Designer Workbench 1R1
Developer Training Guide
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About This Guide

Purpose

The Designer Workbench Developer Training Guide provides an introduction to the Designer Workbench, as well as training for the Forms Designer. Designer Workbench is an application designer's tool for creating, updating, and maintaining graphical interfaces to database applications.

The Forms Designer is the Designer Workbench component that allows you to create the graphical interfaces (or forms) for this environment.

General

For all users this guide is designed to do the following:

- Give a brief overview of the Designer Workbench software
- Show examples of Designer Workbench functions

MAPPER software

This guide is designed to do the following:

- Train a Designer Workbench developer to use the Forms Designer to create forms
- Train a Designer Workbench developer to create the associated MAPPER code to use the forms
- Walk the developer through the creation of a sample MAPPER application, complete with forms

LINC software

This guide is designed to train a Designer Workbench developer to use the Forms Designer to customize LINC Ispec forms.

Scope

This training guide introduces Designer Workbench, the associated MAPPER software functions you will need, and considerations for a LINC environment. Even though ALLY software is considered a component of Designer Workbench, it is not covered in this guide because ALLY software does not currently interact with the Forms Designer or Designer Workbench Repository.

Using what you learn here, you can begin to work with Designer Workbench right away. The uses of Designer Workbench are extremely varied, and this guide makes no attempt to outline all of them. Instead, it shows you how to create a single example application, from start to finish.

Audience

This guide is for MAPPER software or LINC software system users at any level who want to acquaint themselves with Designer Workbench and its Forms Designer.

Prerequisites

This guide assumes that MAPPER or LINC software, Designer Workbench software, and MS-Windows software is already installed and fully operational. It also assumes that you know how to use MAPPER software or LINC software, MS-Windows, and are familiar with terminology associated with this software. If you are unfamiliar with any of this software, refer to the appropriate documentation.

How to Use This Guide

This guide is designed for both MAPPER software and LINC software users, although the capabilities of Designer Workbench vary depending upon which 4GL you are using.

MAPPER software developer

If you are a MAPPER software developer, you can use this guide as a general introduction to Designer Workbench. Read the reference sections (1, 2, and 4) which discuss how MAPPER software and Designer Workbench interact, and how to use the Forms Designer.

You can also use this guide as a step-by-step tutorial to create a sample MAPPER software application and its forms with the Forms Designer. To create the sample application you must perform the following tasks:

1. Create a MAPPER run (Section 3)
2. Create the associated MAPPER reports (Section 3)
3. Create the necessary forms using the Forms Designer (Section 5)
4. Upload the forms to host (Sections 2 and 6)

LINC software developer

If you are a LINC software developer, read the reference sections (1, 2, and 4) which also discuss how LINC software and Designer Workbench interact, and how to use Designer Workbench Designer.

Then, use Section 7 to learn how to modify and test a LINC Ispec.

Conventions Used in this Guide

The following conventions are used in this guide.

Uppercase Letters

These items appear in uppercase letters:

- MAPPER function and run statement calls (for example, CHG)
- MAPPER runs (for example, NAME run)
- Reserved words (for example, DATE1$)

Italics

Optional names (such as filenames) in syntax and examples are indicated by *italics* as in the following example

To create a build file, enter a file name such as *myfile*, and press **Transmit**.

Boldface

Required system names (such as system filenames) in syntax and examples, as well as menu choices are indicated by **bold** as in the following example

To create a build file, enter the system file name **systemfile**, and press transmit.

The delta character (Δ) indicates a required space in the format of a command. This character is used where the spaces in the format are not shown clearly.

Organization

This guide contains seven sections and three appendixes:

Section 1. Introducing the Designer Workbench

An overview and introduction of the purpose, components, and capabilities of the Designer Workbench. This section describes how the software and hardware for Designer Workbench work together to allow users to easily create graphical interfaces to their fourth generation language (4GL) applications using the Forms Designer.

Section 2. How MAPPER software and Designer Workbench Work Together

This section is an overview of MAPPER software applications and their interaction with Designer Workbench forms. It describes the relationship between objects, forms, and data in MAPPER reports. It also describes the MAPPER statements (WSF and PCR) that you use to display and upload forms and images.

Section 3. Using the Forms Designer

This section shows you how to use the Designer tools to create and edit forms.

Section 4. Creating the Sample MAPPER Application

This section describes how you create a sample office supplies MAPPER software application, including the run code and the database information, to use with Designer Workbench forms.

Section 5. Creating the Sample MAPPER Application Forms

This section is a tutorial showing you how to use the Forms Designer tools to create the two forms (input and output) for the sample office supplies application.

Section 6. Testing the Sample MAPPER Application

This section describes how you upload, test, update, and retry Designer Workbench forms and runs you have created for the sample MAPPER software application.

Section 7. Modifying LINC Ispecs

This section describes how you use Designer Workbench to modify your LINC Ispecs, and how to test the results.

Appendix A. The Work Station Form (WSF) and PC Read (PCR) Statements

This appendix describes the two MAPPER statements that you use to display forms and upload data, WSF and PCR.

Appendix B. Special Considerations

This appendix summarizes items that you should consider when using Designer Workbench.

Appendix C. Error Messages

This appendix lists the error messages that you may see when using Designer Workbench and 4GL software. It also lists appropriate corrective action for each error situation.

Related Product Information

There are separate libraries for Designer Workbench, MAPPER software, ALLY software, and LINC software, as well as associated online help. Because this guide assumes that you are familiar with your particular 4GL, the following table shows only the information sources specific to Designer Workbench.

What you Want to Do	Where you Should Look
See a video introduction to Designer Workbench	Designer Workbench: Bring 4GL Power to Your PC (7831 9837-000)
Use Designer Workbecnh in a demonstration	Introduction to Designer Workbench (7831 9829-000)
Get an overview of Designer Workbench	Designer Workbecnh Capabilities Overview (7831 9764-000)
Install and administer Designer Workbench	Designer Workbecnh Installation and Administration Guide (7831 9753-000)
Learn how to use the Designer Wprkbench Forms Designer	Designer Workbecnh Developer Training Guide (7831 9738-000)
Use Designer Workbench as an end user	Designer Workbench Operations Guide (7831 9779-000)

Section 1
Introducing Designer Workbench and the Forms Designer

This section introduces you to the Designer Workbench in general, and specifically to the concept of using the Forms Designer to create, update, and modify graphical user interfaces to your fourth generation language (4GL) applications.

What's covered in this section

The following topics are covered in this section:

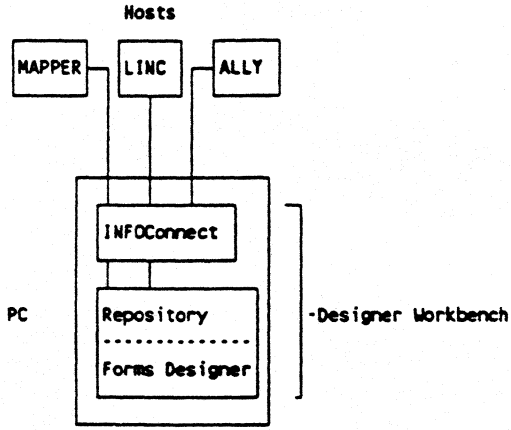
- Overview of Designer Workbench
- Overview of the Forms Designer
- Using the Forms Designer with MAPPER software
- Using the Forms Designer with LINC software

Overview of DW

Designer Workbench is a number of interrelated software and hardware components that allow you to implement and control the process of creating graphical interfaces to database applications written for MAPPER or LINC.

Designer Workbench component diagram

The following diagram shows a sample Designer Workbench system and its major components.



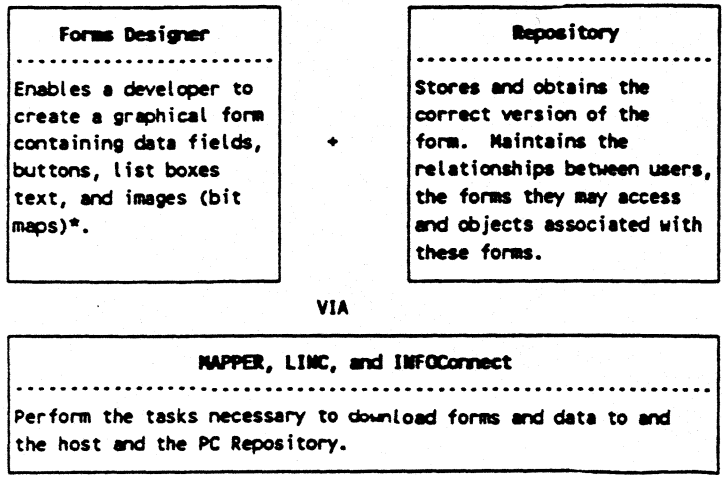
Designer Workbench component table

The following table lists the major Designer Workbench software and hardware components and briefly describes them.

Component	Description
ALLY	A 4GL that allows users to easily create applications for different database types.
Forms Designer	The Designer Workbench component that a developer uses to create and update forms.
Host	A variety of mainframes or midframes that support Designer Workbench and have a 4GL.
INFOConnect	The Designer Workbench component that performs the data communications to allow the PC to access multiple hosts.
LINC	A 4GL that allows the developer to develop systems for transaction environments.
MAPPER	A 4GL that allows the developer to create database applications.
PC	Any IBM-compatible PC using DOS level 3.3 (or higher) and Microsoft Windows level 3.0.
Repository	The Designer Workbench component that the administrator uses to configure and modify the system. The Repository controls script, form, and file management and control.

Relationship of Designer Workbench components

The following Designer Workbench components work together to allow you to create graphic forms that are used by a host database application.



*You cannot create buttons, menus, or list boxes for LINC Ispec forms.

Designer Workbench users

There are four types of Designer Workbench users, each (including the administrator) are defined and established by the Designer Workbench administrator:

- The *administrator* establishes, maintains, and controls the system, as well as defining other users and specifying their attributes.
- The *developer* creates, tests, implements, and updates forms using the Designer Workbench Forms Designer.
- The *user* runs applications using forms created by a developer, but cannot use the Forms Designer.
- The *visitor* views the contents of the Designer Workbench Repository, but cannot make changes, run applications, or use the Forms Designer.

Designer Workbench user privileges table

Each type of Designer Workbench user has a distinct set of privileges. The following table lists the Repository privileges and the types of users that have each privilege.

Privilege	Which User Class?
Change own password	All
View Repository contents	All
Use forms	Administrator, developer, user
Use applications	Administrator, developer, user
Create forms	Administrator, developer
Modify forms	Administrator, developer
Test applications	Administrator, developer
Create users	Administrator
Modify users	Administrator
Delete users	Administrator
Change user passwords	Administrator
Create or modify user scripts	Administrator
Create or modify user script access	Administrator
Create partitions	Administrator
Move forms	Administrator
Delete forms	Administrator

Overview of the Forms Designer

The Forms Designer is an application developer's tool for creating, updating, and maintaining graphical user interfaces (GUI) to your fourth generation language (4GL) applications.

You may also use the Forms Designer to improve the appearance and functionality of an existing MAPPER form or LINC Ispec form.

MAPPER software

With MAPPER software you can create online forms containing:

- Buttons

  You now have the capability to create button groups within a form that a user can click on to perform various actions.

- List Boxes

  You can create graphical boxes that list multiple options for the user to choose from.

- Fields

  You can create input fields for users to enter data, or output fields to display information (such as error messages). You can specify some characteristics of these fields, including whether they are password fields, or hidden from view.

- Images

  You can use graphical images (bitmap or PCX format) within your forms to enhance their look and feel.

- Text

  You can create text in a variety of colors, sizes, and fonts to describe your forms.

LINC software

With LINC software you use the Forms Designer to customize and improve the appearance of a LINC Ispec form.

You can do the following with the Forms Designer and LINC Ispec forms:

- Move fields
- Add bitmap objects
- Add color
- Use a variety of fonts and font sizes for text

You cannot do the following with the Forms Designer and LINC Ispec forms:

- Add list boxes, fields, or buttons
- Change list boxes, fields, or buttons

Caution

You are only allowed to make cosmetic changes to a LINC Ispec form (you can change the way it looks). If you make any functional changes (change the way it works), you can cause the Ispec to be useless at run time. Also, if you move objects out of the windows boundary using the Forms Designer, they will not be accessible by end users or the host. In other words, they are no longer active parts of the form.

Using the Forms Designer with MAPPER Software

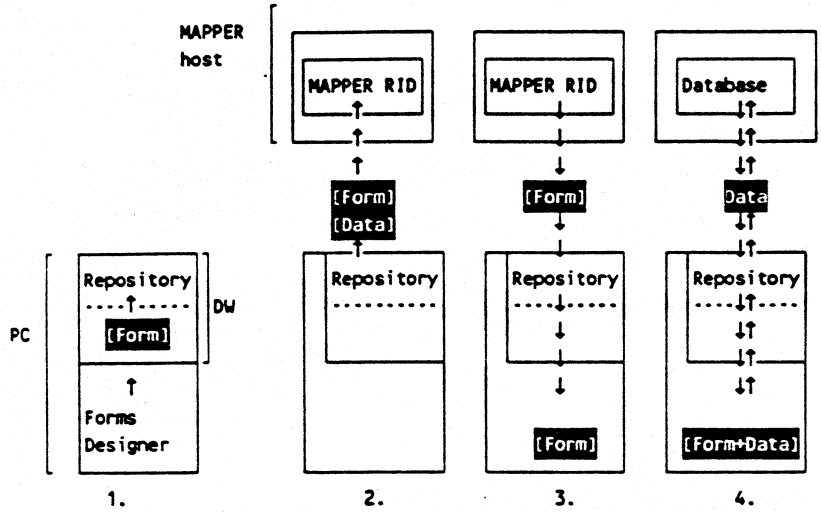
The process of using the Forms Designer with MAPPER software has many steps and the order you follow is not necessarily important. For consistency with this guide, use the order listed below:

1. Plan the application and corresponding form (or forms) for users to use.
2. Create the application on the host that will use a Designer Workbench form. This application must include the correct commands to accept the data fields from the form (see Section 2).
3. Use the Designer Workbench Forms Designer to create a form to match the specifications of your application (see Section 3).
4. Upload and test the form using Designer Workbench to access the application database, make corrections by editing the form if necessary, and repeat the process until the form is correct (see Section 4).

The diagram on the following pages highlights steps 3 and 4 of this process.

Designer Workbench forms development process diagram for MAPPER software

The following diagram outlines the process of creating and using Designer Workbench forms:



1. *Developer* creates form using Designer Workbench Forms Designer, which is stored in Repository.

2. *Developer* uploads form and data to MAPPER host report using PC Read (PCR) command.

3. *User* runs application which accesses form and downloads it from host RID if this is first time form is used. After first time, form is called from Repository (unless host form is updated).

