Formatted Raw
```

◇ Graph Menu

```
Draw Range Place Link Options Xpand Goto Erase Template Quit
```



Spreadsheet Ring Menus

◇ Data Menu

Fill Sort Initialize Blank Zero Range-zero

Sort

Range Quit

◇ Integrate Menu

Cut-paste Database 1.Desk 2.Util Unix Read-Unix

Cut-paste

Cut Paste Range-paste Text Add Subtract Board-number

Glossary



<i>Absolute Addressing</i>	A method of addressing cells in the Spreadsheet where you specify the actual cells themselves by using uppercase letters in the address.
<i>Access</i>	A term used to refer to the type of privilege you have to any kind of information stored on the computer.
<i>Address</i>	In the Spreadsheet, the way you refer to a cell.
<i>Application</i>	A term used to refer to a component of Unix, for example, the Spreadsheet.
<i>Append</i>	Adding some information to the end of a file or document.
<i>Archive</i>	Transferring information from the on-line computer memory to a tape or disk which can be stored indefinitely.
<i>Arrow Keys</i>	The four keys on your keyboard, normally labeled with an illustration of an arrow key, each pointing in a different direction. Generally, you use the arrow keys to move the cursor in the required direction.
<i>Backup</i>	A copy, normally to tape, of the contents of the disk you use for your work. It is important to make regular backups in case of system failures.
<i>Bold</i>	A method of effecting text, showing it darker than normal text.



<i>CTRL Key</i>	A key on your keyboard that you use in conjunction with other keys to initiate a Uniplex function. It is normally positioned outside the main keyboard.
<i>Cell</i>	In the Spreadsheet, the point at which a column and row meet in which you can store data and formulas.
<i>Center</i>	Positioning text in a central position on the screen or page.
<i>Clipboard</i>	Used with <i>Cut and Paste</i> . A special area of computer memory where Uniplex stores information you cut. When you paste, Uniplex pastes the contents of the clipboard. There is a default clipboard which Uniplex always uses unless you specify otherwise. In addition, there are nine other clipboards.
<i>Clock</i>	You can display a clock on your terminal screen that shows the current time based on the time of the computer's own clock.
<i>Column</i>	In the Spreadsheet, a vertical series of cells that runs down the length of the spreadsheet.
<i>Command</i>	A sequence of keystrokes or an entry you make that initiates a Uniplex task.
<i>Cursor</i>	A small marker that always appears on the screen to indicate your current position.
<i>Current</i>	The action or selection that is presently active.



<i>Cut and Paste</i>	The Uniplex facility for moving, rearranging, and reorganizing information. You can use Cut and Paste with most Uniplex applications to transfer information. You <i>cut</i> information to a <i>clipboard</i> and then <i>paste</i> it at the required point.
<i>Database</i>	A method of storing large amounts of data in a way that is logical and easy to retrieve.
<i>Database Forms</i>	A Uniplex application that provides access to a database using simple forms.
<i>Database Query</i>	A Uniplex application that provides access to a database using statements.
<i>Default</i>	The action or option used if you do not select otherwise.
<i>Desk Menu</i>	A popup menu that you can display while using most Uniplex applications. From the Desk Menu you can access other applications and Uniplex utilities.
<i>Directory</i>	Your allocation of computer memory for storing your documents and files. This area is divided into a tree structure. Within a directory, there are subdirectories. Subdirectories are sometimes known as <i>folders</i> .
<i>Document</i>	Where you store each piece of work you create using the Word Processor. A document contains text. It can contain a few words or many pages of words.
<i>ENTER Key</i>	A key on your keyboard you can use instead of the <i>RETURN</i> key.



<i>ESC Key</i>	A key on your keyboard you use in conjunction with other keys to initiate Uniplex tasks. It is normally positioned outside the main keyboard.
<i>Edit</i>	The task of changing and updating information using Uniplex facilities. Mainly refers to the task of modifying text using the Word Processor.
<i>External Windows</i>	A Uniplex facility that allows you to quickly and easily switch between Uniplex tasks.
<i>Field</i>	One or more blank spaces on a form that you complete with your requirements.
<i>File</i>	Where you store the work you carry out using Uniplex.
<i>File Manager</i>	A Uniplex application for attaching summary details to a document or file. These details help you find and maintain your documents efficiently.
<i>Fixed Pitch</i>	A method of displaying or printing text where each character takes up the same amount of space.
<i>Folder</i>	A subdivision of the area of computer memory allocated to you and named by you that contains one or more related <i>documents</i> . A folder is sometimes referred to as a <i>subdirectory</i> .
<i>Font</i>	A general name describing the characteristics of printed characters.



<i>Footer</i>	Text that is placed at the bottom of each page of a document. This can be information like the document title and the page number.
<i>Footnote</i>	Text that you want printed outside the main body of text on a page. You can place a footnote at the bottom of a page or at the end of the document.
<i>Format</i>	The general layout of text and data.
<i>Form</i>	A screen display containing <i>fields</i> . You complete the fields with your requirements.
<i>Function Keys</i>	The numbered function keys on your keyboard (not the keys for actually entering numbers) that you use to invoke softkeys.
