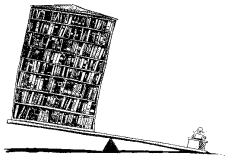
**KE Texpress User Guide**

KE Software Pty Ltd

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**Chapter 1**

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1 - 2 Introduction

**Overview**

The KE Texpress Information Management System is a powerful and flexible object-oriented database package encompassing database design, data capture, information retrieval and maintenance. This manual describes the retrieval, insertion and reporting components of KE Texpress which are collectively referred to as **texforms**. **Texforms** provides facilities for capturing, querying and processing data in a KE Texpress database.

This document describes all of the facilities provided by **texforms,** some of which may not be appropriate for all databases. Those not utilized by a particular application should be ignored. The major operations performed by **texforms** are those of data capture, database querying and reporting. Other operations tailor the user's working enviroment.

A database consists of a computerized collection of object descriptions called **records**. A record may take the form of a film description, a library catalogue card, a transaction receipt or even an address book entry. In these cases, the actual objects referred to are the film, the library book, the transaction and the friend or acquaintance, respectively. Each record should contain all of the information known about the corresponding object.

**Texforms** accepts and stores these records for later use using the data capture facility. A record is stored only after passing a series of tests set up by the DBA to ensure the accuracy and validity of the data entered. The information in this record can then be accessed by all database users.

The operation of database querying involves asking the computer questions relating to the information stored in the database. These questions, for example, could be requests for:

• All films starring Fred Astaire and Ginger Rogers.

• All of the books written by Arthur C. Clarke.

• A list of all of the transactions with BHP which occurred on Thursday. • The names of all friends living at the beach who own a boat.

These questions are asked by entering information on Query form similar to that used during data capture. When a query is performed, all of the records stored in the database are very quickly checked to see if they match the query. The matching records can be viewed individually, summarized, modified, copied and so on.

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The final operation involves reporting. This can be used for such diverse tasks as producing ordered one-line summaries of an entire database, or just printing a label for a single record. Forms can be designed which display all or part of the information contained in each record. The records to be used in the report are retrieved (using one or more queries), and can be re-ordered in any desired way and finally printed using the Report Form.

The remainder of this manual describes each step involved in the basic use of these three functions as well as the additional commands available. These additional commands, although not essential to the use of **texforms**, provide more power, greater flexibility and ease of use.

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**Using This Guide**

This manual, the KE Texpress User Guide, is one of a suite of manuals describing the KE Texpress Information Management System.

Chapter 2 of this manual describes the basic KE Texpress interface including how to use the pull-down menu facility and the keyboard accelerators. In Chapter 3, there is a description of facilities available when entering information into a form. Chapter 4 discusses the query mechanism of KE Texpress. Chapter 5 describes how data can be entered into a KE Texpress database. The reporting mechanism of KE Texpress is covered in Chapter 6.

Chapter 7 covers miscellaneous other commands available within the Data Manager while Chapter 8 concentrates on the commands available to drive a videodisc player.

The final chapter, Chapter 9, describes the KE Texpress macro facility and is applicable for more advanced users wanting to streamline certain repetitive processes.

Appendix A provides a quick reference guide to the keyboard accelerators available in the most commonly used modes of KE Texpress.

Appendices B describes the Key types and Appendix C describes the Library types

KE Texpress can be used for a very broad range of applications. The screen layout for any application is determined by the Database Administrator DBA and can differ greatly from the user's applications. However, the basic concepts of Texpress and the interaction with the system are generally the same.

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**KE Texpress Terminology**

The KE Texpress system is a collection of programs each of which performs a specific task. For convenience, some of these programs have been given names which are referenced throughout this manual. The program names are as follows:

**KE Texpress**

This name refers to the entire database system and incorporates all of the following programs.

**The Administration Menu (texadmin)**

This refers to the database administrator's menu which contains functions used for the design and maintenance of databases.

**texforms**

This refers to the retrievel, insertion and reporting components of KE Texpress.

**texdesign**

This program is used for the design of forms describing the type of data to be collected and queried.

KE Texpress uses a specific terminology to describe the various objects that are displayed and manipulated on the terminal screen. These terms and their definitions are as follows:

**Database administrator, DBA**

The Database Administrator (hereafter, DBA) is the creator of a database. This user has total control over the database, deciding the format the database shall take and the types of queries that are permitted. The DBA also has the power to delegate database privileges to other users.

**Form**

All user interactions with KE Texpress are handled via forms. A form is a screen image describing the type of data to be maintained and the actions to be performed on that data. It consists of a collection of headers and fields arranged in a format specified by the DBA. A form may be larger than the computer display on which it is being viewed. The various forms are Insertion form, Query and Report/Display form.

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**Insertion form**

This is the form used by the user to enter new records, and is identical to the edit form. Only the DBA is authorised to create or tailor the insertion form. Users must have insertion privilege to be able to call up this form.

**Query form**

The Query form is used to enter the query terms which are matched with the data in records during a query. It contains part or all of the indexed fields in the Insertion form. Texdesign automatically generates the Query form from the Insertion form, after which it may be edited by the DBA. A database may have multiple query forms, tailored for particular users or groups of users.

**Report/Display form**

A Report or Display form displays information following a successfully matched query. A database may have multiple Diplays forms, tailored to display only information relevant to particular users or groups of users. The form can also contain additional reporting features, as well as altered prompts and headers.

**Record**

A record is a collection of data which uniquely identifies one physical object.

**Header**

A header is a string of characters which help describe the nature of the database. It is not directly associated with any data in a record form.

**Item**

Items are the basic form elements. They consist of an optional prompt followed by one or more fields.

**Prompt**

A prompt is a string of characters (similar to a header) which is intuitively associated with a field or collection of fields.

**Field**

A field is an area of the form where the data is actually entered. In **texforms**, while information is being entered into a field, it is displayed as

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a sequence of underscores. At all other times, it holds the data associated with the field at that time.

There are modes of operation within **texforms** which are referred to throughout the text of this document. The major modes are:

**Query**

This is the mode of operation in which database queries are performed. A successful query involves collecting information from a user, using that information to query the database and then displaying all of the matching records. KE Texpress automatically enters this mode upon invocation of the database. Exiting from Query mode exits the user from the database. See also Query Form.

**Display**

This is the mode of operation in which records matching a query are displayed on the screen. It directly follows Query mode and is entered when a query retreves at least matching record. Exiting from Display mode results in a return to Query mode. See also Report Display/form.

**Insert**

This is the mode of operation in which records are created. Entry into this mode is via Query or Display mode. Exiting results in a return to the previous mode. See also Insert form.

**Edit**

This is the mode of operation in which information in an existing record is modified. This mode is entered from Display mode. Exiting results in a return to the previous mode of operation.

Refer to Appendix A for Quick Reference Guides which describe these modes in detail and outline the entry and exit commands for each.

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**Notation**

Commands run within KE Texpress can be performed from pull-down menus, or via keyboard accelerators (characters). Often, a command can be performed in several ways. For uniformity and ease of use, only the pull-down menu option is described in the guide.