4. Information for form is filled in from host database, depending on what the end user specifies.

Using the Forms Designer with LINC Software

To modify a LINC Ispec form using the Forms Desinger, do the following:

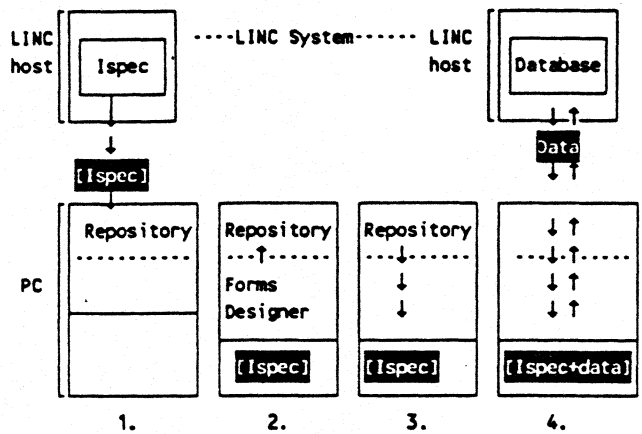
1. Define the connection to the LINC system using Designer Workbench.
2. Download the Ispec form to the Designer Workbench Repository.
3. Use the Forms Designer to customize the Ispec form (see Section 5). You can make cosmetic changes, but you cannot change any actual data values, add or delete objects.
4. Save the modified Ispec form in the Designer Workbench Repository.

The Ispecs are changed until the Ispec form is changed on the LINC host and the system is regenerated.

The diagram on the following pages highlights steps 2-4 of this process.

Ispec forms modification diagram

The following diagram shows the process of modifying Ispec forms with Designer Workbench.



1. *Developer* downloads LINC Ispec form into the Repository.

2. *Developer* customizes Ispec form using Designer Workbench Forms Designer and saves it under the same name in the Repository.

3. *User* calls the modified Ispec form using Designer Workbench and the LINC application program interface (API).

4. *User* uses Ispec form to access host LINC system.

Section 2
How MAPPER Software and Designer Workbench Work Together

This section overviews MAPPER software applications and their interaction with Designer Workbench forms. It describes the relationship between objects, forms, and data in MAPPER reports.

What is covered in this section

The following topics are covered in this section:

- An overview of MAPPER software and Designer Workbench
- How MAPPER software and Designer Workbench interact

Overview of MAPPER Software and Designer Workbench

Using Designer Workbench and MAPPER software, you can transfer data between MAPPER databases, the Designer Workbench Repository, and your PC.

To facilitate this transfer of data you must create a MAPPER application, consisting of a MAPPER run, a MAPPER report; Designer Workbench forms you create using the Forms Designer; bitmap images; and data.

This section describes MAPPER applications and Designer Workbench forms.

MAPPER Application Components

There are numerous application components. The following are the components you need for the MAPPER application used in this guide:

- MAPPER run

  Contains the logic (or program code) that MAPPER software uses to perform whatever tasks are necessary for the application.

- MAPPER report

  A report is a collection of data (either binary or ASCII) that can be displayed to the user.

Designer Workbench Forms

A form is a graphical interface (or window) to a MAPPER application. The form consists of objects, some of which contain a data order and a status value that describes the state of the object when it is displayed (such as hidden or disabled).

Types of objects

The following are the different types of objects that you can create or use with the Forms Designer:

- Field

  A field can be either an input or output area. If it is an input area, the data is passed to MAPPER software to be acted upon. If it is an output field, MAPPER software passes data back to the field. For instance, a user might supply a name and address in an input field. If the user makes a mistake, an output field might respond with an error message.

  You can specify other characteristics for these fields, including whether they are password fields, or hidden from view.

- List box

  A list box is associated with data contained in a MAPPER report. When a user clicks on the list box, data from the report is displayed in the list box.

- Button

  You can create check boxes, command buttons, or option buttons. A button (or button group) is either active or inactive. When a user makes a button active, the application performs certain tasks that the run designer has specified.

- Image

  An image is a graphics file (such as a bitmap) that can be placed in a form for visual appeal or clarification.

Note: Because the Forms Designer does not associate a data order with an image, no host database actions can be associated with an image. That is, you cannot click on an image and cause an associated application action to occur.

In addition to these objects, you can also create menus for your forms.

Relationship between objects and data

The following table shows form objects and the type of data that they pass to or receive from the host application.

Object	Data Sent to the Host	Data Returned to the Form
Field	Data input to the field.	A response based on the data input.
List box	The name of the file containing the data to be displayed.	Contents of the data file.
Button	A numeric value indicating the state of the button or button group (such as which buttons are active). The state of a button is whether it is active; the state of a button group may be the combination of active buttons.	A developer-specified response to the button (or buttons) pressed.

Data order

Data order links the form objects to the MAPPER application. After a form is opened, the user chooses various options which results in the MAPPER software run logic interpreting status changes and data requests. The MAPPER software sends the appropriate data values to the form objects or displays a different form, depending on the logic of the run.

Within the form, objects are identified to the run by the data order. The default data order is the order in which the objects are created in the Forms Designer. For example, if you create a field followed by a button group, the field has data order 1 and the button group has data order 2.

You can use the Forms Designer to change the data order of an object. See Section 3 for specific instructions.

Status of objects

The status of an object is how it is displayed to the end user. Status can vary depending on the combination of events currently active. The following table indicates the status values you can specify for an object using the WSF statement (disucssed later in this section):

Value	Meaning
D	Disable the object (gray)
E	Enable the object (default)
H	Hide the object (invisible)
S	Show the object (default)

A field or list box has a single status value. A button group may have multiple values, depending on the button or combination of buttons selected.

How MAPPER Software and Designer Workbench Interact

In a windows environment, multiple copies of forms may overlay each other. The MAPPER run must identify the correct version of the requested form and track the active form in order to respond correctly to the user.

The Designer Workbench form is identified using version control and identification; the form is tracked by an integer handle.

This section explains how the Designer Workbench form is identified and tracked. This section also contains an overview of how you move and display forms using the MAPPER PC Read (PCR) and Work Station Form (WSF) run statements. See Appendix A for the syntax and specific examples of using these statements.

Tracking the Form

When a form is opened, a unique integer handle is created that identifies that particular occurrence of the form to the application. You specify a variable in your run logic to "capture" this integer. By referring to a particular handle, you can describe which instance of the form is or should be active when a user performs an action.

Version Control

For MAPPER software and the Repository to work together, two types of information must be associated with each object name.

- The version makes sure that the end user gets the correct version of the object, and is the responsibility of the application designer.
- The site identification is an extension of the object's name, added when the object is put into the Repository, that allows the MAPPER site to request its data. The MAPPER software handles site identification.

Version control is hard-coded in the WSF statement by the MAPPER run designer for all data (forms and images) associated with an object in the Repository (see the WSF statement).

Application-defined version control

Application-defined version control is when the run designer explicitly specifies a version to be used. Use this type of control to test or use a particular version of a form.

Null version control

Null control (or no control) tells the Designer Workbench to use any available version of the object. If there is no version of the object in the Repository, the host downloads its version. If the host does not have a copy, an error occurs. Use this type of control when frequently updating forms, or if the version of the form is not important.

Timestamp version control

Timestamp version control is for updated objects data. When an object is uploaded to the host, a timestamp is added to the name of the object. If the run design logic specifies timestamping, the host compares its version of the form against the version that exists in the PC's Repository. If the host version is newer, the host downloads it to the PC, overwriting the existing copy. Otherwise, the PC copy is used. Use this type of control to guarantee that an updated form is distributed to all users.

Site Identification

When MAPPER software accesses the Repository, it uses the name of the Repository partition that corresponds to the MAPPER site. The MAPPER software Application Program Interface (API) gets the partition name from the host at session initialization time and uses this information to determine the location of object data.

Displaying Forms with the Work Station Form (WSF) Statement

You use the WSF statement to display a form, and you use the PCR statement to upload a form and its associated data to the MAPPER host.

- You can use WSF to display, check, edit, and redisplay forms while they are still on your PC.
- You can use WSF to control the forms that are displayed at run time for the MAPPER application.

There are two versions of the WSF syntax. Version 1 is used for forms, data, and graphic images (bitmaps) stored on the host. Version 2 is for files stored anywhere, including the Repository. See Appendix A for the syntax and specific examples of using the WSF statement.

Uploading Forms with the PC Read (PCR) Statement

You use the PCR statement to read a file form your PC to the MAPPER host. For example, after you have displayed a form using the WSF statement, use the PCR statement to transfer the data (both forms, data files, and associated graphical images) from the PC to a MAPPER report. See Appendix A for the syntax and specific examples of using the PCR statement.

Section 3
Using the Forms Designer

This section shows you how to use the Form Designer tools to create parts of forms and edit them.

What's covered in this section

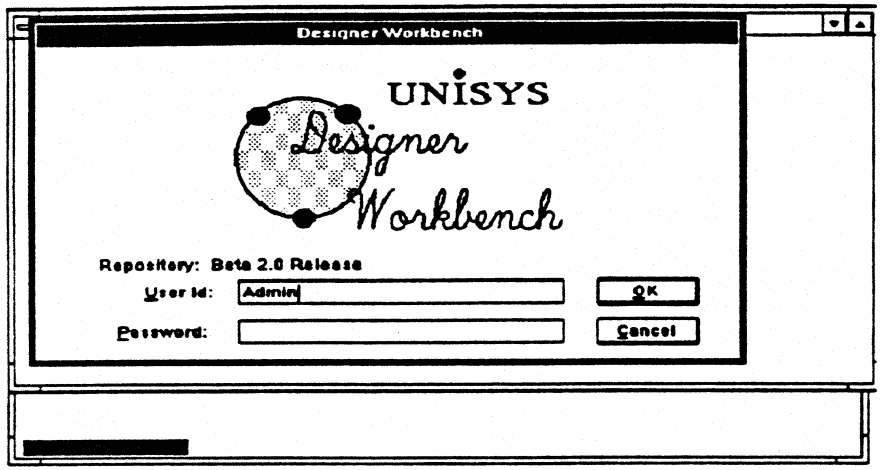
The following topics are covered in this section:

- Starting the Forms Designer
- Using the Forms Designer tool icons
  - Adding text to a form
  - Creating a field
  - Creating a button group
  - Adding an image
  - Creating a list box
- Editing a form
- Getting help

Starting the Forms Designer

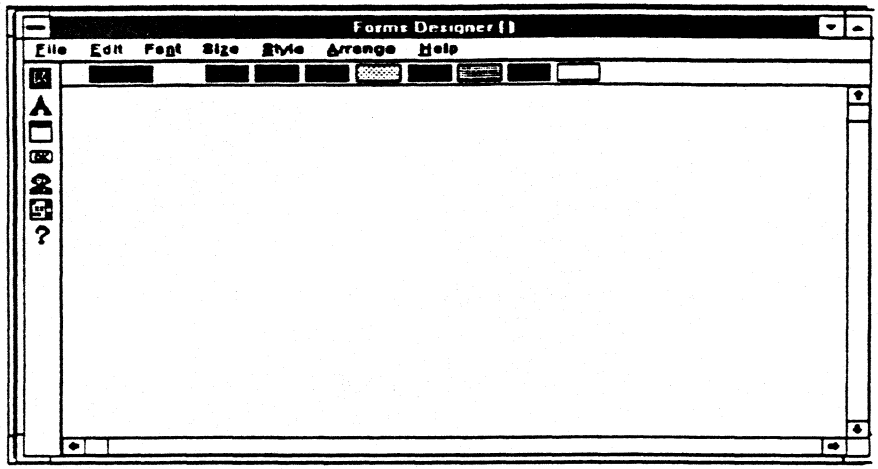
To start the Forms Designer, do the following:

1. Double-click on the Forms Designer icon in the Designer Workbench group window. The sign-on window appears.

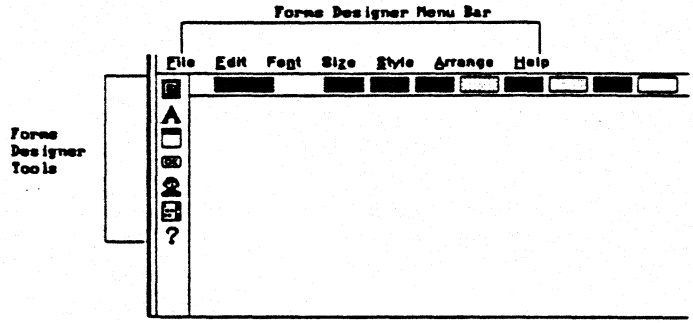


2. Enter your Designer Workbench user-id and password in the fields and choose OK.

The Forms Designer window appears.



The Forms Designer screen contains the Forms Designer tool icons (on the left side), and an edit menu bar across the top, as shown below. The next subsection describes the tool icons. For a description of the edit bar menu, refer to Editing a Form.



Using the Forms Designer Tool Icons

On the left side of the Forms Designer screen are the icons for the various Forms Designer tools. Each tool and its corresponding functions are listed below.

Icon	Name	Functions
	Pointer Tool	Select, size, move, and edit form objects
	Text Tool	Add new text or modify existing text
	Field Tool	Size and specify a field
	Button Tool	Create a button or button group
	Image Tool	Size and specify an image object
	List Tool	Size and specify a list box
	Help Tool	Use the cursor for context help

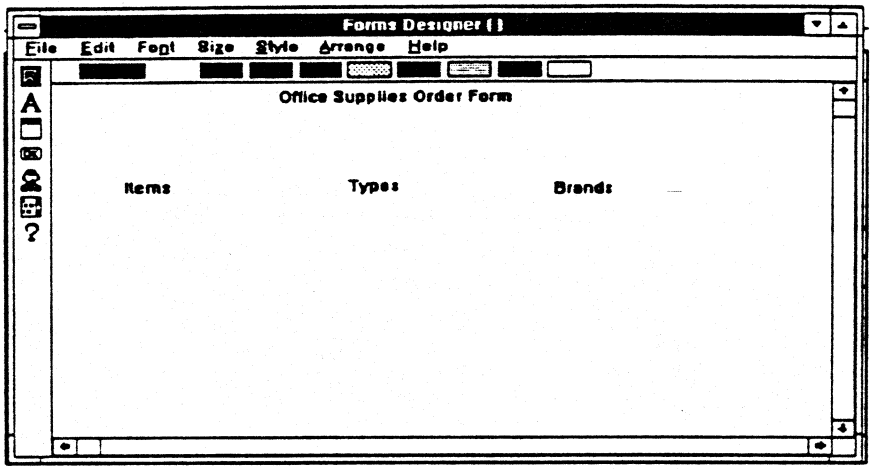
You use these tools to create the various objects that make up the sample forms: text, fields, buttons, images, and list boxes.

Adding Text to a Form

To add text to a form, do the following:

1. Click on the text icon to select the text tool.
2. Move the cursor to the correct spot, click the left mouse button, and type the text following the I-beam (text insert indicator). You can insert carriage returns at the end of a line and reposition the pointer for more text.
3. Repeat steps 1 and 2 for each text field that you want to create.

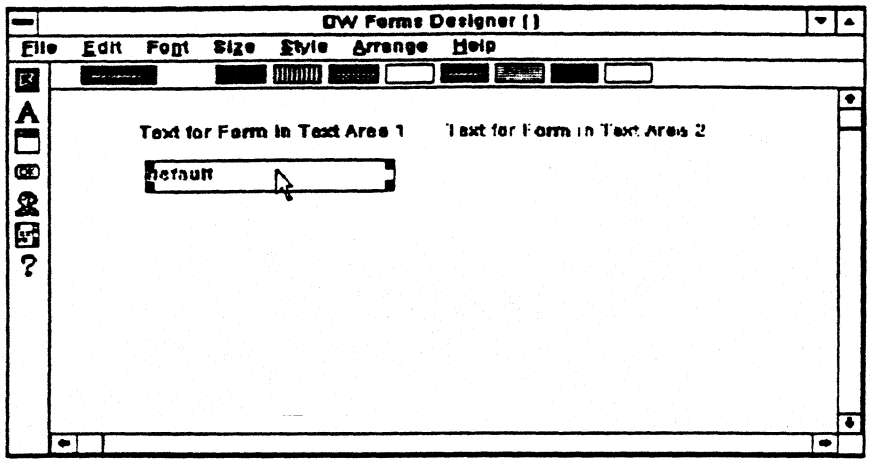
The following screen shows an example of this procedure.



