Lotus

Approach 96 EDITION

The High-Powered Database
The Whole Team Can Use.

EXPLORING APPROACH

WINDOWS 95

Approach Software Corporation
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Contents

Before you begin

If you are installing Lotus® Approach 96® as part of the Lotus SmartSuite 96®, use instead the installation instructions in the book *Exploring SmartSuite.*

Before installing Approach, check to see that you have the correct equipment and operating system, and if you are installing from disks, make a backup copy of your disks.

System requirements

This is what you'll need to run Approach:

- An IBM®-PC or fully compatible personal computer with an 80386 or later processor
- One 1.44 MB 3.5" disk drive, or one CD-ROM drive
- At least 8 megabytes (MB) of random access memory (RAM)
- A color or grayscale VGA or higher resolution monitor
- For a full installation on a standalone computer, 32MB of available disk space; for a minimum installation, 17MB plus an additional 3MB during install
- A mouse or other pointing device
- Microsoft® Windows 95™ or Microsoft NT™ version 3.51 or later

Backing up your disks

If you are installing from 3.5-inch disks, make a backup copy of your Approach disks and use the backups to install Approach. Store the original disks in a safe, dry place.

To back up your disks, use the File - Copy Disk command in My Computer in Windows 95 or the Windows NT File Manager. For help with this, press **F1** when your mouse pointer is in My Computer, and search for "disks, copying" in the Windows 95 Help Index or the Windows NT Search dialog box.

Installing Approach

You can install Approach on a standalone computer, a network node, or a network file server:

- If you install on a standalone computer, you can install the complete set of Approach files, a minimum configuration of files, or a custom set of files you specify. The minimum configuration installs only the program files and is useful for a laptop or other computer with limited disk space.
- If you install on a network node, only a few Approach files are installed. The rest of the files you need to run Approach reside on the network.
- If you install on a network file server, you can install a server version of Approach for other users to run on their network nodes, or a distribution version for other users to install on their standalone computers.

Note that if you already have Approach 3.0 on your computer and do not specify a different location for the Approach 4.0 files, installing Approach 4.0 overwrites the 3.0 program files and sample applications. It does not affect your data files.

To install Approach:

1. If you're installing from disks, insert the first disk into a drive.

   You can install Approach from disks, a CD, or from install files on a network.

2. Choose Run from the Start menu.

   The Run dialog box appears.

3. Type the installation command in the Command Line text box and click OK.

   If you're installing from disks or a CD, type a:install, b:install, or d:install. If you're installing from a network, type *path*\install, where *path* is the location of the install files; for example, f:\lotus\approach\install.

4. Follow the instructions on the screen to install the application.

   The Approach installation program guides you through the process. Click the Next button whenever you're ready to go on to the next set of instructions. For details about installation at any point along the way, click Help.

   Approach alerts you when the installation is complete.

Chapter 1
What's New in Approach 96

Approach 96 has dozens of new features to help you use Approach productively and better manage your data.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   What's new in Approach 96
3. Click the index entry you want, then click Display.

Usability

- Action bar: The action bar provides immediate access to the most frequently used Approach commands.
- SmartMaster™ applications: New SmartMaster applications are complete database applications for common tasks such as managing contacts, entering orders, keeping a video library, and more.
- Named finds and sorts: Named finds and sorts make your most used finds immediately available from the action bar.
- Find Assistant: The new Find Assistant helps you find specific records using English phrases instead of operators or symbols. This release also brings you Query by box so you can construct finds using graphical representations of find conditions and use the mouse to change logical relationships between the conditions.
- Top value finds: Quickly display any number of records with the highest or lowest values in the field you choose. Top and lowest value finds are available through options in the Find Assistant.
- Find-and-replace text: The one-step find-and-replace text feature makes updating data easy.
- Envelope Assistant: This new assistant helps you design envelopes for your database of addresses.
- Navigation in worksheets and crosstabs: Moving between fields in worksheets and crosstabs is done just like it is in spreadsheets.

- Context-sensitive Help: Online Help provides focused answers for your current activity.
- The Approach guided tour: This fifteen-minute presentation shows you key concepts and steps to get you started with Approach.
- Welcome screen: The first Approach dialog box gives you easy access to your most recently opened files and to the wide range of database templates and applications you can use to start your database application.

Analysis

- Enhanced charts: The Chart Assistant helps you analyze and present data. New series charting provides comparisons between y-axis data. The InfoBox gives you a choice of over 120 different chart looks to best present your data.
- Drill-Down to Data: Drill-down to data instantly shows you the individual values that make up the summarized results in a chart or crosstab.
- Custom groupings: Options available from the Chart, Crosstab, and Report Assistants help you present data in meaningful groupings. Group dates into months, quarters, years; group numbers by tens, hundreds, and so on.
- Zero-valued records: Crosstabs and reports properties in the InfoBox now include a control for whether zero-valued records display with each crosstab header or report summary.
- Performance enhancements: New speed-optimized caching and indexing give you dramatic performance improvements when finding, sorting, and displaying records.
- SQL support: Run SELECT commands from inside Approach. The SQL Assistant helps you generate the SQL command using intuitive dialogs. In addition to IBM DB2®, SQL Server, and Sybase®, Approach supports Oracle SQL*Net® 2.0 and displays SQL error messages to save troubleshooting time.