The *Perform Query* command can be run by selecting the *Query* option on the *Function* pull-down menu in *Query* mode. The guide would describe it as: **Perform Query ([Query] Function Query)**

where the description of the command is followed by the pull-down menu option in brackets. The mode is contained in square brackets, e.g. [**Query**] and the pull down menu name **Function** is followed by and the command **Query** exactly as listed on the pull-down menu.

Alternatively, the Perform Query command can be performed from the keyboard, by holding down the **Control** key and typing **Y**. In the guide, the keystrokes are described as **Ctrl+Y**.

Many of the common commands may be invoked directly by a particular function key (provided the terminal supports function keys). Throughout KE Texpress (and the screen images displayed in this document), function keys are represented by the letter **F** followed by the function key number. Thus the command generated by pressing function key number one is represented as **F1**. The notation, **F1** , is used in this document.

Other special symbols used in this document are:

**ESC** The **escape** key.

The **return** or **enter** key.

**DEL** The **delete** or **interrupt** key (used to interrupt an operation). **Space** The **space bar**.

**Backspace** The **backspace** key.

**Tab** The **tab** key.

The **left arrow** key.

The **right arrow** key.

The **up arrow** key.

The **down arrow** key.

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**Terminal Capabilities**

KE Texpress is a terminal intensive program and uses as many of the terminal's capabilities as possible. These characteristics are passed to KE Texpress and this is done by setting the Unix environment variable **TERM** and defining termtype in the KE Texpress terminal directory.

The csh command to do this is:

**setenv TERM *termtype***

The sh equivalent is:

**TERM=termtype**

**export TERM**

Some of the terminal capabilities, used by KE Texpress include highlighting, which is used extensively to visually distinguish user input from system prompts; line drawing; function keys; and European or Asian character display.

KE Texpress can be run on an enormous range of terminal types with all commands being accessible using KE Texpress's pull down menus. In order to bypass the pull down menus, keyboard accelerators are available for many KE Texpress commands. By default, KE Texpress is set up to use function keys as the keyboard accelerators for the most common commands and control characters for a range of other common commands. However, the system can be configured by the DBA or the system administrator, who can:

• Define function keys for any type of terminal.

• Change the characters used to invoke any or all of the commands supported by KE Texpress.

• Change the text strings used by KE Texpress (e.g. error messages, warnings, menu options, on-line help, etc.). Refer to KE Texpress Administration Guide for more details.

This manual describes the default settings for the commands and text strings. If these settings have been altered for a particular installation or database, the on line help facility is automatically updated to reflect these changes.

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**Invocation**

**Texforms**, the KE Texpress forms interface can be invoked by the Unix commands:

**texpress [-ivy] *dbname***

or

**texforms [-ivy] *dbname***

where *dbname* is the name of the database. The letters enclosed in square brackets [-ivy] are options which may be specified to alter the default functionality of **texforms**.

The command line options are:

**-i** Commence **texforms** in Insert mode instead of the default Query mode. Exiting from Insert mode terminates **texforms**.

**-v** This option is only required if the database has been designed to contain information to access a videodisc and a videodisc player is available. It attempts to establish a connection with the videodisc player and, if successful, prevents any other users from accessing the videodisc player during the sessions. Any videodisc reference stored in a record is passed to the videodisc player to display a particular frame or sequence on the monitor.

**-y** Bypass the message of the day and commence Query mode immediately.

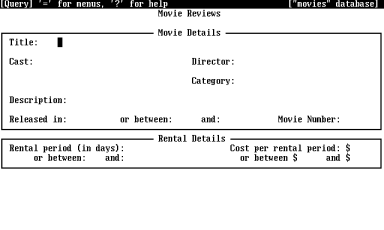
Before the database is called up, a copyright message is displayed, followed by a message of the day, if any. This is a message entered by the DBA to be shown to all users running the database and is generally used by DBAs as a bulletin board Pressing the **space bar** clears this message and calls the database.

This displays a form on the screen, generally the Query form selected for this user. (If invocation should fail then the shell environment variable, PATH, may need to be altered to include the directory in which the KE Texpress programs reside. See the system administrator for help or consult the Unix reference manuals.)

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An example of a query form follows:

**Query Form Example**

The commands displayed throughout KE Texpress are those which the user is permitted to perform and are dependent on both the database design and the privileges of the user.

If the database is locked or closed down by the DBA for maintenance operations, it cannot be invoked, and a message displays

*"dbname*"database is closed. Try again later

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**Chapter 2**

**Using KE Texpress**

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2 - 2 Using KE Texpress

**Overview**

This chapter describes the general features and utlities of KE Texpress. Some of these may be used in a variety of KE Texpress modes. For example, a Look-up table can be called up in Query mode as well as Insert mode. The following sections describes each of these utilities.

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**Front-End Menus**

Front-end menus are usually displayed when the user first calls up the system. Some users, such as OPAC users, may be taken into a Query screen as soon as they login. Various front-end menus can be set up by the DBA, tailored to the privileges and functions of the users.

Menu options can be selected in one of two ways.

First, the user can move to the option by using the arrow keys and , which will cause the option to be highlighted. Pressing will then select the highlighted option.

Second, the user can enter the letter or number associated with the menu. This immediately selects the option without having to press .

To exit from the menu (always the last option on the menu), the user selects its associated letter or number, or alternatively, type **x**, **X**, **Ctrl+X** or **F1** (if the terminal supports function keys.)

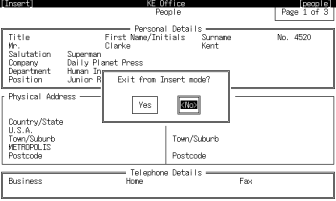
If a menu option cannot be accessed or performed, the option will appear dimmed and it will not be possible to select it or move to it.

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**Screen Layout**

The screen is divided into two regions: the **menu bar**, and below it the **form window** as shown below:



**Screen layout**

The menu bar occupies the top line of the screen. Usually it displays a mode indicator on the left, the command for pulling down menus or help, and the name of the application in the centre. When pull down menus are selected, the menu bar displays the titles under which the available commands are grouped. During data entry, the menu bar is also used to display helpful prompts.

The mode indicator displayed in square brackets at the left edge of the menu bar indicates the current mode of operation, i.e. Insert, Query, Display and Edit. The database name is displayed in square brackets at the right edge of the menu bar.

The form window displays the various Insertion, Query and Report forms associated with the database. A database can have multiple query, and display or report forms.

A form may take up more space than is available on the computer screen, i.e. it may spill over onto several screens. At the top right hand corner of the screen is often a message, e.g. "Page 1 of 3" . This informs the user that the screen currently displayed is the first of 3 screens. Prompts, status messages and error messages are displayed in a pop up message box. This message box whose size varies according to the particular message, pops up in the centre of the screen, overlaying the form window. When the user has responded, the message box disappears.

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**Pull-Down Menus**

All KE Texpress commands can be invoked by selection from a pull-down menu. These menus are normally not displayed and emerge from the menu bar only when requested. The menu bar displays the titles under which the available commands are grouped. When pull-down menus are selected, the group of commands under the first title is displayed and the first command on that menu is highlighted. Selection of a command involves first moving to its menu (using

or ) and then moving to the option (using or ). Once the option is highlighted, the user calls up the command by pressing . Note that keyboard accelerators cannot be used to involve commands while pull-down menus are exposed.