Creating a Field

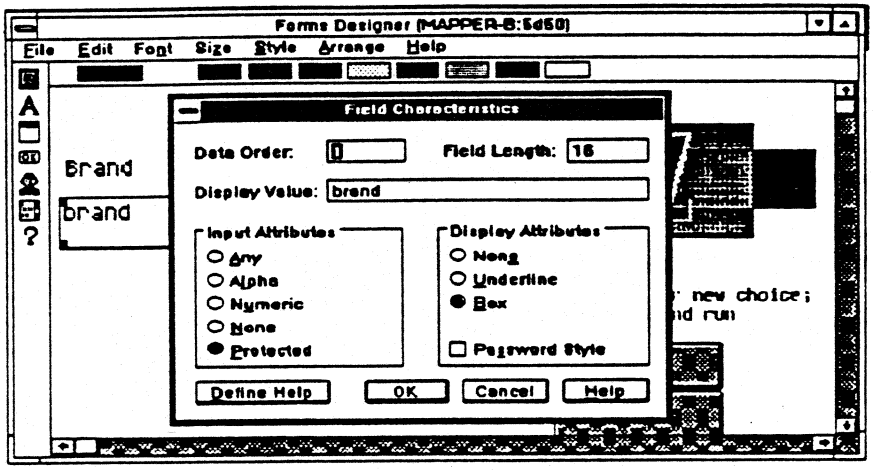
To create a field for a form, click on the field icon. You can set the the field's location and dimensions by clicking and dragging the mouse.

Note: This function is not available for LINC developers.



Specifying Field Characteristics

To specify the data characteristics for the field, double-click with the pointer tool inside the field boundaries. This brings up the following dialog box.



What the field characteristics mean

You may specify the following characteristics for any field:

Characteristic	Description	Values
Data Order	Order in which data is sent to and received from the host application.	1-1000
Field Length	Number of characters allowed in field.	1-256
Display Value	The field values displayed by default.	any (may be blank)
Input Attribute	One of the following (mutually exclusive):	
	• Any - allow any type of data	Any
	• Alpha - alphanumeric data only	A-Z (a-z), special characters
	• Numeric - numeric data only	0-9, +, -
	• None - a read-only data field that the user may move the cursor to	application supplied
	• Protected - a read-only data field that the use may not move the cursor to	any

(cont.)

What the field characteristics mean (cont.)

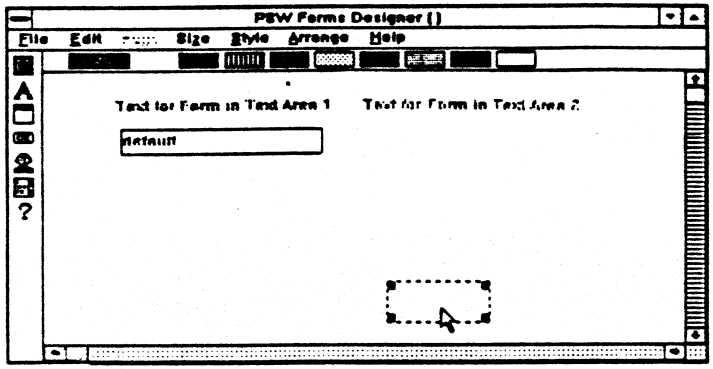
Characteristic	Description	Values
Display Attributes	One of the following: • None - no border for field • Underline - underline the field • Box - draw box around the field	 X (yes) blank (no) X (yes) blank (no) X (yes) blank (no)
Password style	An encrypted data field; user cannot see what is entered.	any
Define Help	Context sensitive help that you create by clicking on the button and entering text. The end user sees this help at run time by pressing the F1 key when the input focus is on this data object.	Any

After you have specified the characteristics for the field, click on OK.

Adding a Button Group

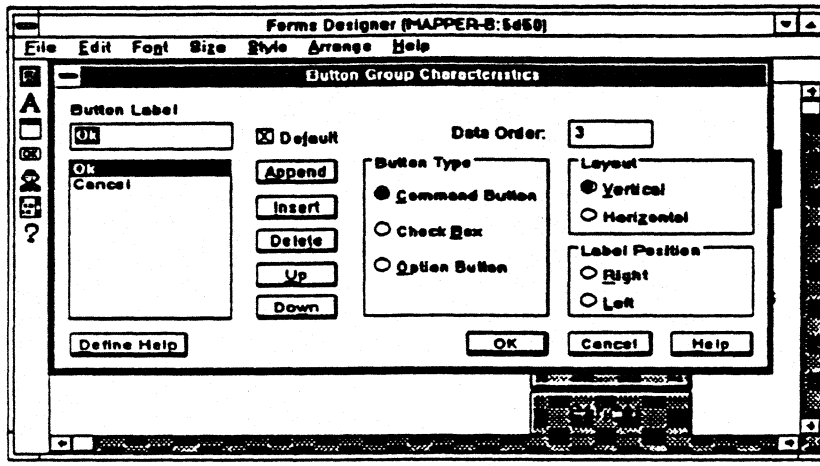
To add a button group field to a form, click on the button icon. You can set the button group's location and dimensions by clicking and dragging the mouse, as shown in the following screen.

Note: This function is not available for LINC developers.



Specifying Characteristics for a Button Group

To specify the characteristics of a button group, double-click with the pointer inside the button group area to bring up the following dialog box.



What the button group characteristics mean

You may specify the following characteristics for each button in the button group:

Characteristic	Description	Values
Button Label	Label of button as it appears in form You use the following buttons to position and edit you button labels.	Any
	Append - add label to end of list Insert - add label to pointer position on list Delete - delete label from list Up - move label up on position on list Down - move label down on position on list	
Data Order	The order the data is sent to and returned from the host application.	1-1000
Default	Specifies the default state of the button. For a command button, specifices whether the button is the default command button.	X - yes blank - no
Styles	Various attributes for the button group.	
Button Type*	The type of button for the group depending on what the button group will do	Command Check box Option
Layout	Alignment of buttons in group	vertical horizontal
Label Position	Position of label relative to button (only for check box and option button)	right left
Define help	Context sensitive help that you create by clicking on the button and entering text. The end user sees this help at run time by pressing the F1 key when the input focus is on this data object.	Any

Button goups

You can specify the following types of buttons when you create a button or button group:

- Check box

  A small square box with related text that appears in a dialog box. Check boxes represent choices that can be turned on or off.

- Command button

  A large rectangular button that appears in a window and carries out or cancels an action when chosen. For example, the Cancel button always cancels the command. The OK button carries out the command. Occasionally, the button that carries out the action has a label that describes the action — for example, Open.

- Option button

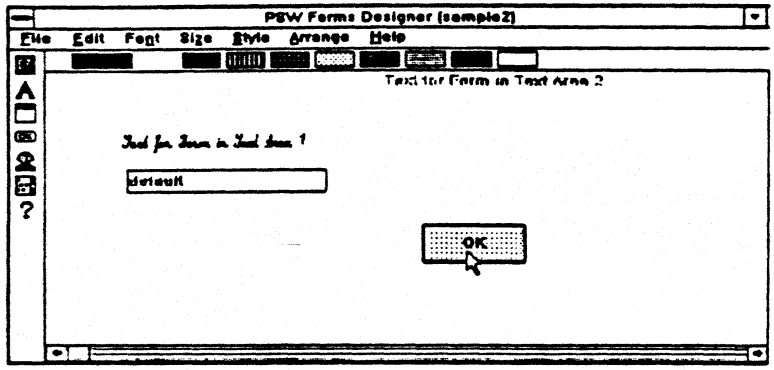
  A small round button that appears in a dialog box and selects an option when set. Within a group of related option buttons, you can select only one option at a time.

Using the button group dialog box

For instance, to specify an OK button, do the following:

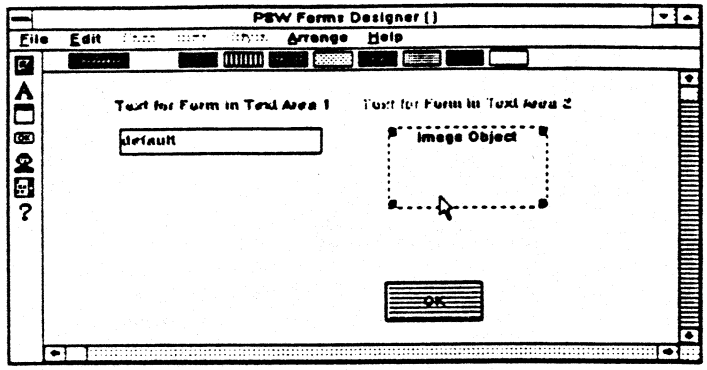
1. Type the label as OK and click on Insert.
2. Select the Command Button button type.
3. Click on the OK box at the bottom of the dialog box.

This result is shown in the following screen.



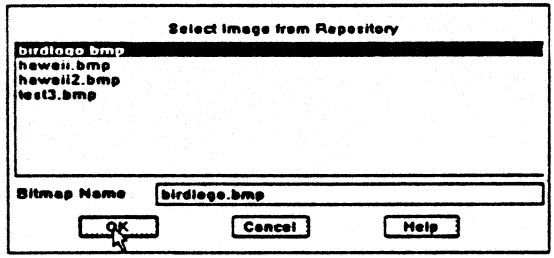
Adding an Image

To add an image to a form, double-click on the image tool. You can set the image area's location and dimensions by clicking and dragging the mouse, as shown in the following screen.

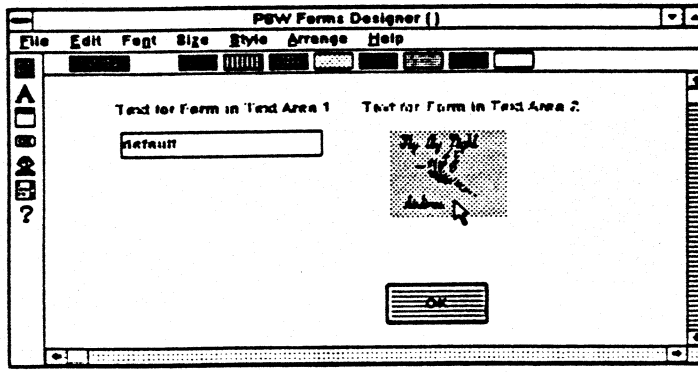


Specifying an Image File

To specify the source file for an image, double-click on the bitmap area to bring up the following dialog box, enter the name of the source file (the image file must already exist in the Repository), and click on OK. Refer to the *Designer Workbench Installation and Administration Guide* for the procedure of moving bitmaps in and out of the Repository.



The result looks like the following screen.

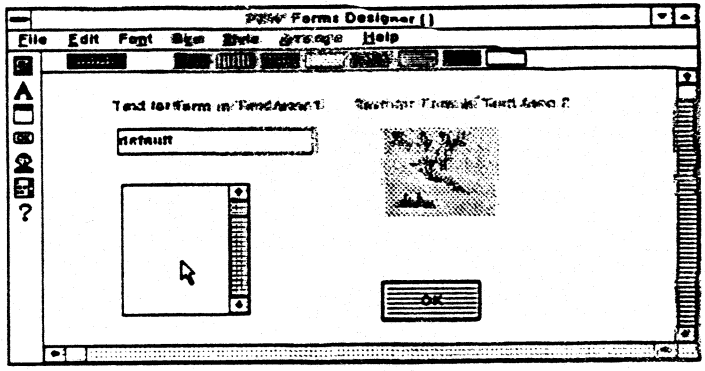


Note: The image is incorporated into the image area according to its size at creation time. So you must use the Windows Paintbrush (or a similar art package) to size the image before you store it in the Repository. Otherwise, you must resize it using the Forms Designer (see Editing a Form).

Creating a List Box

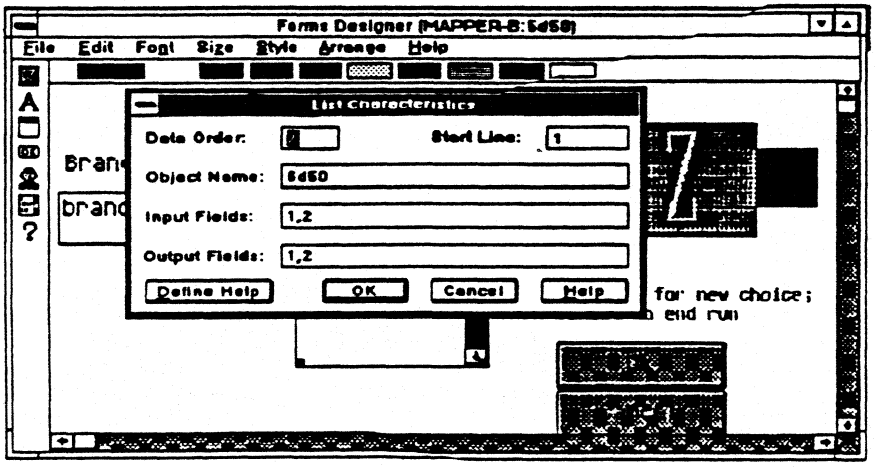
To create a list box, click on the list box icon to activate the list box tool. You can set the list box's location and dimensions by clicking and dragging the mouse, as shown in the following screen.

Note: This function is not available for LINC developers.



Specifying Characteristics for a List Box

To specify the characteristics for a list box, double-click with the pointer inside the list box image to bring up the following dialog box.

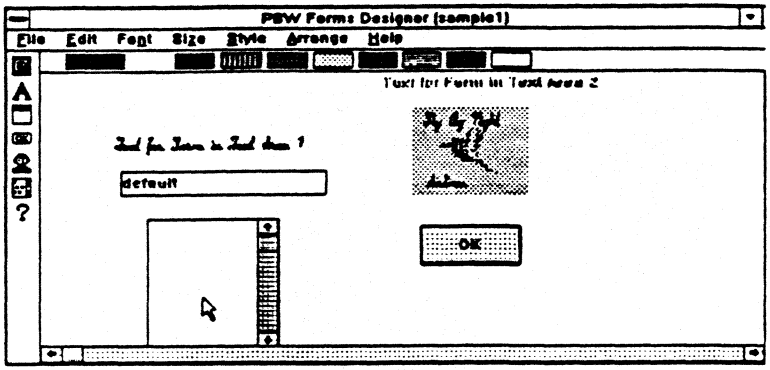


What the list box characteristics mean

You may specify the following characteristics for a list box:

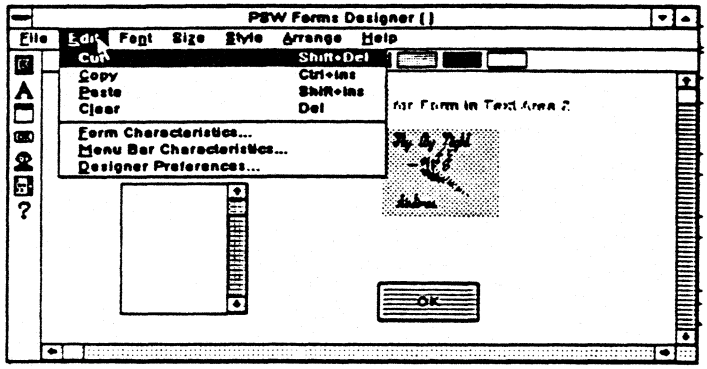
Characteristic	Description	Values
Data Order	The order the data is sent to and returned from the host application.	1-1000
Start Line	The first line from the MAPPER report that the list box should get data from. This number does not include the first two line of the report (they are reserved). So, line 1 in this dialog box refers to line 3 in the MAPPER report.	1-32767
Object Name	Report number where the list data exists on the host.	Any valid .dat object
Input Field	Fields sent to the application from the PC. Each field must be separated with a comma.	1-255
Output Field	Fields returned to the PC from the host. Each field must be separated with a comma.	1-255
Define help	Context sensitive help that you create by clicking on the button and entering text. The end user sees this help at run time by pressing the F1 key when the input focus is on this data object.	Any

After you have specified the characteristics for the field, click on OK and click again to make the list box handles invisible, as shown in the following screen.