Automation

- LotusScript™ support: LotusScript, Lotus's BASIC-compatible, cross-product scripting language, allows you to automate your applications beyond the already powerful Approach macros.
- OCX support: OLE custom controls (OCX) can add new functionality to your applications.
- Unbound controls: Use Approach UI controls to create customized lists, check boxes, and radio buttons for non-database selections.
- Dialog box creation: Forms can display as dialog boxes containing controls for your macros or scripts.
- Custom messaging: Macro message buttons enhance your custom application interface.

Design

- New data-entry controls: Now use data-entry controls in worksheets to simplify data entry and find selections.
- Radio buttons: Rearrange radio buttons with a simple click and drag of the mouse. Drag a selection rectangle around a group of radio buttons to rearrange them.
- View margins: Your views can be any size; resize view margins by dragging or using the InfoBox.

Integration

- New Lotus Notes® PowerKey™: Enhanced Notes database access makes data entry and analysis on live Notes data faster and easier.
- NotesFlow support: Trigger Notes commands and macros from within Approach applications using menus which are shared across Approach and Notes.
- Common menu structure: The familiar command arrangement across Lotus products helps you find your way around quickly.

Team computing

- TeamSecurity: Using Approach, your entire team shares information from the same database at the same time. You can set up customized access privileges to data and views.
- TeamMail™: Send and route Approach views through any VIM®- or MAPI-compliant mail system such as Notes or cc:Mail™.

Chapter 2
The Right Help at the Right Time

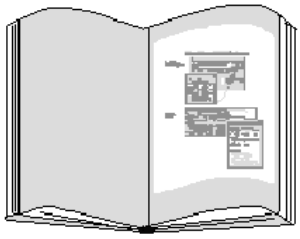
What's available for help with Approach

Lotus offers you various kinds of assistance so you can learn about Approach the way that's most comfortable for you.

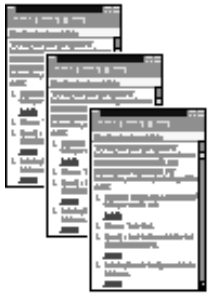
The product is powerful, but it's also easy to use: you'll find that Approach

- Anticipates what you need, displaying the tools to complete your task the moment you need them
- Includes clear instructions in dialog boxes and descriptions of functions and SmartMasters

When you need the next level of information, look in these places:

This book			
	For those who like to learn from books	*Overview of features* Tells the benefits of using a feature and provides conceptual information. Refers you to online Help when you need specific how-tos.	
The Tour			
	For those who like to learn online	*Overview of features* Provides an overview, tells you how to get started, use Approach with your coworkers, make changes, and create charts.	Available the first time you run Approach and from the Help menu.

Online Help

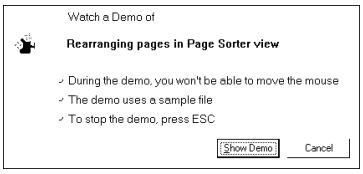


For those who need information organized by task

Specific instructions
Provides information about all the tasks you may want to perform using Approach and provides overviews of features.

Available when you click Help or from the Help menu.

Demos



For those who want to see how to perform a procedure

Demos of steps
For procedures that are easier to understand when you see how they work.

Available from certain Help topics.

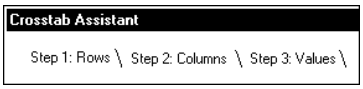
Bubble Help for SmartIcons

For those who need to choose which icon to use

Definitions of SmartIcons
Tells you what each icon in the SmartIcons bar does.

Available by resting the mouse pointer on the icon you want to know about.

Assistants



For help with complex tasks

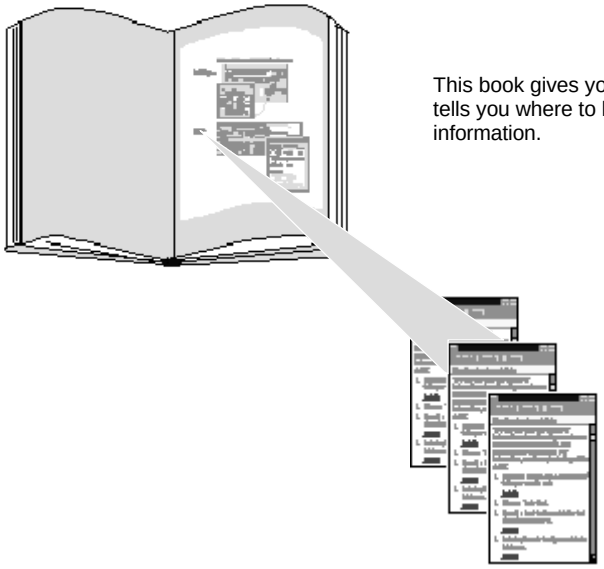
Step-by-step instructions
Guides you through the completion of tasks: creating views — forms, reports, mailing labels — and building find conditions.

Available as a dialog box for complex tasks.

Using this book

This book is **not** a user's guide. It's a book of ideas about how to use Approach efficiently. In it you'll find:

- Advice about what you need to get your work done
- Pointers to detailed how-to information in online Help



This book gives you a frame of reference and tells you where to look in online Help for more information.