Some menus may display commands that cannot be selected, which will appear dimmed. This can occur when commands that are normally available are invalid under a particular set of circumstances. For example, the command to move to the next record when viewing the results of a query (**[Display] Move**

**Forward a record**) is invalid if only 1 record has been retrieved by the query.

The pull-down menu operations are described in the following paragraphs. Keyboard accelerators are displayed in parentheses, separated by a comma if there is more than 1.

The pull-down menu commands are:

**Display pull-down menus (=)**

Typing this key displays the first pull-down menu. The first available command on that menu is highlighted. If pull-down menus had previously been accessed in the current mode of operation, then the menu containing the last selected command is displayed and that command is highlighted.

**Select command ( )**

Typing the key removes the menu from the screen and performs the command currently highlighted.

**Move down ( , j)**

Typing either of these keys moves the menu cursor down the currently displayed menu to the next command which may be selected.

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**Move up ( , k)**

Typing either of these keys moves the menu cursor up the current menu to the previous command which may be selected.

**Move left ( , h)**

Typing either of these keys moves the menu cursor to the left adjacent pull-down menu, displaying its commands.

**Move right ( , l)**

Typing either of these keys moves the menu cursor to the right adjacent pull down menu, displaying its commands.

**Move to menu via title**

It is possible to move directly to a pull-down menu by typing the first letter in the menu's title. Either the lower or upper case letter may be entered. If a particular letter refers to multiple titles then the pull-down menu associated with the first of these titles to the right of the current pull-down menu is displayed.

**Help (?, F2)**

Typing either of these keys displays a pop-up message box oulining the operation of the currently highlighted command. The last line of the message box displays a list of keyboard accelerators which can be used to invoke the command directly. Also displayed on the last line of the message box is the name of the KE Texpress help file which contains the currently displayed text.

**Exit (Ctrl+X, esc)**

Typing either of these keys clears the pull-down menus from the screen without performing any command on the menus.

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**Keyboard Accelerators**

Most KE Texpress commands have keyboard equivalents. This means that the command can be invoked directly from the keyboard (rather than selection from a pull-down menu), providing fast access to heavily used commands. Typically the keyboard accelerators are control characters, however the major commands may also be invoked using function keys (provided your terminal type supports functions keys and KE Texpress has an appropriate description for your terminal).

When a pull down menu is displayed, the keyboard accelerator(s) (if any) is displayed to the right of the command name. Note that whilst any pull-down menu is displayed, keyboard accelerators cannot be used. A command may have many keyboard accelerators, however a pull down menu will display only the first one. A list of all the keyboard accelerators for a particular command can be obtained by selecting help when the command is highlighted on the pull-down menu.

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**On-Line Help**

On-Line, context-sensitive help is always available in KE Texpress. It can be selected by typing **?** or **F2.**

When help is selected, one or more screens of text describing the current mode of operation or the highlighted function on the pull-down menu, are displayed.

Typing causes the next screen to be displayed. Typing on the last help screen returns the user to KE Texpress.

To exit from help, type **F1** or **Ctrl+X.**

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**Look-up Tables**

A Look-up Table is a list of all entries previously entered into the system at that field. Choosing an entry from this table saves the user typing it into the field, which also eliminates typographical errors. When used during record insertions or edits, Look-up Tables also keep the format of entered information consistent across users. See also Chapter 3 of this guide for details on using Look-up tables.

**Look-up Table**

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**Printing or Copying Information**

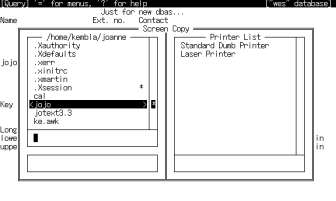
Users can :

• Copy allinformation on the screen (Screen Copy), invoked by **Ctrl+G**

• Copy the current record in its entirety (**[Display] Show Copy this match**). This is useful if the record spills over 1 screen.

• Copy all retrieved records (**[Display] Show Copy all matches**).

Information can be copied into a file or sent directly to a printer. When any of these copy facilities are invoked, selection boxes of file names and printers will display as shown in the following figure:

**Print and Copy Selection Boxes**

The file selection box on the left consists of 3 sections. The top section displays all files in the current directory, including system files (starting with a . such as .cshrc). Please note that systems files should NEVER be selected for copies. Below the file section is a blank area where users can enter the leading character(s) of *existing* files, which will make the cursor jump to the first file starting with the character(s). The bottom -most section is another blank area, where users can enter the name of a *new* file.

The printer list box on the right displays all the valid printers. Users can scroll down the list by using the arrow keys or , or by entering the leading character(s) of the printer in the blank section below the printer list.

Initially, the cursor will be inside the File box, in the New File Section. Here, users can enter a new file name, and when is entered, the file will be created

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with the information copied into it. The cursor can be moved to the Existing File Section, or the printer box by pressing the TAB key as often as necessary. Once the cursor is in the appropriate section, users can use the or key to move through the list, or enter the leading character(s) to make the cursor jump directly to the first item beginning with the character(s). Pressing **Ctrl+N** or **Ctrl+P** will scroll the list down or up.

To select a file or printer, move the cursor to it and press . If an existing file is chosen, you will be prompted whether to append the information to the end of the file, overwrite the file with the information, or exit to abort the copy.

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**Screen Copy**

A copy of the current screen image can be obtained at any time by typing **Ctrl+G** and then saved or printed using the facility described in the previous section. By default the complete screen image is copied (including the menu bar).

If the database option, **screencopy =short** is set, the information in the menu bar is not copied.

If the database option, **screencopy=block** is set, the user is requested to mark two points on the screen. All information bounded by these two points is then copied. During the marking procedure the message window displays:

(Mark top left corner)

or:

(Mark bottom right corner)

The available commands are:

**Mark corner ([Screen Copy] Function Mark)**

Mark the current cursor position as a corner of the block.

**Exit ([Screen Copy](Function Exit)**

Exit from the marking procedure and abort the screen copy command. **Move left ([Screen Copy] (Move Move left)**

Move the cursor left one character.

**Move right ([Screen Copy] (Function Move right)**

Move the cursor right one character position.

**Move up ([Screen Copy] (Function Move up)**

Move the cursor up one line.

**Move down ([Screen Copy] (Function Move down)**

Move the cursor down one line.

Each of the cursor movement commands may be preceded by a repeat count, indicating that the command should be performed multiple times.

E.g. **2([Screen Copy] (Function Move down)** makes the cursor move down 2 lines. Also, if the upper case equivalent of the command (eg. H for

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left) is entered the cursor moves to the next tab stop in the appropriate direction. This provides a faster method of movement around the screen. If an attempt is made to move the cursor outside the screen bounds, the terminal bell sounds.

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**Screen Redraw**

Screen redrawing can be performed at any time by typing **Ctrl+R**.

This is useful if the screen happens to become jumbled, eg. if information is sent from another terminal to warn of impending database closure, or if the telephone line sends garbage over the modem.

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**Suspend or Invoke Shell**

This is generated by the character, **Ctrl+Z**. On Unix systems with job control facilities, this signal suspends execution and returns control to the Unix command interpreter or shell. Execution recommences when the user enters **fg**.