Editing a Form

You can edit a form using the pointer tool, or the menu bar at the top of the Forms Designer (shown below).



Edit menu options

The edit menu offers the following options. The options that are specific to the Forms Designer are in bold.

Menu item	Options
File	**Save** or **Save As** **Page Setup** **Print** **About** **Quit**
Edit	**Cut** **Copy** **Paste** **Clear** **Form Characteristics** **Menu Bar Characteristics** **Designer Preferences**
Font	Font types
Size	Font sizes (varies)
Style	**Plain** **Bold** **Italic** **Underline** **Left** **Center** **Right**
Arrange	**T-squares** **Grid** **Move Forward** **Move Backward** **Bring to Front** **Bring to Back** **Color**
Help	Help text

Forms Designer-Specific Editing Options

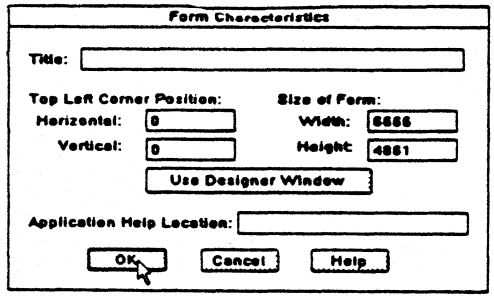
You can choose the following editing options for the Forms Designer:

- Form Characteristics
- Menu Bar Characteristics
- Designer Preferences
- T-Squares
- Grid
- Color

Form characteristics option

When you click on *Form Characteristics*, the following dialog box appears.

Note: This function is not available for LINC developers.



What you can specify

This dialog box can be used to specify the following form characteristics:

- The title of the form

  If you do not specify a title, this part of the form will be blank when the user sees it.

- The size of the form in logical inches (a logical inch is 1.4 inches)

  You can specify the horizontal and vertical locations of the top left corner of the form (the starting point), as well as the length and width of the form. If you select the specification, **Use Designer Window**, the form is the same size and location as the current Forms Designer window. You can move the Forms Designer window to whatever location you desire and size it accordingly.

Note: Although the Forms Designer contains elevator bars allowing you to move and create objects outside of the window area, these objects will not be visible when the form is displayed by the 4GL host. Therefore, you should not create forms that are larger than the window when it is maximized.

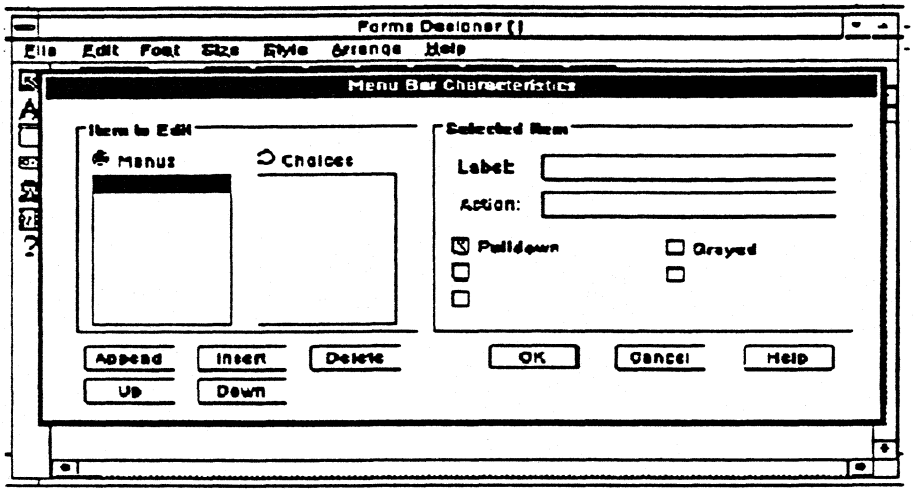
- The location of the application help file (if such a file exists)

  Here you can specify the path and filename for a help file associated with this form.

Menu bar characteristics option

When you click on Menu Bar Characteristics, the following dialog box appears.

Note: This function is not available for LINC developers.



What you can specify

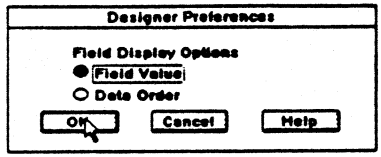
This menu allows you to specify the following characteristics for your form's menu bar. If you do not specify anything, the form will not have a menu bar.

- Name of menu on menu bar
- Associated options (choices) for each menu
- Label (name) for the menu item
- Action the application should perform
- Menu item characteristics

Forms Designer preferences option

When you click on Forms Designer Preferences, the following dialog box appears.

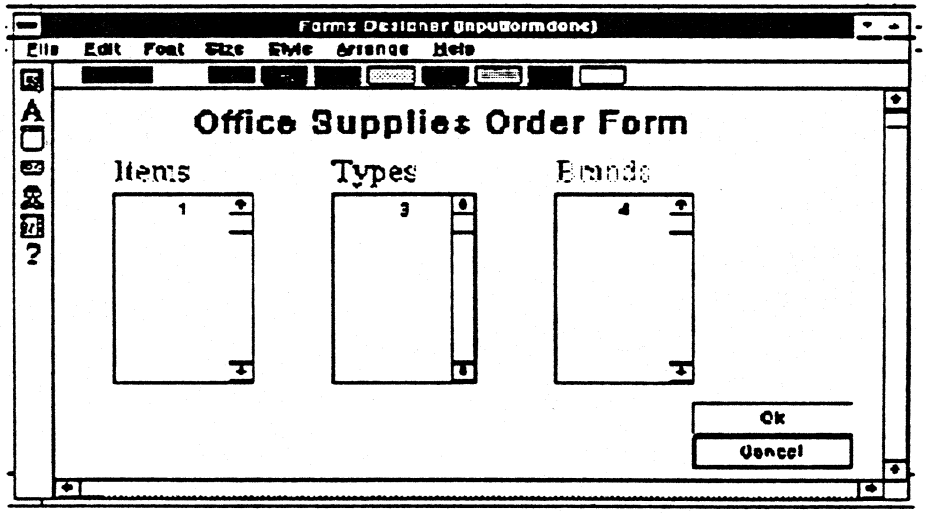
Note: This function is not available for LINC developers.



What you can specify

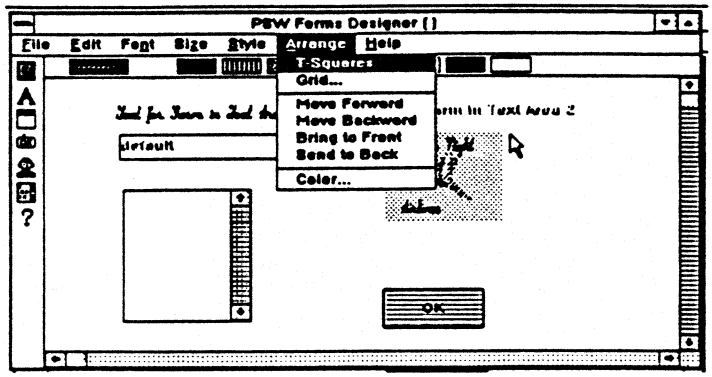
You can specify whether your at design time your form displays the data order number or the its design name. The following screen is an example of displaying the data order of the objects.

Note: Button groups do not display their data order.

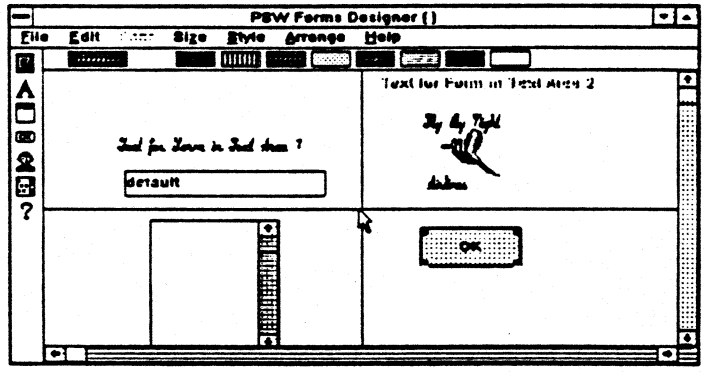


T-Squares option

To specify T-Squares, choose this item from the Arrange portion of the menu bar, as shown in the following screen.

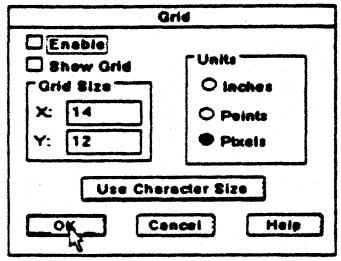


Selecting T-squares defines the screen in four-quadrants, as shown below. You can click and drag each T-square line to reposition it, and you can use the T-squares to align the various parts of your form. To remove T-squares, click on the option again.

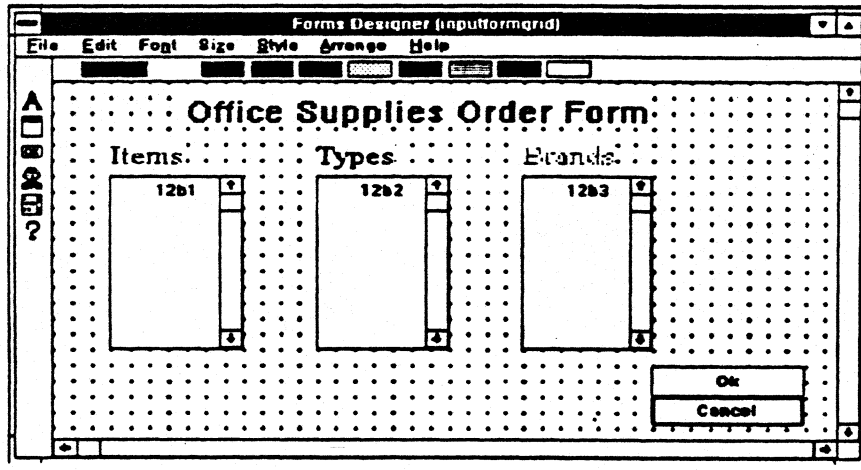


Grid

The Grid option from the Arrange menu allows you to specify the size of the grid in pixels. To use Grid, choose this item from the Arrange portion of the menu bar, which brings up the dialog box shown in the following screen. Then, specify the size of the grid and whether it is active. When the grid is active, objects (such as list boxes and button groups) will automatically align with the nearest grid point when you move them using the pointer tool.

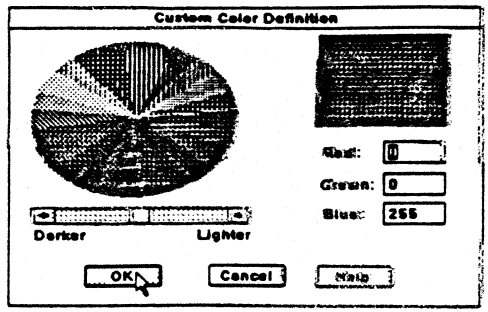


If you choose Enable and Show Grid and click on OK, the Grid is now displayed in the Forms Designer windows as shown below. You can use the grid to line up objects on the screen. Alternately, you can enable the grid without displaying it.



Color

The Color option from the Arrange menu allows you to customize your own colors, or specify the color mix that will be used for your forms. To use Color, choose this item from the Arrange portion of the menu bar, which brings up the dialog box shown in the following screen.



Other Menu Editing Options

In addition to the Forms Designer-specific options, you can choose the following editing options:

- Font

  Allows you to specify the font for text in the form. This includes all text created using the text tool, and text within an object (such as a button group or list box).

- Size

  Allows you to specify the size of the font for text in the form. This includes all text created using the text tool, and text within an object (such as a button group or list box).

- Style

  Allows you to specify the following attributes for text in the form. This includes all text created using the text tool, and text within an object (such as a button group or list box).

  - Plain
  - Bold
  - Italic
  - Underline
  - Left-justified
  - Center-justified
  - Right-justified

Using the Pointer Tool to Edit

You use the pointer tool to resize or move objects, or to make an object active in order to change specifications such as the color or size of the text that is displayed to the form developer (not at run time).

Moving a form object

To move an object in a form, do the following:

1. Double-click on the pointer tool icon to make the tool active.
2. Move the pointer to the object area that you want to resize.
3. Click and drag the mouse with the pointer inside the object area.
4. Release the mouse when the object is where you want it.

Resizing a form object

To resize an object in a form, do the following:

1. Double-click on the pointer tool icon to make the tool active.
2. Move the pointer to the object area that you want to resize.
3. Click the mouse on one of the corner rectangles in the object and drag it.
4. Release the mouse when the object is the size you want.

Getting Help

The Forms Designer help screens are accessed through MS-Windows help. If you are not familiar with this type of help, consult your MS-Windows documentation. There are two types of help you can use with the Forms Designer:

- Context help

  For context help, click on the help tool. This appends a question mark (?) to the mouse pointer. Until you remove help by clicking again on the help tool, anytime you place the pointer on a screen item and click, the related help screen is called.

Note: As long as the question mark is appended to the pointer, you are not able to use the Forms Designer functions, only the help related to these functions.

- General help

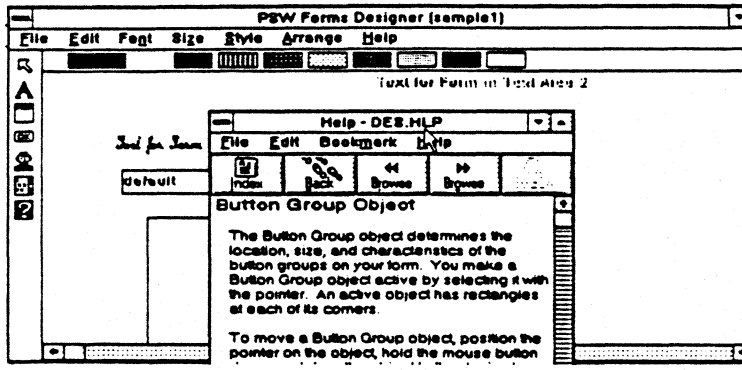
  For general help, click on help from the main edit menu. You can choose a specific topic from the menu, or you can use the Windows help index to explore a help topic. To quit this type of help, click on close from the help menu, or minimize the help screen.

Using context help

For example, to get help about a button group that you have created, do the following:

1. Click on the **Help** tool.
2. Move the help pointer to the button group.
3. Click on the button group.

This brings up the help dialog box for button groups as shown in the following screen.



Leaving context help

To leave the Windows help, do the following:

1. Close the Windows help screen.
2. Move the help pointer to the help icon.
3. Double-click on the help icon.

The question mark (?) is removed from the mouse pointer and you will no longer get help when you click on an item.