Finding the right Help topic

This book explains the ways a feature can be helpful. When you need more information, look for a reference to online Help:

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Data, importing

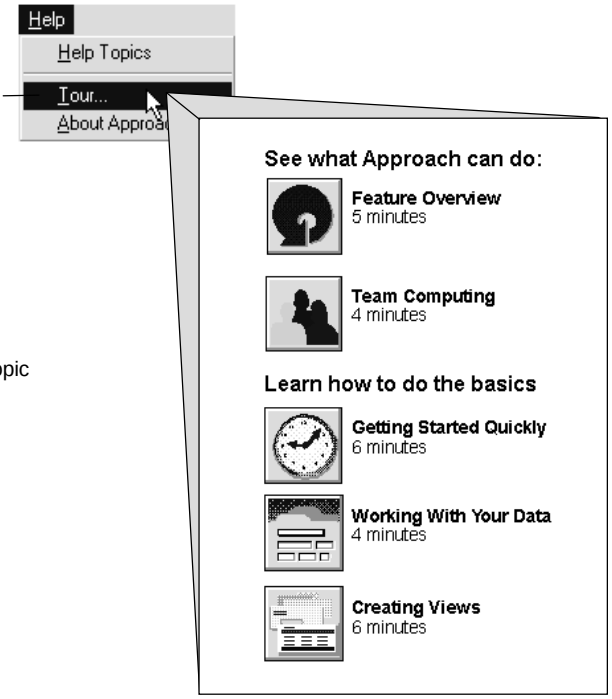
   Mapping, fields
3. Click the index entry you want, then click Display.

The Tour

The Tour is an online overview of the major capabilities of Approach. To start the Tour, choose it from the Help menu.

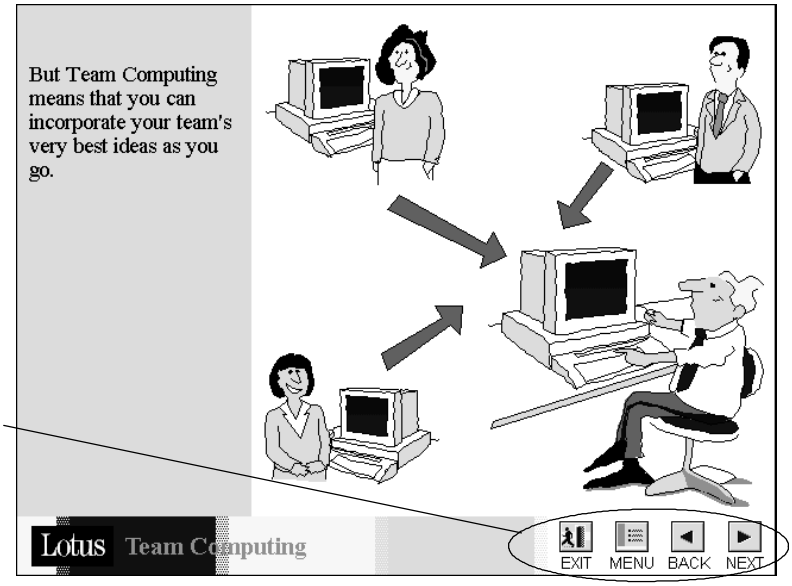
Choose Help - Tour

Then choose a Tour topic



Watching the Tour

You control the pace as you view the Tour.

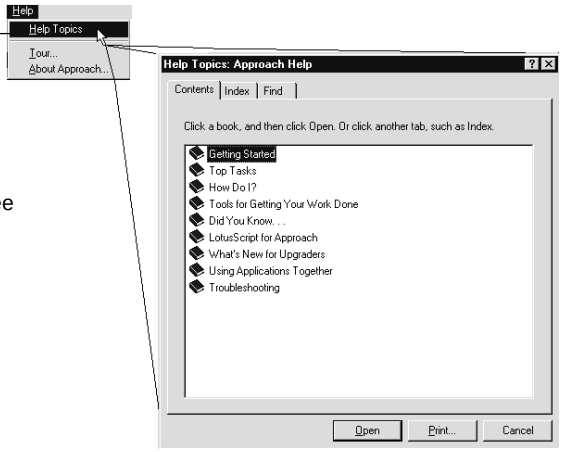


You control how and where you want to go

Online Help: streamlined and redesigned

Approach Help is organized by task. It provides brief procedures rather than lengthy descriptions. Because it's concise and oriented toward helping you complete tasks, Approach Help is a Help system you'll like using.

Choose Help - Help Topics

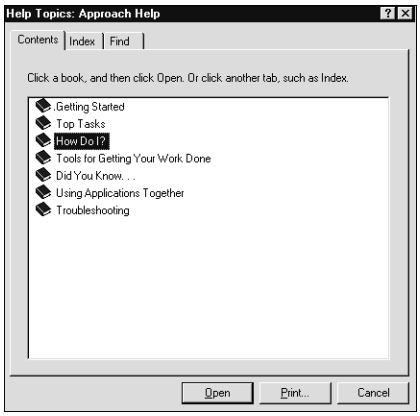


Click a Help book to see a list of Help topics

Using How Do I?

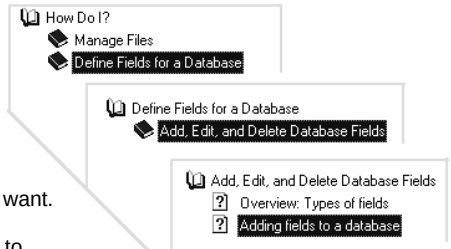
When you double-click How do I?, you get a list of topics. Books icons represent general topics, as in a table of contents. The ? icon represents actual Help topics.

Start by double-clicking the How-Do-I? book



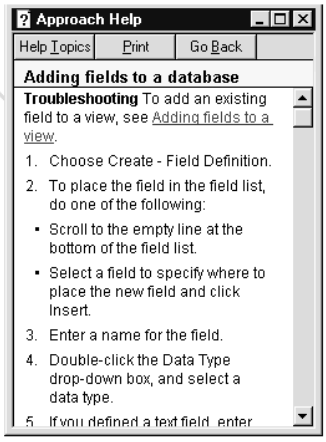
The book opens to a list of topics

Double-click books until...



you find the Help topic you want.