For Unix systems without job control, this command causes a Unix shell to be executed. The shell to be executed is selected in the following manner:

(1) If the Unix environment variable, SHELL, is set then this program is used. For example, to execute the command interpreter, /bin/csh, the environment variable, SHELL, must be set to that value. This can be achieved from **csh** using the command:

**setenv SHELL /bin/csh**

or from **sh** using the commands:

**SHELL=/bin/csh**

**export SHELL**

(2) If the SHELL environment variable is not set, then the user's login shell in the password file is executed.

(3) If the password file has no shell entry for the current user, then **/bin/sh** is executed.

The termination of this shell results in a return to the exact context prior to the command being executed.

On systems with job control, the **Ctrl+Z** command takes effect immediately. On systems without job control, this command does not take effect immediately but rather is performed when the program is waiting for character input.

If usage of the suspend command is considered unsafe, it will be ignored by the system.

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**Interrupt**

Typing the **Delete** or **Interupt** key interrupts the current operation and returns the user directly to the current menu or the shell prompt.

If usage of this interrupt facility is considered unsafe, the interrupt command will be ignored.

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**Text Perusal**

Where large chunks of text have been split up into screen-sized records in KE Texpress, there is a text perusal facility, which allows the user to view the text consecutively, one screen at a time.

The user needs to first retrieve one or more KE Texpress records, and then while within Display mode, invoke this perusal facility **([Display] Function Peruse records).**

The commands are as follows:

**([Perusing] Move Forward a record** or **Move Move form down)**

The next page of text is displayed. Moving forward from the last page of text terminates the Text perusal procedure.

**([Perusing] Move Backward a page** or **Move Move form up)** The previous page of text is displayed.

**([Perusing] Move Copy text** or **Move Copy a record)**

Make a local copy of the text for the user's own convenience. The information may be copied into a Unix file or printed.

**([Perusing] Function Exit)**

Terminate the display of text and return the user to the KE Texpress record.

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**Database Privileges**

Privilege levels determine the operations and data available to the user. Pull down menus reflect the users' privileges and hence users know only about operations which they can perform and data (fields or whole records) which they can view. Databases can be designed to have only one privilege level, which gives every user access to all the data.

The existence of privilege levels is generally hidden from the user.

Users with "Change record privilege" turned on in their user account, can alter a record's privilege level. To do this, the user must first retrieve the record(s), and then in display mode enter the new privilege level. **([Display]Edit Adjust Privilege)**. This option is only available if the database has been configured to have more than one privilege level.

KE Texpress uses a network of privileges which allows a DBA to control access to data on several levels:

• Record

• Item

• Operation

To achieve this, KE Texpress uses the notion of privilege levels. The maximum number of privilege levels permitted is nine. However, the actual number of levels for a given database can be fewer and is determined at the time of database configuration (refer to Database Configuration). For a database with **n** privilege levels, the levels are numbered **0** to **n - 1**. These numbers represent ranks in a hierarchical structure where level 0 is more privileged than level 1, which, in turn, is more privileged than level 2, and so on.

The DBA assigns each new database user an insertion and display privilege level which determines access to information whenever the database is accessed.

**Record Privileges**

At the time of insertion, each new record is assigned a privilege level according to the insertion privilege of the user. Following this, only users with a display privilege level higher than or equivalent to the record's privilege level can retrieve and view that record when querying. In other words, for insufficiently privileged users, this record is invisible.

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**Item Privileges**

When the database is designed (refer to Database Design in the Design Guide), each object in both the Insertion and the Query Forms is assigned a privilege level. Only items, headers and boxes with a privilege level lower than or equivalent to the user's privilege level appear on the screen whenever a form is displayed. Thus selected data within a record can be protected while the user is still allowed access to some of the information in the record.

A user's insertion privilege level determines which fields can be accessed while inserting or editing a record. A user's display privilege level determines the data which can be viewed while displaying matching records. Therefore, a user may be privileged to view certain information but not sufficiently privileged to edit that information.

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**Operation Privileges**

There exists for each user another set of privileges based on the operations that the user is permitted to perform. These privileges are not hierarchical in structure, but are simply granted or denied. The user is permitted to perform the operation only if the privilege is granted.

The user level operations controlled by these privileges include:

• Record insertion (I)

• Record edit (E)

• Record deletion (D)

• Change record privilege level (P)

• Query (Y)

• Destructive edit (U)

• Validation override (V)

• Videodisc access (X)

• Temporary record creation (T)

• Temporary file summary (F)

• Temporary record retrieval (R)

• Report access (C)

• Report create / delete (K)

• Unix facilities (N)

• Set user options (S)

A Look-up table insertion privilege also exists and can be granted or denied individually for each Look-up table in the database.

In addition to this set of privileges, there are administrator privileges which control access to the maintenance operations of the database.

Finally, there is the DBA privilege which cannot be granted to other users but is solely that of the DBA. All privileges, other than the DBA privilege, can be

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either granted or denied to all registered users of the database, and are controlled by the DBA.

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**Chapter 3**

**Entering Information**

Data Types..........................................................................3-3 Movement around a Form....................................................3-4 Entering Information into Fields...........................................3-5 Look-up Table.....................................................................3-6 Hierarchies..........................................................................3-8 Miscellaneous Commands....................................................3-9 Field Editing Commands....................................................3-11

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3 - 2 Entering Information

**Overview**

All operations in **texforms**, eg. queries, edits, inserts, report generation etc., involve entering information into fields on various forms.

This chapter describes how to move around a form and enter information into fields.

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Entering Information 3 - 3

**Data Types**

During data entry, the type of the field imposes restrictions on the characters accepted for data entry. If an attempt is made to enter a character not acceptable to the data type for that field, the terminal bell sounds and the character is ignored.

The data types supported include string, text, integer, real and file name.

The string data type accepts all printable characters (letters, numbers and punctuation).

The text data type accepts the same range of characters as the string type but interprets the data as individual words (separated by normal delimiter characters such as space, comma, full stop, etc.) rather than as a single string.

The integer data type accepts only data in the format:

An optional sign ('+' or '-') followed by zero or more digits.

The real data type accepts only data in the format:

An optional sign, followed by zero or more digits, optionally followed by a decimal point ('.') and zero or more digits.

The file name data type accepts text with the exception of the space character which is illegal. In addition to this, if the first character of the file name is a tilde (~) then a tilde expansion takes place. Thus, the strings, ~ and ~/, expand to the home directory of the current texpress. The string ~texpress expands to the home directory of the Unix **texpress** account.

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3 - 4 Entering Information

**Movement around a Form**

The following commands move the cursor to fillable fields on the form. A field is defined as fillable if it can be reached and data can be entered into it. Automatically filled fields cannot be accessed by the cursor.

Note that the left and right arrow keys ( and ) can only be used to move to the adjacent fields on the form.

**Next field (Move Forward a field)**

Move forward to the next fillable field which may be on the same item. If the cursor was at the last field on the form, move to the first field.

**Previous a field (Move Backward a field)**

Move backwards to the previous fillable field which maybe on the same item. If the cursor was at the first field of the form, then move to the last field.

**Next item (Move Forward an item)**

Move forward to the next fillable item. The cursor is positioned on the first fillable field of that item.

**Previous item (Move Backward an item)**

Move backward to the previous fillable item. The cursor is positioned on the first fillable field of that item.