<i>Global Commands</i>	Commands that have an effect throughout the document or file.
<i>Glossaries</i>	An often-used section of text that you create once and then include whenever you need it in other documents.
<i>Graph</i>	A graphic illustration of a table of values.
<i>Hard Return</i>	A line break you do not want reformatted.
<i>Header</i>	A word or line you want repeated at the top of each page of a document. These are only printed when you print the document.
<i>Help</i>	Context-sensitive descriptive text you can display at any point while using Uniplex to provide guidance on the task you are currently carrying out.



<i>Justification</i>	The process by which extra blank spaces are added between words so that each line is of the same length.
<i>Key Recorder</i>	A Uniplex application that lets you make recordings of sequences of keystrokes or commands. You can subsequently use these recordings instead of repeating the keystrokes.
<i>Landscape Printing</i>	A method of printing where the lines are printed across the length of the paper rather than the width of the paper. This is useful for very wide pieces of text.
<i>Macros</i>	A collection of Uniplex commands and functions that you build into a logical sequence to perform a specific task. You can then execute the macro to carry out the task.
<i>Mail Merge</i>	A Uniplex facility that lets you create a single letter and from this create personalized versions for sending to different people.
<i>Margin</i>	The left and right boundaries of text in a document. The left and right margins are defined by the ruler.
<i>Menu</i>	A list of options shown on the screen. Use pick and point to select an option.
<i>Message</i>	A line of text that provides information about what you are currently doing.
<i>Office Automation</i>	Describes the collection of computer software tools that are used within the office.



<i>Operating System</i>	The system that provides the initial level of user interface for using a computer. Uniplex is a layered application that runs on top of the operating system.
<i>Operating Modes</i>	A number of Uniplex applications can run in different modes. For example, the Word Processor can run in <i>insert</i> or <i>overtyp</i> e mode.
<i>Page Break</i>	The point at which you reach the maximum number of lines specified in a document or any point where you want a new page to start in a document.
<i>Pattern Matching</i>	A method of matching characters, words, or phrases to find data. This is used in many Uniplex applications, for example, Database Forms.
<i>Pick and Point</i>	The method of selecting options from menu. You move the highlight to the required option and then press RETURN.
<i>Popup Menu</i>	A menu that Uniplex can display while you are using most Uniplex applications. It pops up on the screen, overwriting only a portion of the screen. You can pick and point options from it like any other menu.
<i>Print Time Commands</i>	Commands that you enter into a document or file that cause some action to take place when the document or file is printed.
<i>Proportional Spacing</i>	A method of printing text where each character is printed at a size that is best for it.
<i>Quit</i>	Leaving an application without saving the work done while using the application.



- RETURN Key* A key on your keyboard (sometimes labeled ENTER). You press the RETURN key to indicate the end of a line of input.
- Record* In the Database, a piece of information stored in a database table.
- In Key Recorder the action of storing a sequence of keystrokes for future use.
- Refresh the Screen* Where you request Uniplex to redraw the screen display. This does not affect the data that is currently being displayed.
- Ring Menus* A list of options displayed in a horizontal list along the top of the screen. You can select options from these menus using pick and point. They provide context-sensitive functionality within an application.
- Ruler* A line shown at the top of the Word Processing screen. It provides a guide to the format of text. Rulers specify tab, margin, and paragraph indentation. They also indicate whether text is to be justified.
- Scroll* Moving the screen display to show other portions of text or data above or below the current display.
- Sketch Pad* A Uniplex application for drawing sketches and diagrams using the keyboard and screen.
- Softkey* A Uniplex function that you can invoke using the function key of the same number. A softkey menu is displayed on the bottom line of the screen while using most Uniplex applications.



<i>Spell Check</i>	A part of the Word Processing application that checks the spelling of documents, and offers alternatives for misspelled words.
<i>Spreadsheet</i>	A Uniplex application for analyzing data. It is based on the traditional spreadsheet grid, but is much larger and provides a wide range of functions.
<i>Status Line</i>	Most Uniplex applications display a status line at the top of the screen. This provides information on the current status of the application.
<i>String</i>	A series of one or more characters, for example, a word or a sentence.
<i>Symbols for Searching</i>	Special characters used to find information in forms-based applications.
<i>Syntax</i>	A number of rules pertaining to the command-based applications. For example, whether to include a space after a comma in a statement.
<i>Tab</i>	A set column width marked by T on the ruler that you can move the cursor to using the TAB key.
<i>Table</i>	In the database, a collection of records.
<i>Template</i>	The required layout for input to an application that uses text-based instructions. Also a name used to describe examples of a variety of documents that are available within the File Manager.



<i>Terminal</i>	The keyboard and screen are collectively known as your terminal.
<i>Variable</i>	A part of a command line or statement that varies according to the situation or your requirements.
<i>Window</i>	A portion of the terminal screen. The screen can be divided into up to nine windows, each displaying different information.
<i>Word Processor</i>	A Uniplex application that lets you enter, edit, and effect text.

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Additional information can be found in the on-line documentation available under the System Administration menu or through the File Manager's Help pull down menu.

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