Double-click the Help topic to display it.



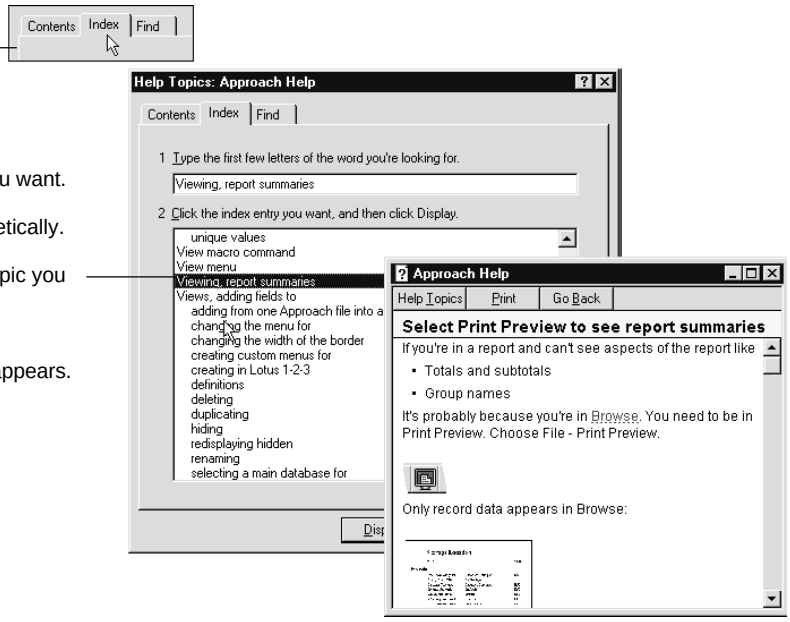
Click the green, underlined text to pop up a window with more details.

Help contains Tips and troubleshooting hints.

Using the Index

When you click the Index tab, Approach displays an Index of Help topics.The Approach Help system is organized according to tasks, not by menu commands.

Click Index



Then type the topic you want.

The list scrolls alphabetically.

Double-click the topic you want to see...

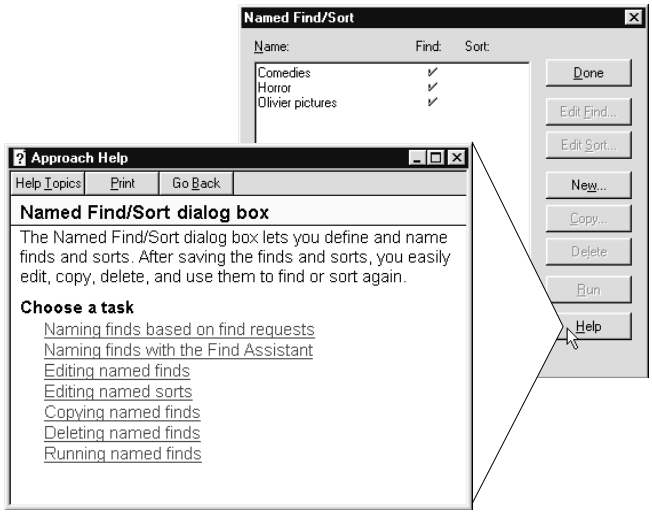
the Help topic appears.

Help in a dialog box or the InfoBox

You can get help immediately on dialog box options.

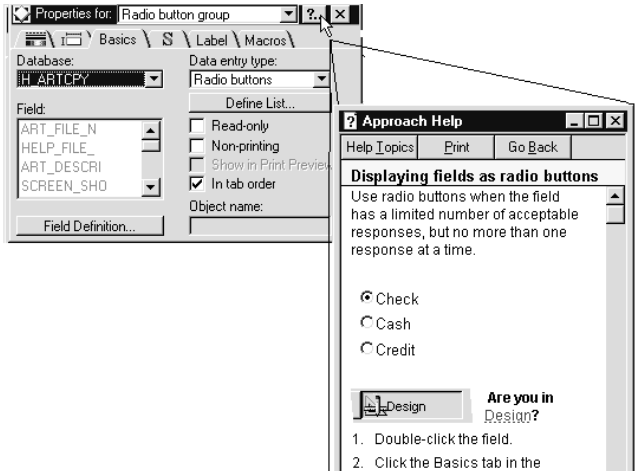
If you need more information about the dialog box, click the Help button.

The list tells you what you can accomplish from the dialog box.



You can also get help immediately on InfoBox options.

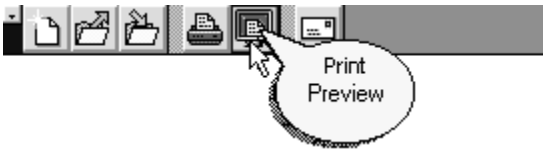
In the InfoBox, click the ?



The title tells you what you can accomplish from the InfoBox.

Bubble help: each icon's action

All you have to do to find out what an icon does is to rest your mouse pointer on it.