**First field (Move Start of form)**

Move to the beginning of the form. The cursor is placed on the first field of the first fillable item on the form.

**Last field (Move End of form)**

Move to the end of the form. The cursor is placed on the first field of the last fillable item on the form.

**Move to item (Move Find an item)**

This command calls up a box, into which the user can enter the prompt or field name (or just its leading letters), which will take the cursor directly to the specified field. This is handy particularly when the field is on another screen.

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**Entering Information into Fields**

As soon as a character is typed into a field, any previous information in the field is replaced by the new entry, and a line of underscores displays, outlining the width of the field. The menu bar will display the message:

"Enter ESC or <Return> to terminate character insertion"

Once entry has started, KE Texpress will ignore any commands, eg. to exit or perform a query, until or **ESC** is entered. The cursor will then jump to the next field on the form.

Note that *numeric* fields will only accept numeric data, whereas text fields will accept any kind of data.

*Date* fields often consist of 3 components, for date, month and year. Press after entering each component. The field lengths of each component will indicate the expected formats, eg. a length of 3 for month indicates "*jan*" is expected, whereas a length of 2 expects "*1*" or "*01*". Often messages will display on the menu bar as soon as data is entered into each component to specify the format, eg. Month (Jan, Feb).

**Clear field (Edit Clear text)**

This command clears all characters in the current field.

**Clear form (Misc Clear form)**

Data is cleared from every fillable field in the form. The cursor then moves to the first fillable field on the form.

**Undo (Edit Undo)**

This command undoes the last change made anywhere on the form. If you had started entering information and wanted to undo this, you need to first finish data-entry by pressing or **ESC**, and then select this command.

**Edit Field**

See Field Editing Commands in this chapter.

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**Look-up Tables (Info Look-up table)**

Fields which contain a restricted set of information may have Look-up Tables which are lists of all entries previously entered into the system at that field. During queries, inserts and edits, the user can choose from this list to save typing all the information into the field and this also eliminates the risk of making typos.

When used during record insertions and edits, Look-up Tables keep the format of entered information consistent across users, eg. "U.S.A" instead of "the United States of America".

When used during queries, they ensure the query term matches the format followed in the record and avoid non-retrievals caused by the query term's format being different from the data's. eg. querying on "*uk*" in the Country field will not retrieve records with "*britain*" in the same field.

Users can call up the entire Look-up Table for a field or call up a partial Look up Table by first entering a few leading letters and then invoking the Look-up Table. If there are no Look-up Tables for this field, there will be a beep, and nothing will happen. If there is only one retrieved value, it will be automatically inserted into the field.

If there is more than one value, a list will display, as shown in the next figure. 

**Look-up Tables**

One entry in the Look-up Table is highlighted. To the right of the list is a vertical *scroll bar.* If the entire list cannot be displayed in the selection box at one time, an asterisk (\*) character is placed in the scroll bar to indicate which portion of the list is currently displayed.

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Using a Look-up Table is similar to using a front-end menu. The and keys may be used to move up or down 1 entry in the list, causing the list to scroll if necessary. Entering **Ctrl+N** or **Ctrl+P** will scroll 1 screen forward or backward. Alternatively, an entry may be located by typing 1 or more of the leading letters in the entry. The letter(s) which have been typed will display below the selection list and the first entry in the list which starts with the letter(s) will become highlighted.

Once the required entry has been located and highlighted, press to select the entry and return to the screen.

To exit from the Look-up Table without selecting an entry, enter **F1**, **x** or **Ctrl+X**.

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**Hierarchies**

A group of logically connected items which have a natural hierarchical relationship between them can be designated to form a **hierarchy**. This hierarchy becomes a special set of inter-related Look-up tables. Examples of possible hierarchies are:

• Family Genus Species Sub-species

• Country State Town

In such a hierarchy, the range of values of the second item is dependent on the value of the first item and the range of the third item is dependent on the values of both the first and second items. Thus while there are many valid *State* names throughout the world, the number of states where *Country* is **Australia** is only eight. This inter-dependency can make selection from a Look-up table much simpler.

For example, in a large database, a request for the list of known *Towns* could result in many thousands of values. Specifying towns beginning with "**m**" could reduce this list to hundreds. However, if the Town item were part of the hierarchy:

**Country State Town**

and the request is for towns beginning with "**m**" where *Country* is **Australia** and *State* is **Victoria**, then results in a far smaller list of possible Town names.

It should be noted that hierarchies work in both directions. Thus, a value in the *State* item will reduce the possible selections for countries (usually to a single value).

If a list of values is requested for an item in a hierarchy where at least one of the items above it in the hierarchy is empty, then the hierarchy becomes invalid. In this case, the action defaults to that of a simple Look-up table, and all inter-item dependencies are ignored.

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**Miscellaneous Commands**

**Link database (Info Link database)**

This command is available only if the database has been designed to extract information from linked databases during insertion.

It enables the user to view the information stored in a linked database, and is used when it is desirable to extract information from the linked database but the Key value of the linked record is not known. The cursor must first be positioned on a field of the item which represents the Key of the linked database, and the user must have an account for the linked database, i.e. be allowed to use it. The following message will display:

**Executing *dbname* . . .**

(where *dbname* is the name of the linked database).

On exiting from the execution of this linked database program, texforms the user returns to the current database.

**Show attributes (Info Show attributes)**

Display a description of the item prompt, its coordinates, the type of retrieval method applied to it, if any, eg. whether by Key value or indexing, the ranging type (for ranged items), and whether there is a Look-up table.

For each field of the item, the co-ordinates, the length, the type of data accepted by the field, the source of the data (with the full assignment expression which is used to calculate its value, if one is used), the full validation expression for the field if one exists, its branch expression if applicable, its default value if one exists, and if the data for this field is to come from a linked database, the name of the linked database and the field within that database are displayed. All of these attributes are set-up by the database designer.

To return to the database form, press the space bar or (**Function exit**)

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**Display Field Edit message (Info Edit message)**

This command provides a method of viewing the field edit message without having to enter information into the field. If the current field does not have a field edit message then the following message will display:

No field edit message for this field

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**Field Editing Commands**

Typing new information into a line of a field replaces any information that was previously in line. To edit the existing contents of a line, these commands are used:

**Move Left (Edit Move left)**

This command moves the cursor one character position to the left, unless it is already at the start of the line.

**Move right (Edit Move right)**

This command moves the cursor one character position to the right, unless it is already on the last charcater in that line.

**Insert character(s) (Edit Insert)**

This command allows the user to insert characters before the character currently under the cursor. Characters are inserted until the user types

esc or .

**Append Character(s) (Edit Append)**

This command allows the suer to append characters after the character currently under the cursor. Characters are added until the user types

esc or .

**Delete Character (Edit Delete)**

This command removes the character under the cursor.

**Replace Character (Edit Overstrike)**

This command replaces the character currently under the cursor with the next character typed by the user.

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**Chapter 4**

**Record Insertion**

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4 - 2 Record Insertion

**Overview**

Records are created by entering information into fields on an **Insertion** form. If the entered data pass the pre-defined validation criteria, such as mandatory fields are filled in, the user can save the record, which is inserted into the database and it becames available to all users for queries and edits.