Section 4
Creating the Sample MAPPER Application

This section describes how to create a MAPPER run and reports for a sample office supplies inventory application. In Section 5 you learn how to create the corresponding forms for this application.

What is covered in this section

The following topics are covered in this section:

- Exercise 1: Creating the sample MAPPER run
- Exercise 2: Creating the sample MAPPER report

Exercise 1: Creating the Sample MAPPER Run

This section describes how you can create a MAPPER run and reports for a sample office supplies inventory application. Using this application, you can view the inventory of items from the office supplies database, or update the inventory by adding or removing items.

For the purpose of economy and simplicity, you will create only the portion of the sample application that allows an end user to view the database inventory for a particular office supply item (E-Z Write markers).

What you have to do

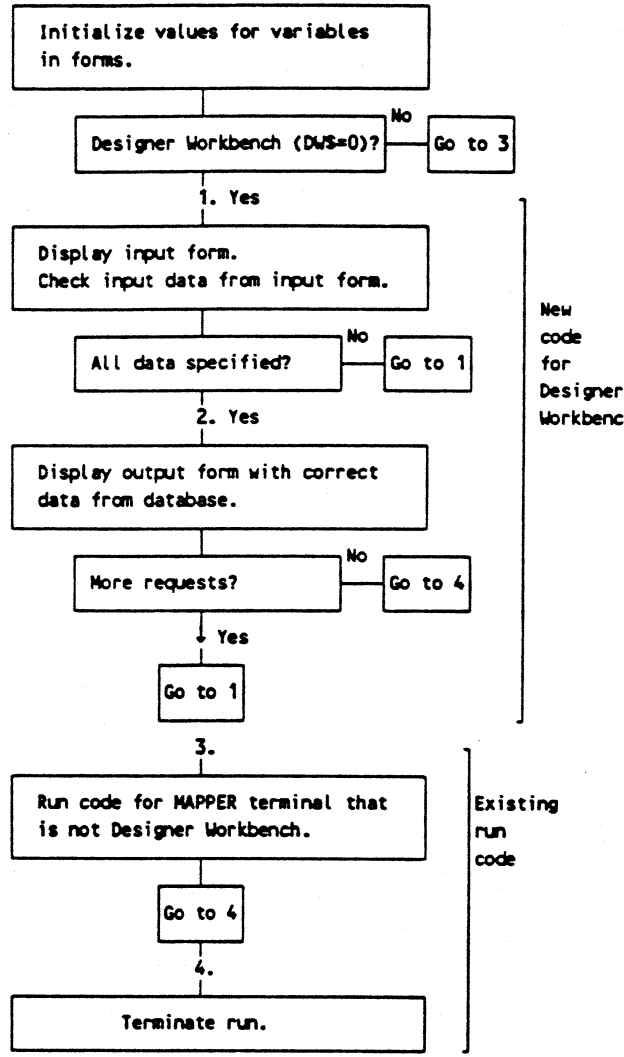
To create a run for the sample application, you must do the following;

1. Design the run, according to the logic you want the run to follow.
2. Register the run.
3. Code the run into a MAPPER report.

Design the run

The run used in this exercise is based on the logic from the following flowchart. Notice that this logic could be applied to an existing run that was coded for non-Designer Workbench terminals.

Run Design Flowchart

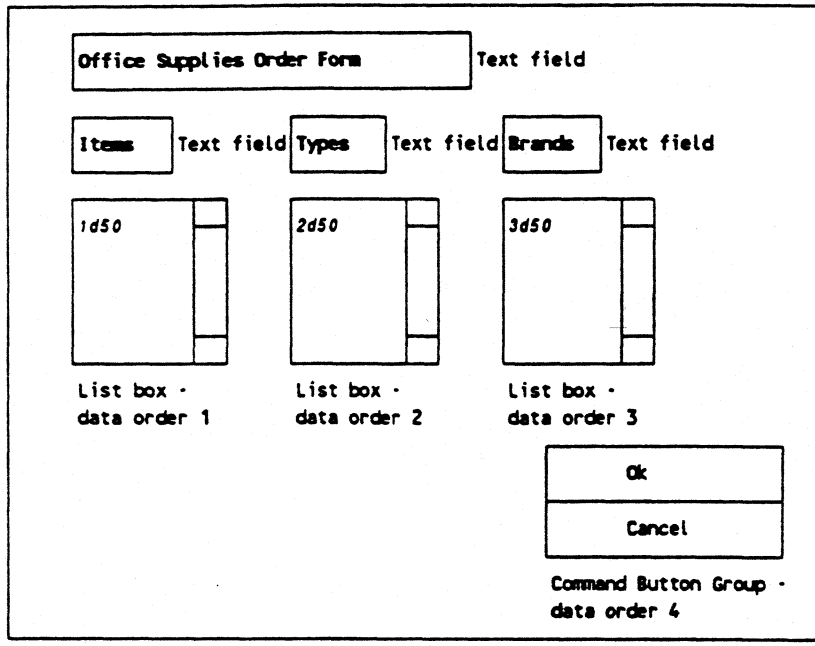


The run forms

The following figures show the relationship between the run code you will write, the forms, and what the end user sees when they use the application.

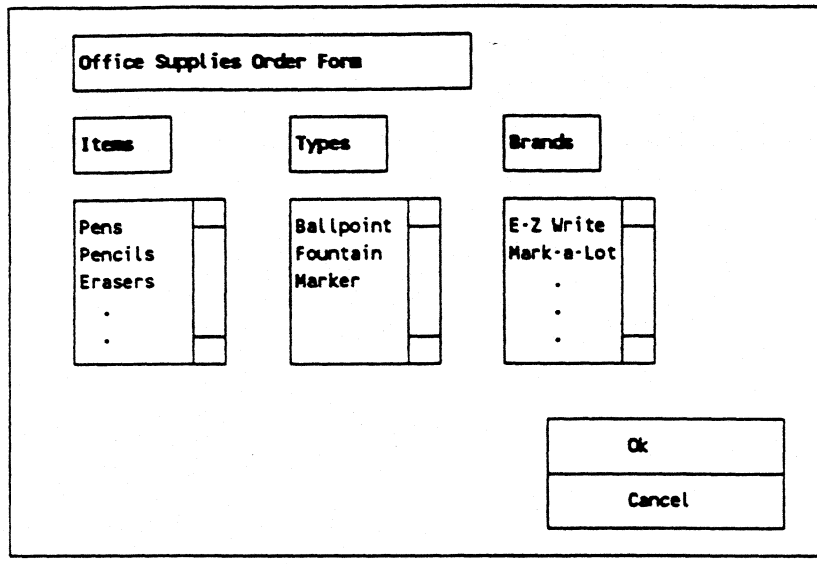
Input form specifications

This figure shows the specifications for the objects on the input form.



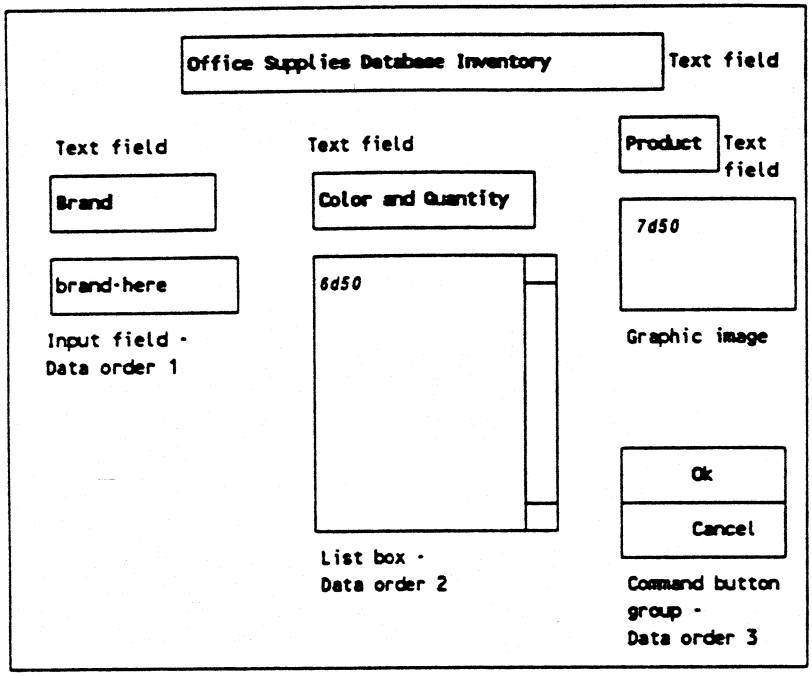
Input form at run time

This figure shows the input form as the user sees it after making their selections, but before clicking on Ok.



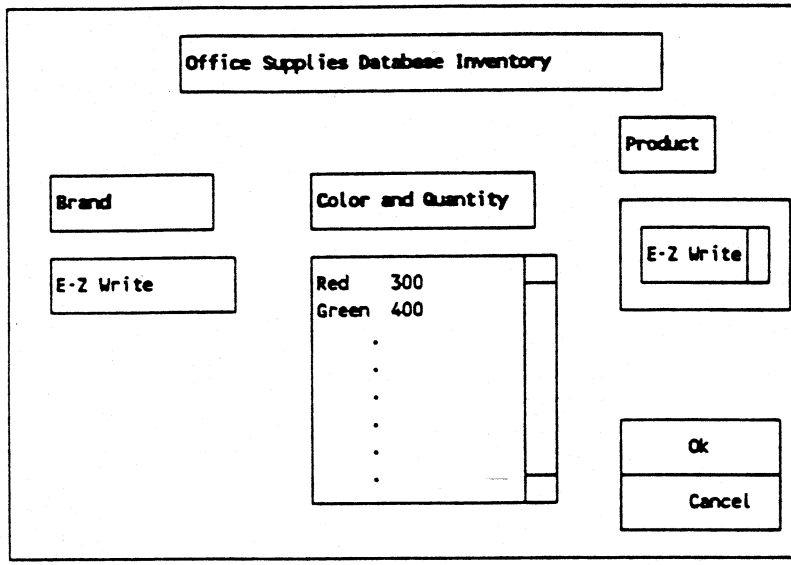
Output form specifications

This figure shows the specifications for the objects on the output form.



Output form at run time

This figure shows the output form as the user sees it.



You will need the data shown in the following table reserved on your MAPPER system.

Note: You may have to change the location of the data depending upon what is available at your MAPPER site.

Data	Report
Report run	2e50
Input form	4d50
Data file for item list box Data file for type list box Data file for brand list box	1d50 2d50 3d50
Output form	5d50
Data file for inventory list box Bitmap object of brand	6d50 7d50

Register the run

Have your MAPPER coordinator register your run control report and give you access to the report data space that you need.

Code the Run

The run code must be in a MAPPER run control report. To write the MAPPER run, sign on to the MAPPER system, go to the report area (2e in our example), and enter the following sample code:

Note: Asterisks (*) indicate a comment area. Code is boldface, comments are normal text.

```
a .*****************************
a . Display input form with office supply items active and choose one.
a . User chooses an item by double-clicking, or by single-clicking
a . and clicking on OK.
a .
a . Initially, 1st list box active, 2nd and 3rd hidden
a .
a . After 1st choice (item), 1st list box disabled, 2nd active, 3rd hidden
a .
a . After 2nd choice (type), 1st and 2nd list box disabled, 3rd active
a .
a . After 3rd choice (brand), output form is displayed with inventory
a . information about the brand, and a picture (bitmap) of it.
a .
a. bv (button values) are:
a.
a. 1 for OK
a. 2 for Cancel
a.
a . If user Cancels at first or last screen, run ends.
a . If user Cancels on any other screen, run returns
a . to previous screen.
a .
a .*****************************
a010 . Check for workstation
aif WS$ eq 0 gto 85 ; gto 15 . If Designer Workbench go to 15, go to 85
a .
a11 . Upload the data and the bitmap
apcr,50,d,1,n,y 'c:\mapper\1d50' .
apcr,50,d,2,n,y 'c:\mapper\2d50' .
apcr,50,d,3,n,y 'c:\mapper\3d50' .
apcr,50,d,6,n,y 'c:\mapper\6d50' .
apcr,50,d,7,y,y 'c:\windows\bmp\e-z3.bmp' .
agto 12 .
```

Sample run continued

```
a12 . Upload the forms
apcr,50,d,4,y,y '4d50.frm()' .
apcr,50,d,5,y,y '5d50.frm()' .
agto end .
a .
a015 .Start Designer Workbench run here
a usf,50,d,4,,1 '' v20i6 . Display the input form
a usf,,,,v20,,os e,h,h .
a usf,,,,v20,1,o 1d50.dat() .
a .
a020 .
a inp . Suspend run and wait for user input
a chg input$ <items>a16,,,v4i1 . Variables for data order and items
a .
a if v4 eq 2 gto 100 ; gto 25 . End at 100 if cancel, otherwise go to 25
a .
a025 .
aif <items> eq 'pens' gto 40 ; gto 20 . If pens 40, otherwise 20
a .
a040 .
a usf,,,,v20,,os d,e,h .
a usf,,,,v20,2,o 2d50.dat() .
a .
a050 .
a inp . Suspend run and wait for user to choose a type
a chg input$ ,<type>a16,,v4i1 . Variables for data order and type
a gto 53 .
a053 .
a if v4 eq 2 gto 15 ; gto 55 . Return to 15 if cancel, otherwise 55
a .
a055 .
aif <type> eq 'marker' gto 60 ; gto 50 . If marker 60, otherwise 50
a .
a060 .
a usf,,,,v20,,os d,d,e .
a usf,,,,v20,3,o 3d50.dat() .
a .
a065 .
a inp . Suspend run and wait for user to choose a brand
a chg input$ ,,<brand>a16,v4i1 . Variables for data order and brand
a if v4 eq 2 gto 40 ; gto 70 . Return to 40 if cancel, otherwise 70 to 70
```

Sample run continued

```
a .
a070 .
aif <brand> eq 'E-Z Mark' gto 75 ; gto 65 . If E-Z Mark 75, otherwise 65
a075 . Display output form
a wsf,50,d,5,,3 '' v21i6 .
a wsf,,,,v21,3,o <brand>,6d50.dat() .
a .
a080 .
a inp . Suspend run and wait for user to Ok or Cancel
a chg input$ ,,v3i1 .
a if v3 eq 2 gto 100 ; gto 60 . End at 100 if cancel, otherwise 60
a .
a gto 100 .
a .
a0100 .
a rel .
```

Exercise 2: Creating the Database

To create a database for the sample application, do the following;

1. Register the reports.
2. Enter the database text into a report or reports.

Entering the database

To enter the database text into a report, sign on to the MAPPER system and add a new report. Use the following sample reports for the application. This sample is not complete. If it were, entries would be filled in for all of the elements in the database (pens, pencils, paper clips). This application allows an end user to display the contents of the report.

Database Reports

The following are how the MAPPER reports will look that you create for the sample application. You use the PC Read (PCR) command to enter the data in the report. Afterwards, you must edit the 2nd line of the report to match the name in the run control report. Alos, remember to make each column the same width, and start and end each column with a tab mark.

```
.DATE 13 MAY 91 12:40:44 RID 50D1
.1d50
 Pencils
 Pens
 Erasers
 Markers
 Paper clips

.DATE 13 MAY 91 12:40:44 RID 50D2
.2d50
 Ballpoint
 Fountain
 Markers

.DATE 13 MAY 91 12:40:44 RID 50D3
.3d50
E-Z Write
Mark a lot
Clear-Vu
```

```
.DATE 13 MAY 91 12:40:44 RID 50D6
.6d50
black  100
blue   200
red    300
green  400
yellow 500
magenta 200
cyan   300
brown  400
gray   450
orange 500

.DATE 13 MAY 91 12:40:44 RID 50D7
.7d50
Bitmap of E-Z marker.
```

Section 5
Creating the Sample MAPPER Application Forms

This section shows you how to use the Forms Designer to create the two forms (input and output) for the sample office supplies application.