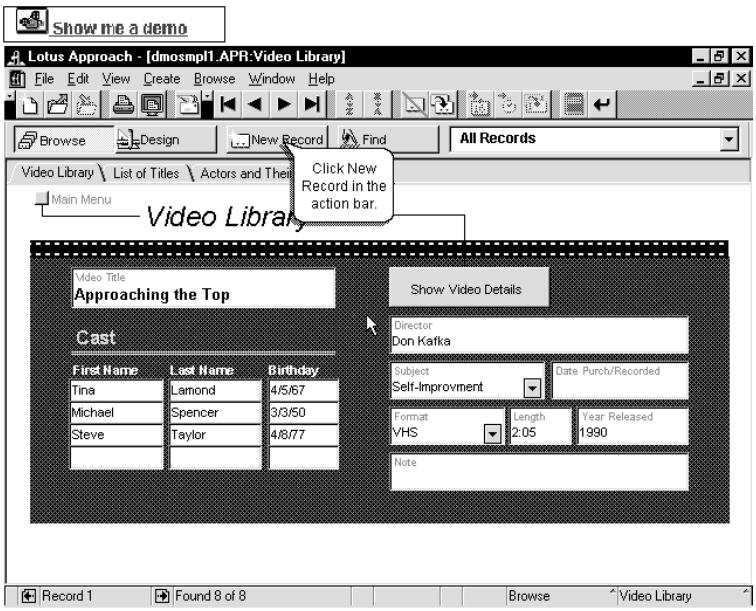


Demos: seeing is understanding

Some tasks are difficult to understand when you read about them, but simple when you see them. Approach Help demonstrates this kind of task in Demos.

When you see this button on a Help topic, click it...

to see the procedure presented on the screen.



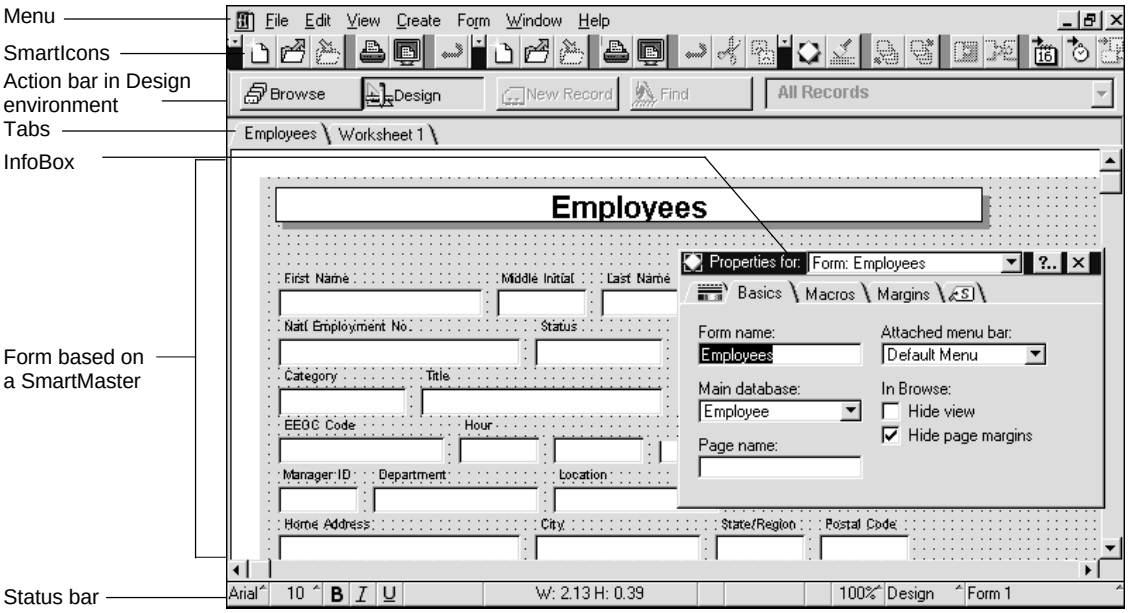
Chapter 3
Approach Work Area

Helping you be a self-reliant user

This chapter shows you where to find useful tools in Approach and how to use them.

What the tools are

This picture of the Approach work area shows you the tools this chapter deals with:

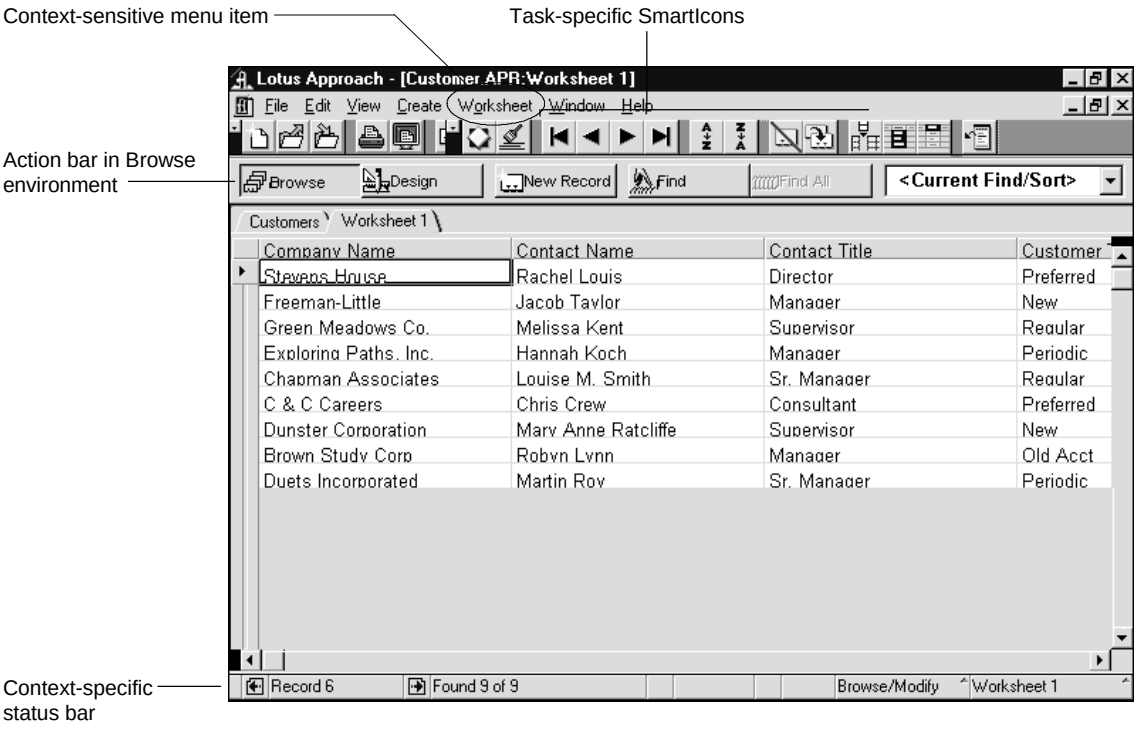


Approach tools are context-sensitive

Tools in Approach appear when you need them. For example, if you are designing the view you see on the previous page, the menu, SmartIcons, InfoBox, and status bar reflect specific options for a form.

Compare the work area below with the one on the previous page. In this work area the view is of a worksheet in the Browse environment.

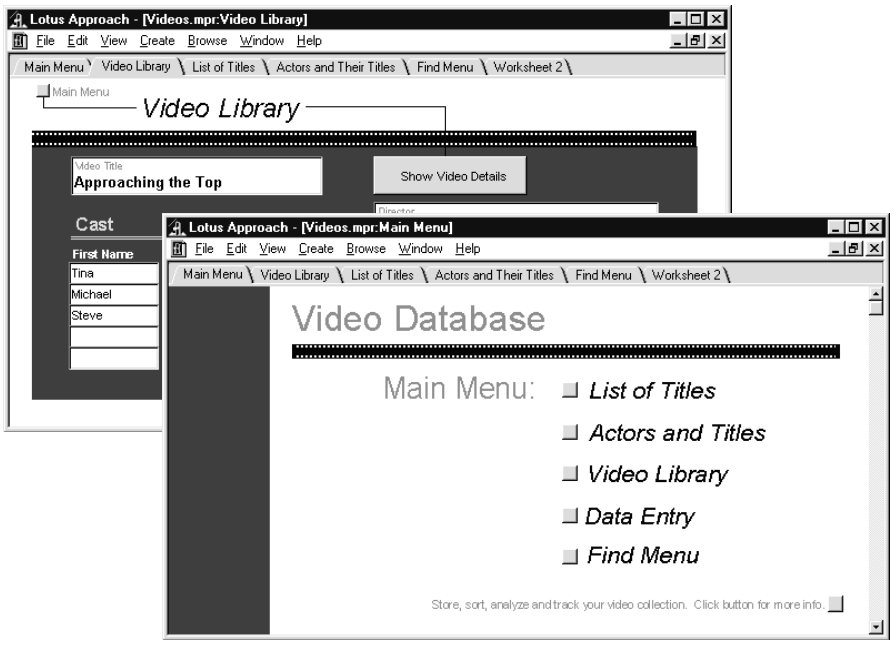
- Notice that there is no InfoBox on this work area because the InfoBox is used only for designing.
- Notice that the New Record and Find buttons of the action bar are available, because you work with data in Browse.



The SmartMaster: ready-made database applications and templates

A SmartMaster is a professionally designed application or template that lets you skip right to entering data into a database. A SmartMaster application contains forms, worksheets, and standard reports — all ready for data entry and reporting. Choose from many applications, including a video library, a survey-result manager, an order-tracking system, a contact manager, and a donations manager.

SmartMaster Applications



SmartMaster applications are complete database applications with forms, reports, and other views for entering data and presenting results.

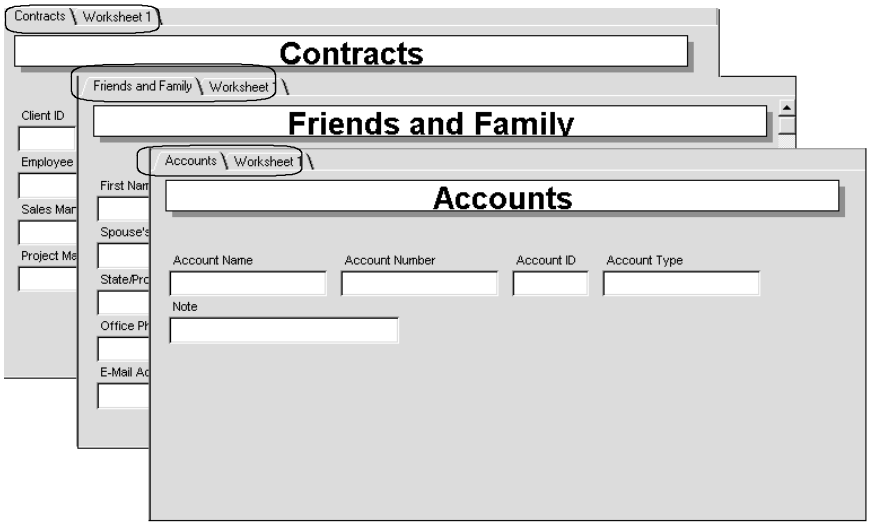
A main menu guides you to the right view for each task.