Only users with temporary record creation privilege or record insertion privilege (set up in their user accounts) may call up the insertion form and thereby create records.

The insertion form can be called up from any other form. Its mode indicator is set to Insert and some data may already be filled into this new record. This data can arise from either default or automatically generated values.

A default field value is a character string which is initially assigned to a field for each new insertion. This character string is intended to represent the most common value which may be assumed by that field, and can be changed at any time during data entry. See also Inserting Default Values in this Chapter.

Some items in a form can be designed to be automatic items i.e. have their field values automatically generated by KE Texpress and they cannot be directly changed by the user who is prevented from accessing these fields.

Only KE Texpress Library items may be designated as being automatic. See also Appendix C of this guide.

For details on moving around the form, using lookup tables and editing data in fields, see Chapter 2 of this guide.

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Record Insertion 4 - 3

**Key Values**

Many records have a Key item, which uniquely identifies the record. KE Texpress can maintain a list of Key item values, assign them automatically and ensure their uniqueness.

A Key item is not compulsory. If a database does not have a Key item, then ignore the following paragraphs.

**Key types** must be defined for each key item. The DBA can design new key types or use pre-designed ones, which are described in Appendix B of this guide.

For databases which have Key items, when each new insertion is commenced three forms of Key value assignment are possible. They are set up as database options. See Chapter 7 for more details.

**Key Value Assignment Database Options**

**autokey=next**

The (smallest) next available Key value is automatically assigned to the new record. This option is available only for Key types which contain an incrementing component. For Key types with more than one component, the same prefix (all components other than the incrementing component) as the last Key value assigned to the user is assigned. If no Key value has been assigned in this session in this session, the following message displays and the key item is left empty:

No appropriate next Key value available

**autokey=personal**

The Key value which is one larger than the Key assigned to the user's previous insertion, is automatically assigned to the new insertion provided that this value is available. If it is not available, no automatic Key value assignment is performed and a message displays:

Next Key value is already assigned

This option is intended to be used for entering large backlogs of data. In this case, each new record inserted by a user is the numeric successor of that user's previous insertion. This allows other users to insert records concurrently, without having to wait for the current user to save the record and thus free up the next available key value.

This option is available for incrementing Key types only.

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**autokey=no**

No Key value is automatically assigned to the new record. The value must be entered manually. This option can be used for entering data with a random selection of Key values.

If **autokey=next** or **autokey=personal** is set as a database option, users can obtain the next available key item value when inserting records **([Insert] Info Get next key)**. This requests the system to insert the next available key value into the record if one has not already been entered.

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**Ditto Commands**

After the Insertion form has been displayed and all of the default, automatic and any Key items have been filled, the information describing the record can be entered.

To save the user from entering data identical to that entered previously for other records, **ditto** commands are available while inserting (and editing) records.

Several additional editing commands are available during Insert mode to make data capture simpler and more efficient.

The record which contains the information to be copied is called the **ditto record**. By default, the ditto record is the user's last record inserted or edited. As soon as the user exits texforms, the ditto record is no longer set. Users can also choose the ditto record in Insert, Edit or Display modes. See also Miscellaneous Commands in Chapter 5 of this guide.

**Ditto ([Edit, Insert] Misc Ditto)**

Copy contents of current field from ditto record.

**Ditto all ([Edit, Insert] Misc Ditto all)**

This command copies information into all empty fields in the insertion form from equivalent fields in the ditto record.

**Change ditto ([Edit, Insert] Misc Change ditto)** Change the ditto record. The following message appears:

Enter Ditto Key field *n* :

(where ***n*** is the number of the field currently being entered). The user can either exit by entering or enter the key of the new ditto record, which is then used for subsequent ditto commands. If there is no record associated with the Key value entered, the ditto record is not changed and a message displays:

Invalid Key value (Ditto unchanged)

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4 - 6 Record Insertion

**Default Field Values**

The DBA can set up default field values for each field, which represent the most commonly entered values for those fields. Users can then insert the default value for the current field or for all fields. These default field values can then be changed at any time during data-entry by the user.

**Insert default ([Edit, Insert] Misc Load default)**

Insert the default value as set up by the DBA, into the current field. If the default value is a null string, the contents of the field is cleared. (To replace the previous value, use the undo command).

**Insert all defaults ([Edit, Insert] Misc Load all defaults)**

Insert all default values into the appropriate fields. To reverse the result, use the **undo** command.

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**Comments**

Every record inserted into the database can be associated with unlimited free form comments which are independent of any data in the form. As comments are not indexed, retrieval on comments alone is slower than retrieval using indexed terms. Comments for each record are stored in the /tmp directory.

**Insert Edit comments ([Insert] Misc Edit Comments)**

Add or Edit the comments for a record. This invokes a Unix text editor which is used to enter or edit the comments. The text editor is selected in the following manner:

(1) If the Unix environment variable, **EDITOR**, is set then this program is used. This variable can be set from **csh** using the command:

**setenv EDITOR "*editor path-name*"**

The **sh** equivalent is:

**EDITOR="*editor path-name*"**

**export EDITOR**

(2) If the EDITOR environment variable is not set then the Unix visual editor, **vi**, is used.

(3) If **vi** cannot be found, then the Unix line editor, **ed**, is used.

Exiting from comments editing returns the user to the Insertion form. When the record is written or saved, the updated comments are also saved.

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4 - 8 Record Insertion

**Assignment Expressions**

It is possible to design a field of the Insertion form so that its value is generated automatically. The value for such a field may be calculated by arithmetic expressions, possibly involving some pre-defined functions. It may also be calculated based on values in other fields on the Insertion form. Thus whenever one of these other fields is altered, the expression is automatically recalculated.

The result of this is that changing one field can have an effect on other fields in the form. For example, if a Degrees Celsius field is calculated as a function of the Degrees Fahrenheit field using the formula:

°C = (°F - 32) \* 5

9

then if the value **68** is entered in the Degrees Fahrenheit field, the value **20** is automatically calculated and immediately entered into the field for Degrees Celsius.

A numeric expression involving other fields is not calculated if all of the other fields are empty. If at least one of the other fields has a value, then all remaining empty fields assume a value of zero for the calculation of the expression.

(See Appendix F of the Design Guide for examples of assignment expressions)

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**Linked Databases**

The Insertion form of a database can be designed to extract information from other databases, by specifying the Key value of a record in the linked database. The Insertion form for the current database must have an item which corresponds to the Key of the linked database, and when a valid Key value is entered into this item, then the information from the relevant record in the linked database is automatically copied into the linked fields of the current record, overwriting any data in those fields.

After the copy is completed, these fields cannot be accessed while the linked database Key value is present. If, however, this Key value is removed, then the data in the linked fields will become accessible to the user.

If the value entered into the linked Key item represents an invalid or unused Key value for the linked database, all of the linked fields will be cleared, and will be inaccesible until the linked Key value is removed from the current database.

By default, the information is extracted from the linked database once and is copied into the current record. Thus later altering records in the linked database will not alter the copied information in the current record.

Note that the linked Key item can be defined as a Display Only linked Key, in which case the linked information is not stored with the record but rather is extracted from the linked database every time the record is accessed. This enables the current database to reflect up-to-date information in the linked database, which acts as a Master list.