What's covered in this section

The following topics are covered in this section:

- Exercise 3: Creating the sample input form
- Exercise 4: Creating the sample output form

Exercise 3: Creating the Sample Input Form

During this exercise, you are creating the sample input form that matches the specifications of the sample MAPPER application that you created in Section 4.

Input form contents

The input form for the sample application contains the following items:

- Text

  The title of the form and labels for fields and boxes.

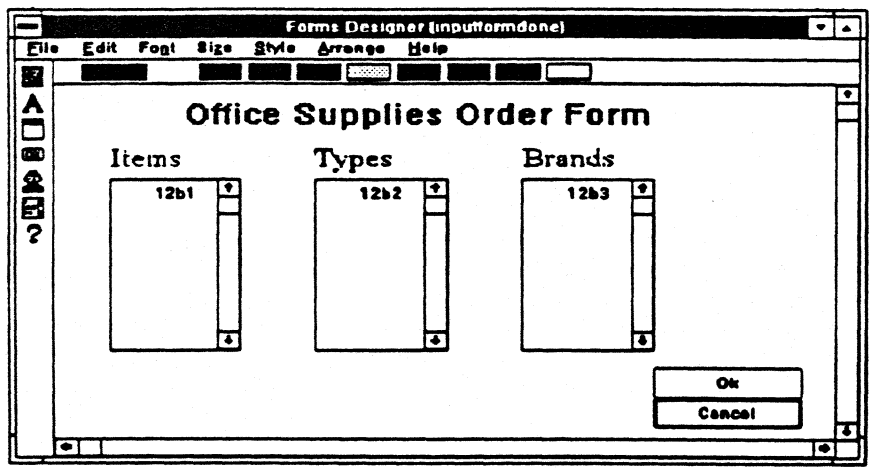
- Three list boxes

  One list box for office supply items (erasers, pens, and so on), one for types of items (such as marker pens, ballpoint pens, and so forth), and one for brands (such as E-Z Mark).

- A group of 2 command buttons

  The command buttons allow the user to display the inventory (OK), or to cancel the request.

Sample input form



Input form procedure

To create the input form, perform the following steps:

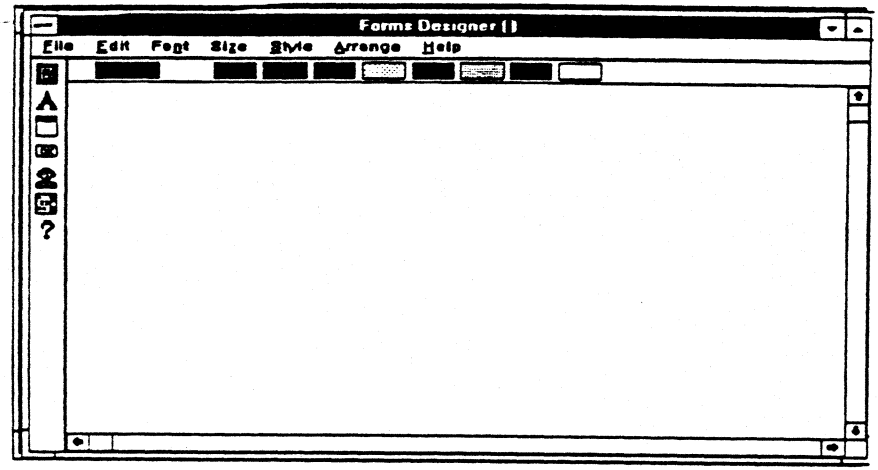
1. Start the Forms Designer.
2. Add text to the blank form.
3. Create the list boxes for the form.
4. Create the button group for the form.
5. Edit the form (if necessary).
6. Save the form in the Repository.

Starting the Forms Designer

To start the Forms Designer, double click on the Forms Designer icon.

The Forms Designer screen (shown below) should now be displayed.

Note: Before you start editing, you may want to enable the grid in order to accurately place objects and text.

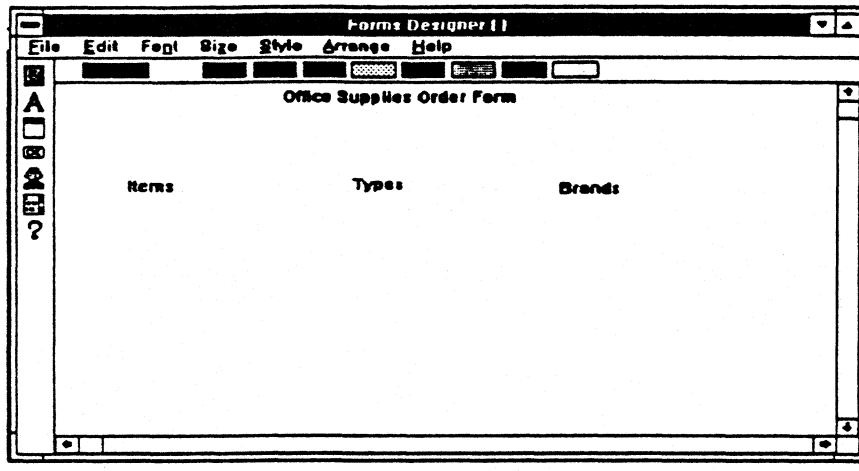


Entering Text for the Input Form

To enter text for the form, do the following:

1. Click on the text tool.
2. Move the pointer to where you want to enter the text and click.
3. Type **Office Supplies Order Form**.
4. Repeat steps 2 and 3 for each text field, typing **Items**, **Types**, and **Brands**.

The result should look like the following screen.



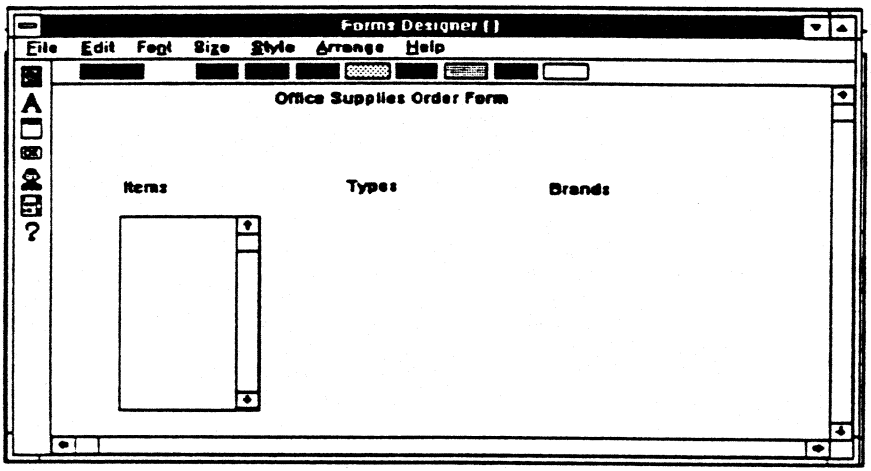
Creating the List Boxes for the Input Form

The input form has three list boxes: one to display office supply items, one to display types of items, and one to display brands.

To create the list boxes for the sample input form, do the following:

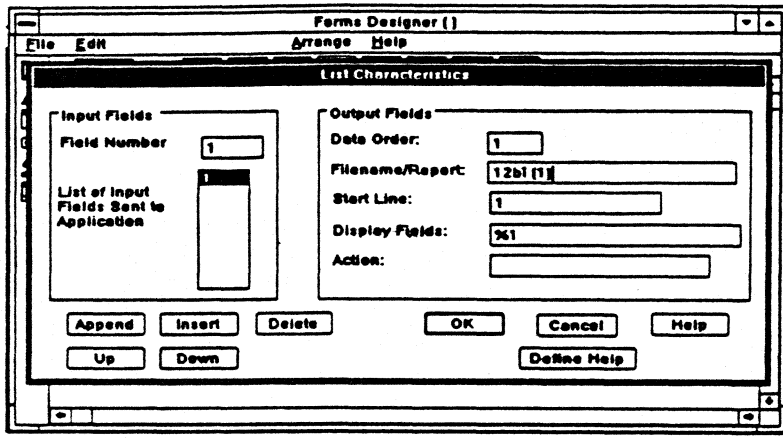
1. Click on the list box tool.
2. Move the pointer to where you want to start the list box.
3. Click and drag the mouse to correctly size the list box.
4. Release the the mouse button to finish.

The result should look like the following screen.



5. Double-click with the pointer inside the box area to display the list box dialog box.
6. Fill in the dialog box to match the one shown in the following screen.

   The filename/report is the MAPPER report in cabinet, drawer, report format. Each list box has a different report, corresponding to the report you specified in Section 3 when you created the reports for this application. Be sure to use the correct report identifiers.
7. Click on **OK**.
8. Repeat steps 2-7 to create a list box for Types and one for Brands.

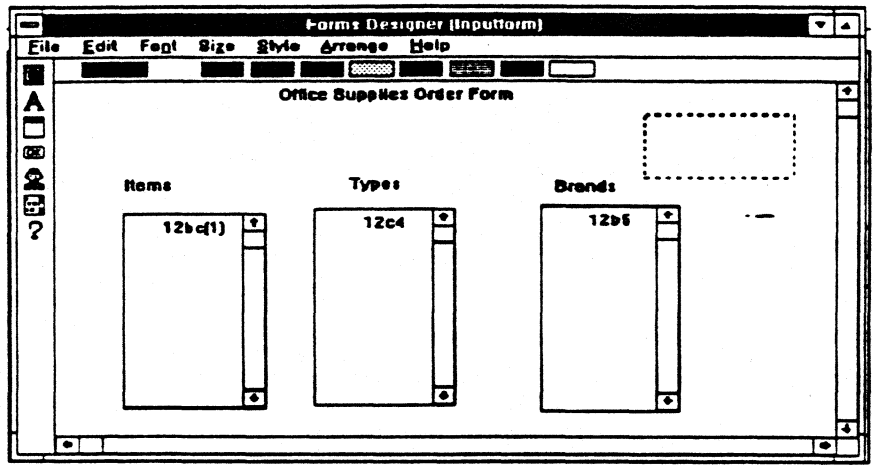


Creating the Button Group for the Input Form

To create the button group for the sample input form, do the following:

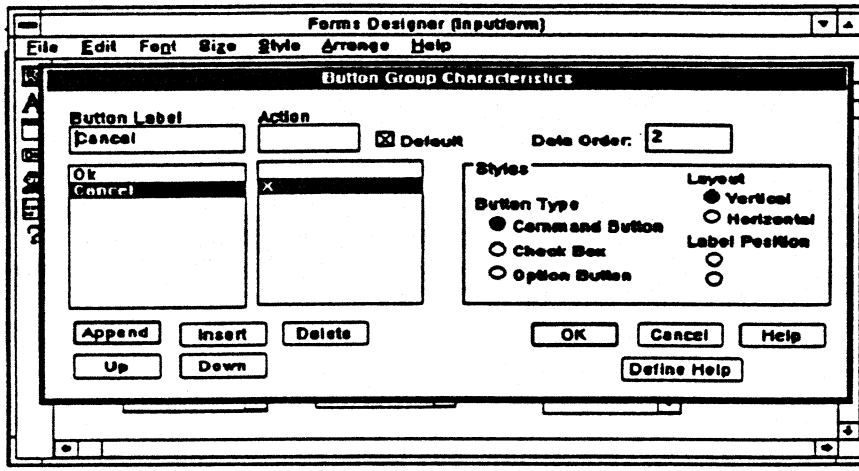
1. Click on the button tool.
2. Move the pointer to where you want to start the button group.
3. Click and drag the mouse to correctly size the button group.
4. Release the mouse to finish.

   The result should look like the following screen.



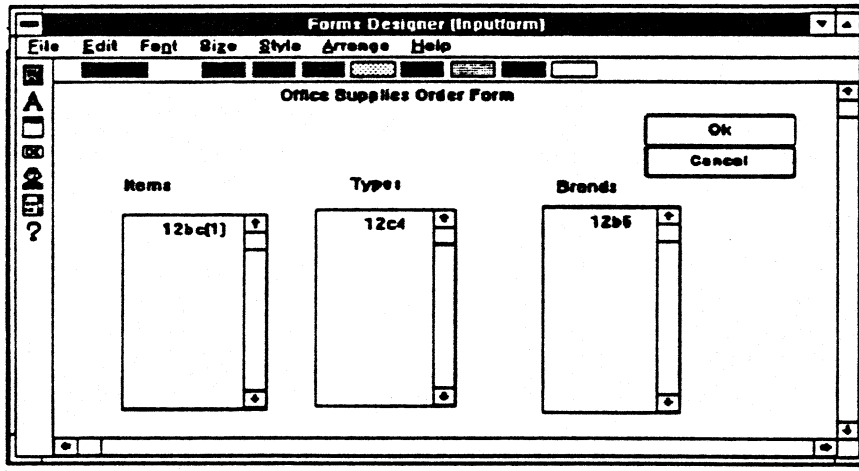
5. Double-click with the pointer inside the button area to display the button dialog box.

6. Fill in the dialog box to match the one in the following screen:



7. Click on OK.

   The result should look like the following screen.



Editing the Sample Input Form

If the form does not match the sample form, you can edit it using the pointer tool.

For example, in the input form you have created, the Ok-Cancel button group is in the upper right corner. Use the pointer tool to move the button group to the lower right corner and reposition the list boxes and text areas accordingly.

Turning the grid off

After you are finished, turn the grid off by doing the following:

1. Select the **Grid** option from the **Arrange** item on the menu bar.
2. Deselect **Enable Grid** and **Show Grid**.
3. Click on **Ok**.

Changing the text

You can also edit the form by changing the text of the form to a different font, size, and color.

Note: Remember that proportional fonts do not necessarily display at run time the same as they do on the PC. Also, if you use a font that another workstation does not have, the effects on the form are unpredictable.

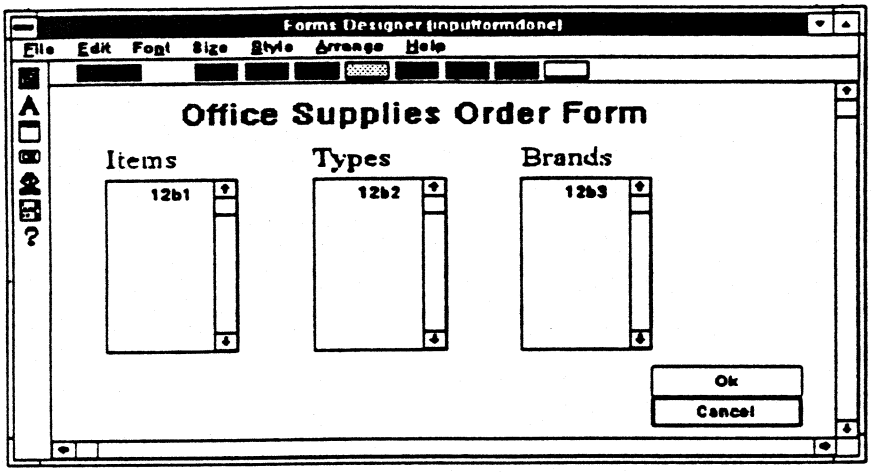
For our example, we will change the fonts to 21 point Times Roman, using different colors for each list box and the title. To do this, do the following for each text area:

1. Move the mouse pointer to the text area that you want to edit and click to make it active.
2. Choose **Fonts** from the **Edit** selection of the menu bar, and select Times Roman.
3. Choose **Size** from the **Edit** selection of the menu bar, and select 21.