SmartMaster templates

A SmartMaster template is a set of predefined fields for a database. You can enhance a file based on a template by creating new fields and views and by changing the look of your views. Approach features over 50 SmartMaster templates for common business and personal uses, such as recording customer information, tracking orders, and keeping personnel records.

SmartMaster templates have fields already created for you.

The default form and worksheet show all of the fields.

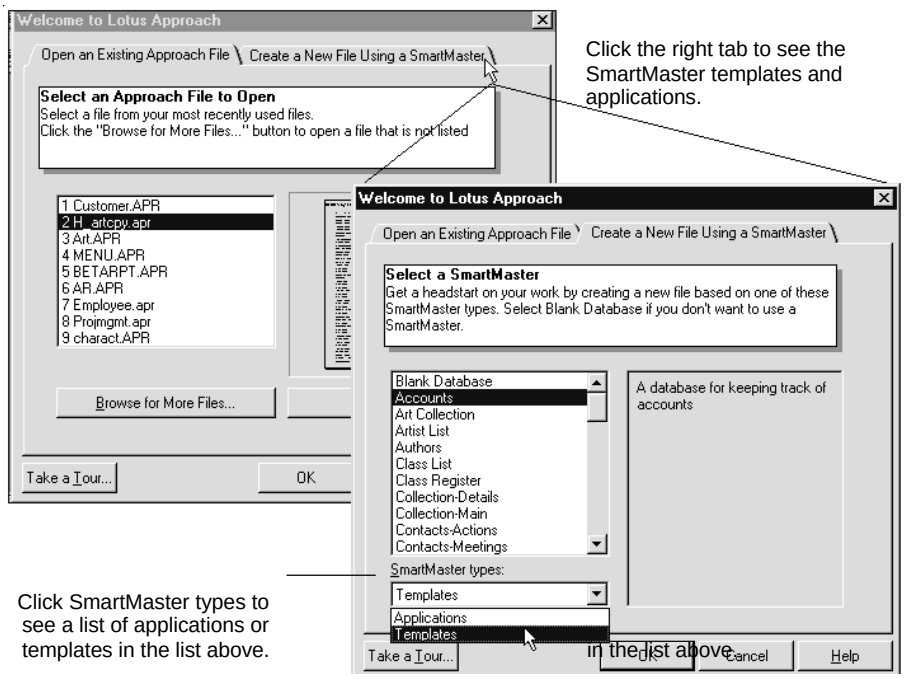


You are now ready to

- Go to Browse to enter data into the database
- Go to Design to modify the look of your views

Selecting a SmartMaster

When you start Approach, the Welcome dialog box asks whether you want to open an existing database or to create a new database from a SmartMaster. Here's how you select a SmartMaster for a new database.



Click OK to create the database.

Approach creates a ready-to-use form and worksheet using the fields in the template you choose.

To modify a SmartMaster

You can modify the database, the forms, and the fields by clicking Design in the action bar and making the changes you want.

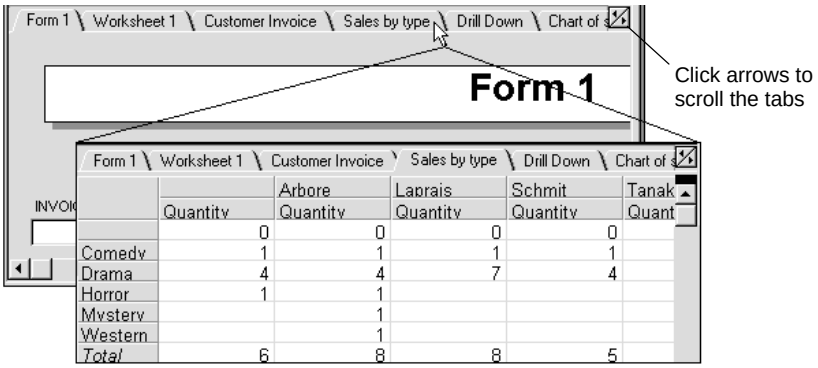
Tabs: for an organized desktop

Tabs help you navigate quickly and organize features to make them easy to use.

- View tabs give you a clean work area where it's easy to find the view you want.
- InfoBox tabs organize a variety of options.
- Assistant tabs organize a task and guide you step-by-step to its completion.

Navigating between views is a snap

You can instantly move to a form, report, form letter, worksheet, or crosstab simply by clicking a tab.



Reaching options easily

Tabs make it possible to present many options without clutter.

Each InfoBox tab displays a new set of options. In the picture below, the tabs organize your options for designing forms.

Completing a task

Assistant tabs lead you through the steps of a procedure with minimum directions. When you complete the instructions on the first tab, you click the second tab.

The context-sensitive screen

The action bar, menus, SmartIcons, and the status bar are context-sensitive parts of every Approach screen.

The action bar

Approach displays a bar with frequently-used commands within easy reach, just above the view tabs. The action bar is context-sensitive, meaning that buttons on the bar are dimmed when they aren't needed.

The action bar in Browse

The action bar in Design

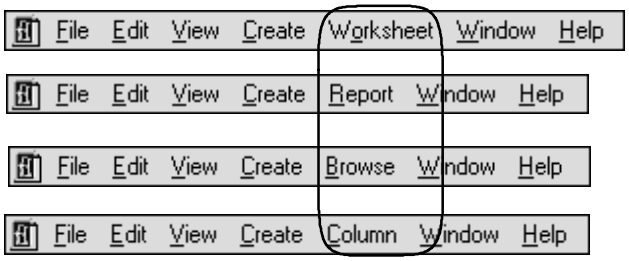
Try out the action bar when you are in the Print Preview or Find environments.