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**Data Validation**

Each field of the Insertion form can have its own validation criteria which may be a function of its own value or dependent on the values of other fields of the form.

When the user saves the record, the system also checks additional criteria, and will only save the record if it passes these tests. (See below). Prior to saving the record, users can at any time request the system to validate the record.

**Validate data ([Insert] Info Validate data)**

Users can run this command to make the system validate the current record. This indicates whether a record is valid, and if invalid, indicates the field values which do not meet the validation criteria.

The following sections describe the tests performed by the validate command. **Key Item**

The Key item, if present, must have a valid Key value. If this test fails, a message will display:

Invalid Key value

The validation command check will abort, with a return to Edit mode, and the cursor will sit on at the first field of the Key item to prompt the user to edit it.

**Hierarchy**

If a value has been entered for an item in a hierarchy, then all items above it in that hierarchy must also have values. So for the hierarchy:

**Family Genus Species Sub-species**

if the Species item is filled, then both the Family and Genus items must have values. Sub-species, being below Species in the hierarchy, need not have a value. If this test should fail then a message will display:

Invalid hierarchy on "Fieldname". Correct entry or Override validation?

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Choosing Correct Entry will take the cursor is placed at the start of the prompt of the offending hierarchy item.

Choosing Override Validation is possible only for users with Validation override privilege. This causes the validation procedure to ignore this item, and allows users to go on and save the record.

Hierarchy validation also ensures that only one field component can be entered into any field of a hierarchy item. A field component is defined as a character string terminated by the end of the field or by a semicolon (**;**). If more than one field component is entered into a field of a hierarchy item, the message will display:

Only one field component per hierarchy item - Hit any key to continue

The cursor will then sit on the first field of the invalid item.

**Look-up Table**

Before new entries can be inserted into Look-up tables, the system first checks that the user has Look-up table insertion privilege. This privilege can be set for each Look-up table in the database. Thus a user may be permitted to insert into one Look-up table while being denied permission to insert into another.

If a field of an item with a Look-up table contains a value which is not currently in the Look-up table and the user is not permitted to insert into that Look-up table, then a message will display:

Invalid entry. Choose a value from Look-up table

The validation command will abort, and the cursor will be taken to the first field of the offending item.

If the user can insert into the Look-up table, a message will display: "*string*" not in Look-up table! Insert? [yes] [no]

(where ***string*** is the value of the field). Choosing yes causes the new value to be inserted into the Look-up table. Choosing no returns the user to the offending item, providing the user with the opportunity to re-enter or select a new value for this field.

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For hierarchies, rather than testing each value separately, the system checks the existence of the combinations in the hierarchy Look-up tables. For example, for the hierarchy:

Country State Town

with data:

Australia Victoria Melbourne

the combinations:

Australia

Victoria **in** Australia

Melbourne **in** Victoria **in** Australia

are tested for existence. If a combination does not exist then the same errors as above are generated, and the user can choose to insert the combination into the look-up table hierarchy or amend it.

**Field**

The DBA can set up validation criteria for each field in the record. These criteria are expressions in a simple mathematical notation which is similar in appearance to the C programming language. These expressions may assign to a variable called **val**, a result of either zero which represents an invalid value, or non-zero which represents a valid value. In these expressions, the special character, **#**, represents the current field and **$** represents the current item. Character strings not in quotes are system identifiers of variables or other items in the form. The nth field of an item is referenced by adding **\_n** to the name of the item. So the second field of the current item can be referenced by **$\_2**.

Some of the operations and functions supported for such expressions are listed below:

**=** assignment

**==** equal to

**!=** not equal to

**<** less than

**<=** less than or equal to

**>** greater than

**>=** greater than or equal to

**+** addition

**-** subtraction

**\*** multiplication

**/** division

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**%** modulus operator

**.** string concatenation

**&&** logical conjunctive operator (and)

**||** logical disjunctive operator (or)

**!** logical negation operator (not)

**empty** string empty test

**filled** string not empty test

**if (**condition**)**

statement1**;**

**else**

statement2**;**

Some examples of validation expressions are:

**val = filled(#);**

The current field is compulsory.

**if (filled(#))**

**val = (# > 3000) && (# < 4000);**

If the current field is filled then its value must be between 3000 and 4000 exclusively.

**if (filled($\_1))**

**val = filled(#) && (# >= 0) && (# < 60);**

If the first field of this item has been filled then the current field must also be filled and have a value not less than zero and less than sixty.

For a detailed discussion of validation expressions (and expressions in general), refer to the KE Texpress Design Guide.

If the validation test for a field should fail (it returns a value of zero), a message will display:

Invalid entry. View validation or correct entry?

The possible responses are:

**Correct** The user is returned to the first field of the offending item to change it.

**View** The screen is cleared and the offending field and its validation expression is displayed The validation expression is an expression formed using the rules as described above. Enteringreturns the user to the first field of the offending item to change it.

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**Override** The validation criterion is overridden for this field and this field value is then accepted as valid. This option is available only to users with Validation override privilege. Validation cannot be over-ridden for records which have a key value that is identical to an existing record's key in the database. In such a case, a message will display:

Key value is already assigned. Can't override validation

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**Ending an Insertion**

To end an insertion, the user must exit from the insertion form. This can be achieved in several ways by saving the record, saving it in a temporary file, or exiting without saving.

**Save ([Insert] Function Save)**

This is the only way to insert a record into the database, and the user must have record insertion privilege to do this. The information in the form is first validated (as when the command, **Validate data** is selected). If this should fail then the user is returned to Insert mode. Otherwise, the record insertion is performed with the message:

Performing insertion . . .

The user can then commence another insertion.

Part of the record insertion involves inserting any new values into the Look-up tables (or combinations into hierarchies). This is achieved silently and automatically by the system unless **User specified** is set on the field during the design of the database. This allows users to position new entries in the look-up table, and thus choose the display order of the look-up table. If **user specified** is not set, the look-up table is displayed alphabetically by the system, and the user cannot view it in any other order.

If **user specified** is set, saving the record will cause a selection box to display, listing all previously entered look-up table values. To position the new entry immediately prior to an existing entry, select the existing entry by pressing . To position it after the last entry in the list, exit (without selecting) by entering **Ctrl+X** or **F1**.

A message box will pop up and ask for confirmation. Choosing yes will insert the new entry into the nominated position in the look-up table. Choosing no will take the user back to the selection box displaying the previously entered look-up table values.

If two users should happen to try to insert into the same Look-up table at the same time, then only one user (the first) will be allowed to. The second user will be suspended until the first has completed the insertion. A message will display:

Look-up table busy - will retry in one minute . . .

After 60 seconds, texforms checks to see if the first user has completed the Look-up table insertion. If so then the second user can continue. If not, the second user is suspended for another minute.

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During the suspension, the second users may press the DEL (interrupt) key, to insert the record into the database and abort the attempt to insert the new value into the Look-up table. This value can be inserted into the Look-up table the next time it is entered in the field and the record is saved. It can also be added directly to the table by the DBA, using the Look-up table edit facility (refer to the KE Texpress Maintenance Guide).