   If the text becomes too large for the text area, You may have to resize the area using the pointer tool.
4. Select a color from the edit menu.

Final result

The result of editing the form should look like the following screen:

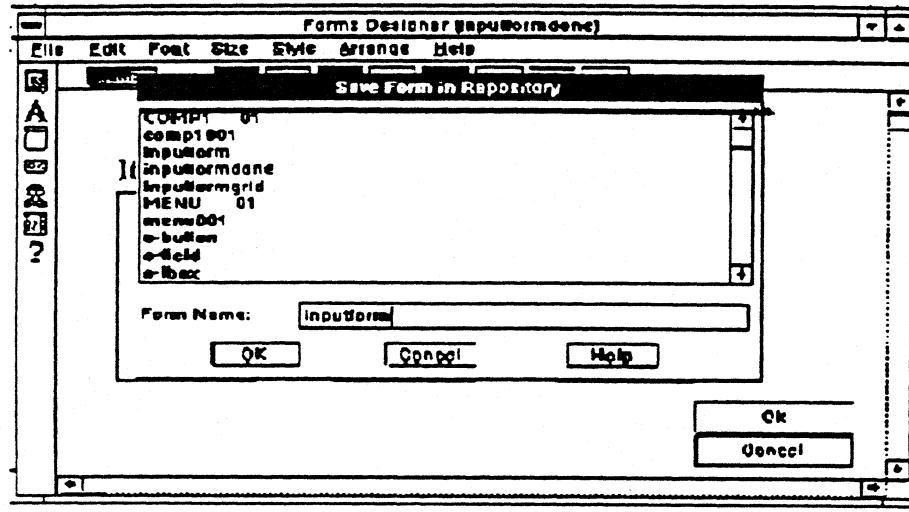


Saving the Sample Input Form

Now that you have created the input form, you want to save it in the Repository. To save the form, do the following:

1. Click on the **File** portion of the edit menu bar.
2. Choose **Save** to bring up the Repository Save File dialog box (shown in the following screen).
3. Use the filename, inputform, and save the file by clicking on **OK**. If you choose a name that already exists, the Repository asks whether you want to overwrite the file.

Repository save file dialog box



Exercise 4: Creating the Sample Output Form

During this exercise, you are creating the sample output form that matches the specifications of the sample MAPPER application that you created in Section 2.

Output form contents

The output form for the sample application contains the following items:

- Sample text

  The text includes the title of the form and labels for the various output areas.

- One field

  The brand that the user selects is listed in this field.

- A list box

  The list box contains all the items from the inventory by color and quantity that match the user's specifications.

- A group of two command buttons

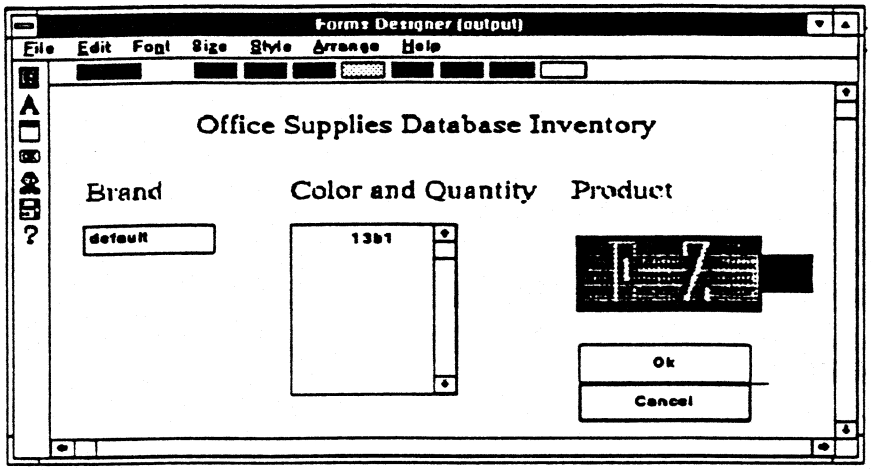
  These buttons allow the user to continue (OK) with a new item (from the input form), or cancel the request (quit the application entirely).

- An image

  The image displays a picture of the product chosen.

  Note: You must create image files (bitmaps) using a graphics package such as MS-Windows Paintbrush, or obtain them from someone else. You import bitmaps into Designer Workbench using the Import function of the Designer Workbench Repository. For information on the Import function, refer to the Designer Workbench Installation and Administration Guide, or contact your Designer Workbench administrator.

Sample output form



Output form procedure overview

To create the output form, perform the following steps:

1. Add text to the blank form.
2. Create the **Brand** field for the form.
3. Create the list box to display inventory for the form.
4. Create the button group for the form.
5. Add the image area to the form.
6. Specify the image file (bitmap).
7. Save the form in the Repository.

Note: Before you start editing, you may want to enable the grid in order to accurately place objects and text.

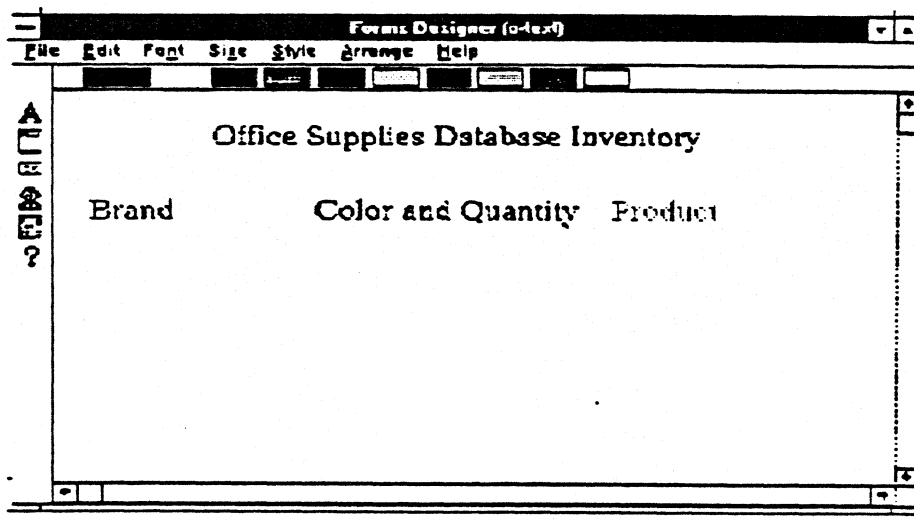
Entering Text for the Output Form

The text for the output form will match the input form (21 point Times Roman). To enter text for the form, do the following:

1. Click on the text tool.
2. Move the mouse pointer to the text area that you want to edit and click to make it active.
3. Choose **Fonts** from the **Edit** selection of the menu bar, and select Times Roman.
4. Choose **Size** from the **Edit** selection of the menu bar, and select 21.

   If the text becomes too large for the text area, You may have to resize the area using the pointer tool.
5. Select a color from the edit menu.
6. Move the pointer to where you want to enter the text.
7. Type **Office Supplies Database Inventory.**
8. Repeat steps 2 and 3 for each text field, typing **Brand, Color and Quantity, and Product.**

The result should look like the following screen.

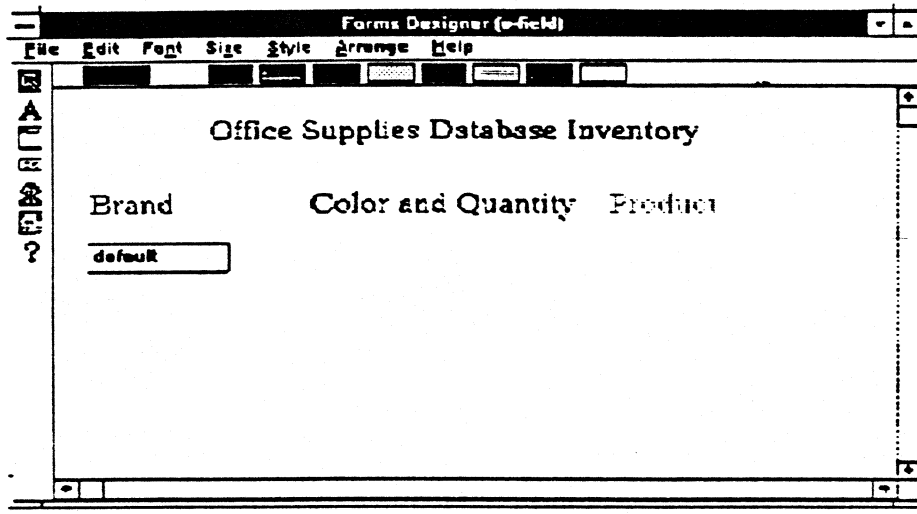


Creating the Field for the Output Form

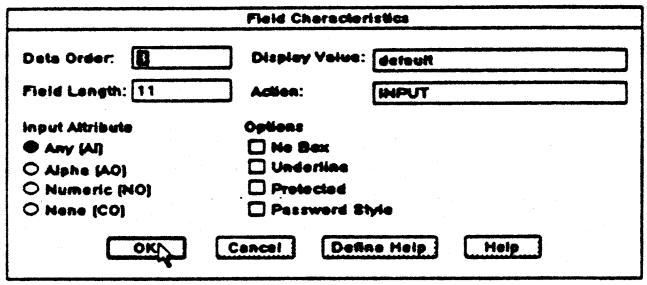
To create a field for the sample output form, do the following:

1. Click on the field tool.
2. Move the pointer to where you want the field to begin.
3. Click and drag the mouse to correctly size the field.
4. Release the mouse to finish.

   The result should look like the following screen.



5. To match the characteristics of this field group to the form, double-click with the pointer inside the field area to display the field dialog box (shown in the following screen).
6. Fill in the dialog box to match the screen's specifications.
7. Click on OK.



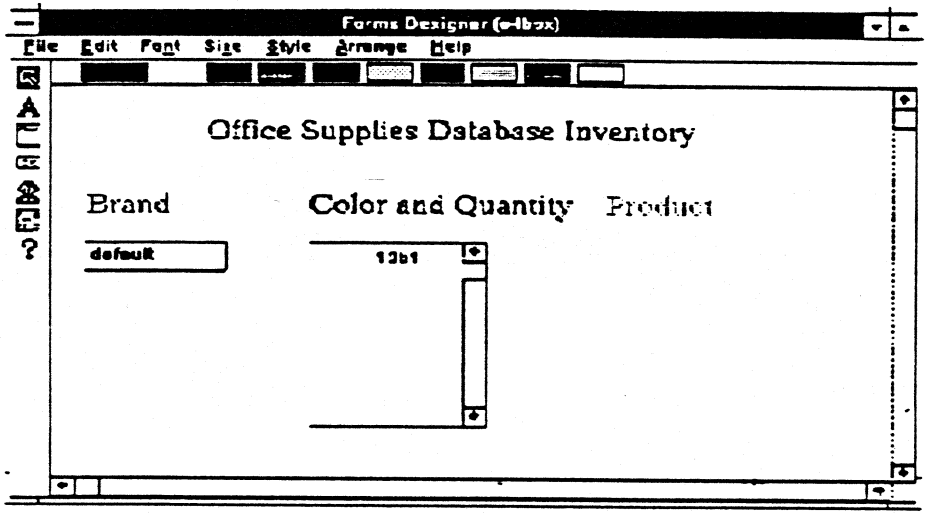
Creating the List Box for the Output Form

The output form has one list box that displays the quantity and color of the office supply item, type and brand chosen.

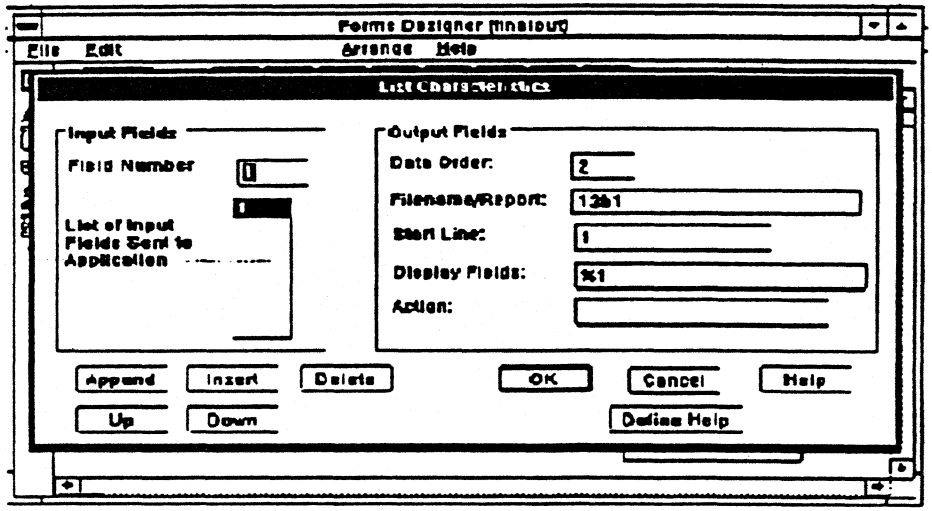
To create the list box for the sample output form, do the following:

1. Click on the list box tool.
2. Move the pointer to where you want to start the list box.
3. Click and drag the mouse to correctly size the list box.
4. Release the mouse to finish.

   The result should look like the following screen.



5. To match the characteristics of this list box to the form, double-click with the pointer inside the box area to display the list box dialog box.
6. Fill in the dialog box to match the one shown in the following screen.
7. Click on **OK**.

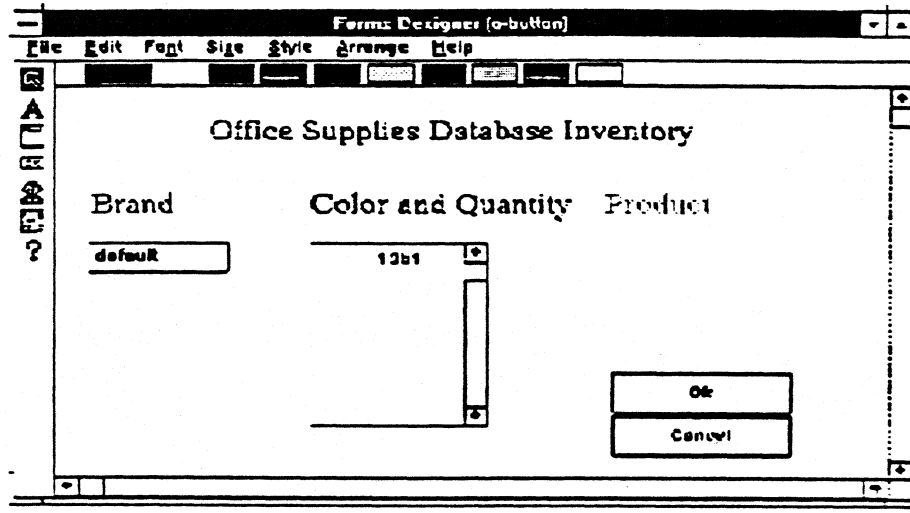


Creating the Button Group for the Output Form

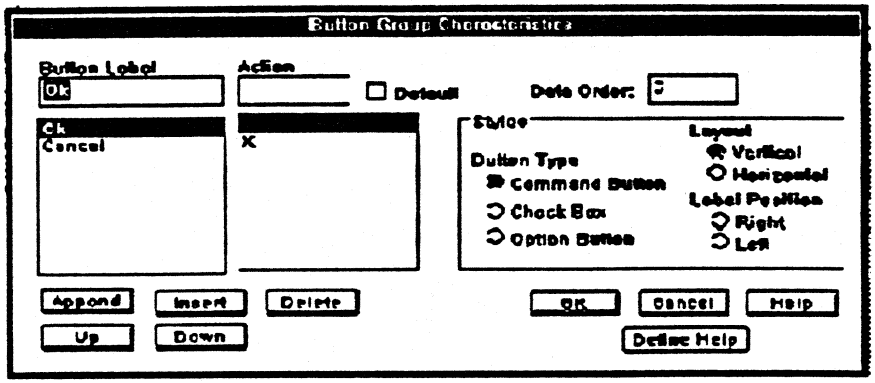
To create the button group for the sample output form, do the following:

1. Click on the button tool.
2. Move the pointer to where you want to start the button group.
3. Click and drag the mouse to correctly size the button group.
4. Release the mouse to finish.

   The result should look like the following screen.

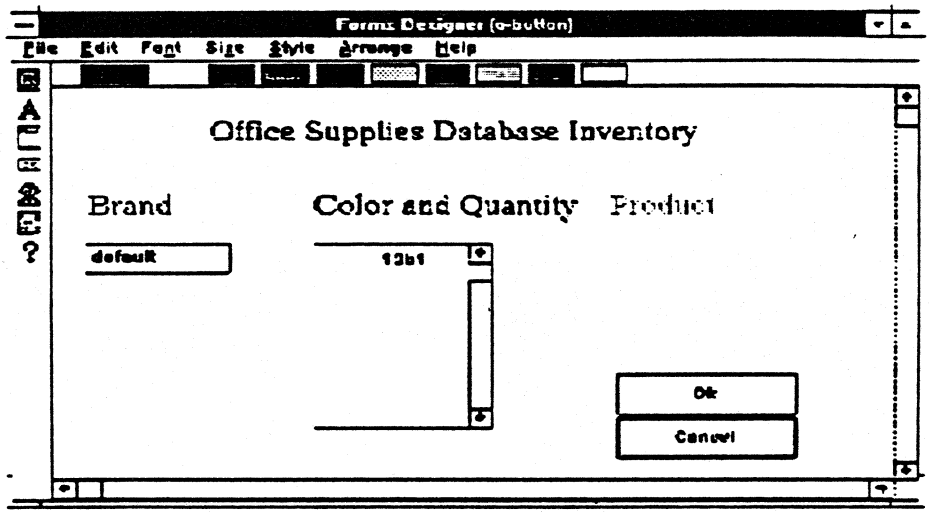


5. To match the characteristics of the button group to the form, double-click with the pointer inside the button area to display the button dialog box.
6. Fill in the dialog box to match the one in the following screen.



7. Click on **OK**.

   The result should look like the following screen.

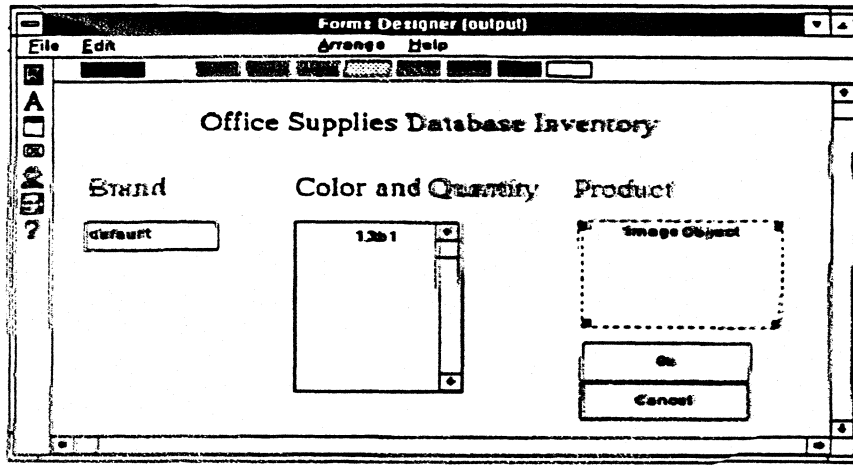


Adding the Image Area to the Output Form

To add the image area to the sample output form, do the following:

1. Click on the image tool.
2. Move the pointer to where you want to start the image area.
3. Click and drag the mouse to correctly size the image area.
4. Click the mouse again to finish.

The result should look like the following screen.



Specifying the bitmap

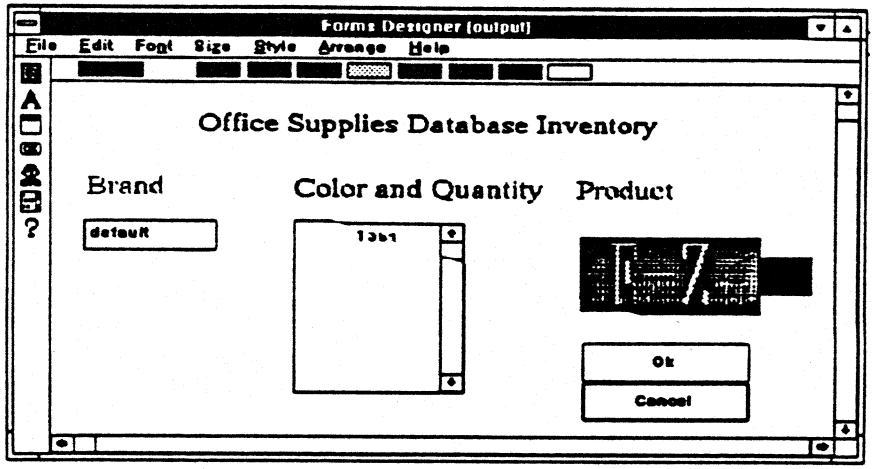
Once you have created the image area, you must specify the image file that contains the bitmap to fill this area. You must have already imported the image file into the Repository.

Note: You can import image files (bitmaps) using the Import function of the Designer Workbench Repository. For information on using the Import function, refer to the Designer Workbench Installation and Administration Guide, or contact your Designer Workbench administrator.

To specify the image file, do the following:

1. Double-click with the pointer inside the image area to display the image dialog box. This will bring up the Repository dialog box for images.
2. Fill in the dialog box using the name of the bitmap.
3. Click on **OK**

The result should look like the following screen:



Editing the Sample Output Form

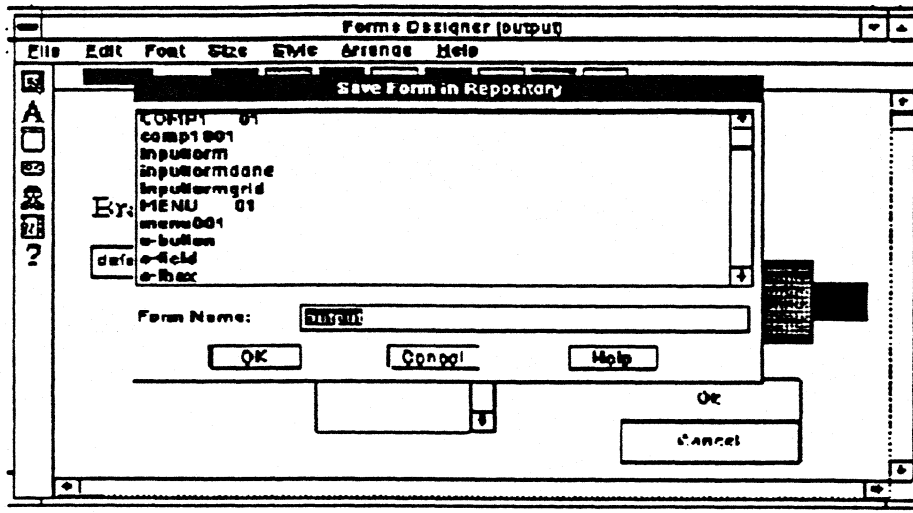
If the form does not match the sample form, you can edit it using the pointer tool. To edit the form, do the following:

1. Click on the pointer tool.
2. Move the pointer to the area you want to edit.
3. Click once in the area to move the entire area, or once on a corner to re-size the area.
4. Move or re-size the area.
5. Click the mouse again.

Saving the Sample Output Form

Now that you have created the output form, you will want to save it to the Repository. To save the form, do the following:

1. Click on the file portion of the edit menu bar.
2. Choose Save to bring up the Repository file save dialog box (shown in the following screen).
3. Choose the filename, output, and save the file by clicking on OK. If you choose a name that already exists, the Repository will verify that you want to overwrite the file.



Section 6
Testing the Sample MAPPER Application

An important part of application and form development is testing. This section describes how you test, update, and retry the forms and runs you have created for the sample application.

What's covered in this section

The following topics are covered in this section:

- Testing a PC form
- Uploading data to the MAPPER host
- Testing a host form

Phase 1.- Testing a PC Form

Because the form will appear different online then it did when you created it with the Forms Designer, you want to test the appearance of your form and alter it if necessary. To test your form's appearance online, do the following:

1. Sign on to Designer Workbench as a user in the partition that is associated with the MAPPER site that the form will be used in.
2. Start MAPPER software.
3. Use the Work Station Form (WSF) statement in a MAPPER run, specifying the form name that you used to store the form in the Repository. See Appendix A for WSF syntax and examples.
4. View the form.

What you do now depends on how the form looks. If the form appears the way you want it to, you can upload it to the host. Otherwise, you will want to update it and repeat steps 3 and 4.

To update the form, do the following:

1. Start the Forms Designer by double-clicking on the Forms Designer icon.
2. Edit the form.
3. Now, repeat steps 3 and 4 from above.

Phase 2.- Uploading a Form to the MAPPER Host

Now, you have viewed the forms online using the WSF statement, and updated them as necessary. To be certain that everyone else who uses the application gets the correct form, you must load the forms onto the MAPPER host. Afterwards, you go to the MAPPER run control report and specify the type of version control that you want to use. MAPPER software verifies that any user has the correct version of the form in their PC Repository. If they do not, MAPPER software writes the correct version of the form into their PC Repository.

Phase 3. - Testing a Host Form

By now, you have verified that your forms look the way you want them to, you have loaded them on the host, and you have edited the MAPPER software report that contains the forms to specify type of version control that you want to use.

Now you are ready to test the logic of your application with the forms. To do this, do the following:

1. Sign on to Designer Workbench as an administrator (or have your administrator sign on), and create a script for MAPPER software, specifying the MAPPER software run you want to execute.
2. Execute the MAPPER run to display your forms.
3. Test the run with the forms.

To execute the MAPPER run, you can do the following:

1. Create an icon for this script with the following procedure:
   a. Start Windows.
   b. Choose a program group that you want to create an icon for.
   c. Choose New from the file item in the Program Manager.
   d. Choose Properties, name the icon, and enter the path to the MAPPER software executable, the -c option and the name of the script.

      For example, **c:\dw\bin\mapper.exe -ctestscript**
   e. Click on OK (an icon should appear).
2. Execute the run by clicking on the icon.

Section 7
Using Designer Workbench with LINC Software

This section describes how you use Designer Workbench and the Forms Designer to enhance your LINC Ispec forms.

What's covered in this section

The following topics are covered in this section:

- Overview of the LINC Designer Workbench process
- Modifying a LINC Ispec form
- Testing the results

Modifying a LINC Ispec Form

To modify a LINC Ispec form with the Forms Designer, do the following:

1. Start Designer Workbench.
2. Start the LINC Workbench and connect to the LINC host.
3. Call a LINC Ispec form (Designer Workbench will automatically download it to your PC Repository).
4. Edit the Ispec form with the Forms Designer.
5. Save the results in the Repository.

   Repeat steps 3-5 until the Ispec form is correct.
6. End the session

Remember, each time you alter the Ispec form on the host and generate the LINC system, you must repeat this entire process.

Downloading the Ispec Form

To download an Ispec form, do the following:

1. Choose **Open Sessions** from the File menu and sign on to the LINC host.
2. Choose **Select an Ispec** from the Edit menu, select an Ispec form, and click on it. Designer Workbench will save the Ispec form in the Repository.

Modifying the Ispec Form

To modify the Ispec form, do the following:

1. Start the Forms Designer by clicking on the Forms Designer icon.
2. Retrieve the Ispec form from the Repository and edit it using the Forms Designer (refer to the Edit portion of Section 4).

Note: You may only alter the cosmetic characteristics of the Ispec form (such as color, fonts, size). You cannot make any changes to the objects or data values of these objects.

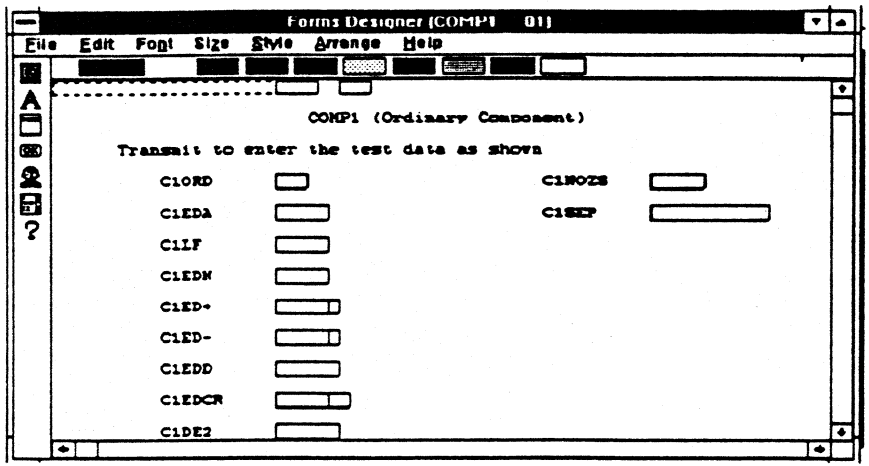
3. Save the modified Ispec in the Repository.

Note: You should only use the Save option, never the Save as option. If you save the Ispec form under a different name, the LINC host will not be able to display it.

You want to be sure that if you move fields or other data objects, the corresponding text goes with them. For instance, you do not want the user to be entering their address in the department number field. One option is to print a copy of the Ispec form before you start editing it. This drawing will act as a snapshot that you can refer to as you work. In conjunction with this, you can choose the **Show Data Order** option from the Forms Designer Designer Options menu bar choice. When you do this, the fields will display the data order associated with them. You can use this data order to keep track of the fields. You can leave this value set during the modification and test phases, since it does not affect the Ispec form at run time.

Selecting the Ispec form

To select the form, choose the **Open** option from the **File** menu, and select an Ispec form by clicking on it. The Forms Designer will display the Ispec form as it currently looks on your Linc System, as shown below.



Testing the Results

To test the results of your modifications, do the following:

1. Switch to the LINC Workbench by clicking on the LINC icon.
2. Choose **Select an Ispec** from the Edit menu and select the Ispec form that you modified by clicking on it.

The Ispec form that you modified should now be displayed. You will want to verify the following items:

- The colors, size, and font are correct (the form looks the way you want it to).
- All of the input fields are visible and match their accompanying text (none of the fields where incorrectly placed on the form).
- The Ispec form works correctly when you input data and transmit (you did not inadvertently change the data values of a form object).

If the Ispec form is correct repeat the process for the next Ispec form that you want to modify. If there are problems with the Ispec form, modify the Ispec form using the Forms Designer, and test it again.