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**Temp Save ([Insert] Function Temporary save)**

This saves the record in a temporary file and is useful if the user has entered only part of the information for a record and does not wish to store it in the database until the information is complete. This option is available only if the user has Temporary record creation privilege, the database has a Key item and the Key item contains a valid Key value. The information is not validated and can be retrieved only once, via its Key value. Following a temporary save, the user can commence another insertion.

The information, temporarily, is retrievable only to the user who stored it and to all users with Temporary record retrieval privilege. It is retrieved by calling up an insertion form and enetering its key value in the insertion form's key item. This deletes the temporary file, so the user must either save the record, or temporarily save it again if the information is to be retained. The user must also have Record insertion or Temporary record creation privilege to retrieve from the temporary file.

Users with temporary file summary privilege can produce a summary of Key values of all records currently in the temporary file. Insertion form **([Insert]Info list temp records)**

If the temporary file is empty, a message displays:

No records in temporary file

Otherwise the screen is cleared and a list is displayed with the heading: Key values and owners of records in the temporary file

The order of the Key values is the order in which the associated records were placed in the temporary file. The oldest record's Key value appears first. The total list of Key values is viewed using the Text perusal facility.

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**Exit ([Insert] Function Exit)**

This exits the insertion without saving the record and returns the user to the display form. If the information in the Insertion form has been modified, the message:

Exit from Insert mode? [yes] [no]

is displayed, seeking confirmation of the command. Choosing no results in a resumption of Insert mode.

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**Chapter 5**

**Database Querying**

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**Overview**

The principal operation performed by KE Texpress is that of information retrieval. Information stored in the database via the Record Insertion mechanism can be retrieved, formatted, copied and displayed using the **texforms** Query facility **([Query] Function Query)**. Query mode is then entered. However, the user must have Database Query (set up in their user account) privilege in order to perform queries. For more information on record and field privileges, see Database Privileges in Chapter 2.

The basic steps involved in performing a query are:

**Entering query criteria**

The information defining the query is entered into the Query form. See also Chapter 3 of this guide for instructions on how to move around the form and enter information into fields.

**Performing the query**

The query is performed and all records in the database which match the information defining the query and which the user is privileged to view are retrieved.

**Displaying the retrieved records**

The matching records are displayed and can now be stored, copied, edited, re ordered, reported on and deleted.

The following sections describe each of these steps in detail.

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**The Query Form**

The Query form typically contains all of the Insertion form items which are designed to be retrievable. This includes all numerically ranged items, the Key item if one exists, and all indexed items. Unindexed items may appear on the Query form and may be used in a query. However, query response will be much slower when using such items. (To improve query response, users should include at least one indexed term in the query).

Some minor distinctions between querying and insertion are worth noting: (1) No automatic Key value assignment is performed.

(2) There are no automatically filled items.

Generally, every item on the Query form which can be seen by the user is fillable. One exception to this rule involves upper and lower bound items. If a ranged item is queried on an exact value, then querying on the associated bounds as well in the same query do not make sense. So the upper and lower bounds are unfillable if an exact value has been entered into the item. See also Chapter 3 of this guide for information on moving around the form and entering information into the fields (including the use of look-up tables).

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**Text Queries**

**Word Break Characters**

Text fields contain alphabetic characters and/or numbers. Each word is a separate indexed term and is indexed unless it is a noise word. Words are defined as a string of letters and numbers terminated by the end of the field marker or by a word break character. Word break characters in query terms are ignored by KE Texpress.

The default set of word break characters includes space, full stop, comma, colon, semi-colon, slash ('**/**'), round brackets, ampersand ('**&**') and double quotes ('**"**'). This set can be changed by the DBA if required.

In text fields, punctuation is ignored, except where it serves to split words. So, for example, the text:

**cash redistribution**

and:

**CASH,Re-Distribution.**

are regarded as equivalent (given that a comma is a word separator but hyphen is not).

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**Noise Words**

Noise words are words which are deemed unlikely to distinguish a field. They are not indexed and so are ignored by KE Texpress if they are specified as a query term. Noise words include "if", "it", "and", "at" etc. Noise words are stored in the file :

~texpress/texpress5.0/lang/english/noise

The default set of noise words is given below. It can be tailored by the DBA to meet the needs of a particular application.

a be of very

about because or was

all but so were

also by than

although for that

an here the

and if then

another in there

any into this

are is though

as it to

at its too

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**Query Commands**

**Query Comments ([Query] Misc Query Comments)**

For databases which have commands appended to records (see Chapter 4 of this guide for information on inserting comments), queries on comments can be performed. Note that as comments are not indexed, retrieval is slow.

This command calls up a message box into which the user can add up to one line of terms, which are then matched against the comments.

To exit from the message box without performing the comments query, do not enter any terms, and press .

**Exit ([Query] Function Exit)**

If pull-down menus are exposed, this command will close them down. Otherwise, it exits the query screen without performing the query and returns the user to the last screen or front-end menu from which s(he) came.

If information had been entered into the query form but a query was not performed, the system will first ask for confirmation:

Exit from Query mode ?

Choosing no will abort the exit and the query form will remain displayed on the screen.

**Clear Form ([Query] Misc Clear form)**

This command clears all information previously entered into fields on all screens in the query form and places the cursor on the first field.

**Single Term Query**

Only one field on the query form is filled in. For example, if only the word *boy* is entered into a **Title** field, when the query is performed, KE Texpress will retrieve all records in the catalogue which contain the word *boy* somewhere in the Title field, such as *Boy with pail*, *African boy* etc.

**Or Query**

Entering information on different lines of the same field on the query form will retrieve all records which contain information specified on any of those lines. For example, if *Boyd* is entered on the first line of the **Artist Surname** field on

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the query form and Nolan is entered on the second line of the same field, the system will retrieve all works by either *Boyd* or *Nolan*.

**And Query**

If more than one word is entered on the same line of a field the search will retrieve only those records which contain all of the words in that field, regardless of the order. For example, if the words *boy* and *girl* are both entered on the same line of the **Title** field, i.e.

boy girl

Ke Texpress will find all records which contain both of these words somewhere in their title field, such as works entitled *Boy and girl* as well as *Girl and boy in Fitzroy*.

Entering information in more than one field on the query form also specifies an AND query, ie. KE Texpress retrieves records which contain all the specified information. For example, if *boy* is entered in the **Title** field and *Boyd* in the **Artist Surname** field, all works by *Boyd* and with *boy* somewhere in the title will be retrieved.

Unlike every other database system, KE Texpress retrieves records faster the more detailed the query. Users are thus encouraged to specify as much information in the query for faster retrieval and to cut down on the number of records retrieved.

**Phonetic Search**

Ke Texpress supports phonetic or Sounds-like retrieval on fields which are likely to contain names, such as a **Surname** field. By preceding any word in these fields by \@ (which will automatically delete the \), the search for that word is performed phonetically, thus matching words which sound similar. For example, *@smith* finds *Smith*, *Smythe* and *Schmidt***.**

**Stemming Search**

In text fields, retrieval on the stems or derivatives of words are available, especially the plural and singular forms and different syntaxes of the word (such as its noun, verb and adverb, etc.). When a ~ (tilde) precedes any word in the query form, the search for the stem of that word is performed. E.g. *~country* retrieves *country* and *countries*. Similarly, *~japan* finds *Japan*, *Japan's* and *Japanese*.

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