The menu: predictable and context-sensitive

What appears on the Approach menu depends on which environment and view you are in and on what you have selected. The variable menu item always appears in the same place.

The menu reflects the environment, view, orobject you have selected...

always in the same location.



To find the menu you want

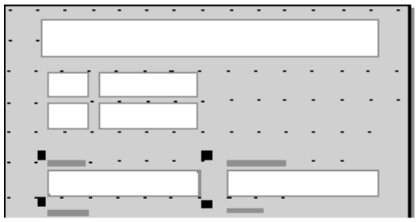
You'll find the menu you want in one of the following ways:

- You must create the object (using the Create menu) before you can work on a task related to the object. For example, you must create a report before Report appears in the menu.
- You must click the object to select it. Remember, you must be working with the object you want to change before its menu appears, which means you also may need to switch environments.

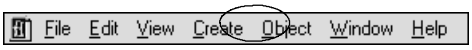
In Browse when you are entering data in a form...

you see this menu.

In Design when you have an object selected...



you see this menu.

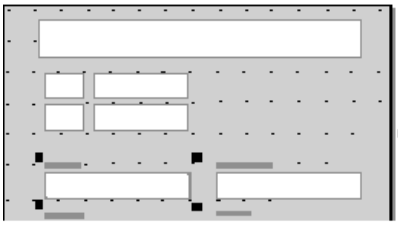


If the options you want don't appear in the menu, reposition your mouse pointer or reselect an object.

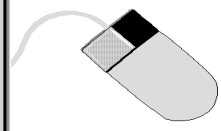
Shortcut menus

When you want to work on something you selected, click the right mouse button to see a context-sensitive menu for the text or object. For example:

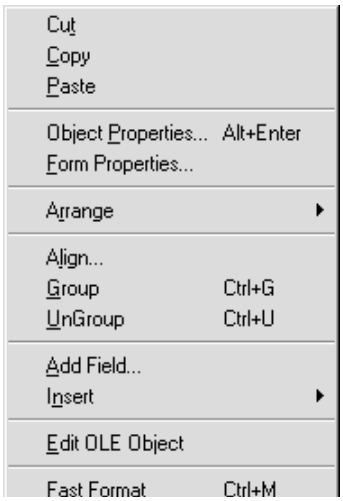
With a field selected in Design...



when you click the right mouse button...



this shortcut menu displays.



SmartIcons: action at the click of a mouse

SmartIcons® are the small pictures that appear just beneath the menu bar when you first start Approach — though they can be moved anywhere on your screen. Click an icon and you get an action — without going through the menus. SmartIcons provide quick access to features you use most often.

SmartIcons: universal and task-specific

If you've used SmartIcons before, you'll notice that Approach SmartIcons are context-sensitive. The sets below are divided into the universal icon bar, which displays no matter what task you are performing, and the task-specific icon bar, which displays SmartIcons appropriate to your task.

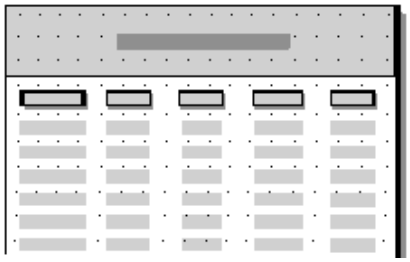
Universal icon bar

Context-specific icon bar

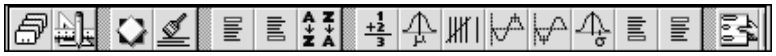
When you are entering data in a form...

you get these context-specific icons.

When you are designing a report...



you get these.



Rest the mouse pointer on an icon, and Bubble Help tells you what the icon does.

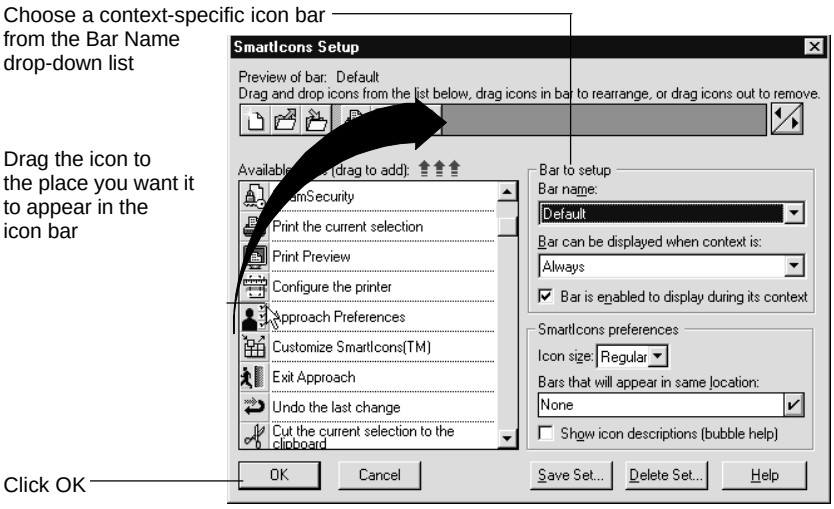
How to customize icon bars

Using the dialog box for SmartIcons Setup, you can add or remove icons so that the icon bar reflects your own pattern of use. For example, suppose you like to control what you see on your desktop, hiding or showing such elements as the status bar or the SmartIcons bar as you need them. For example, you may want to have the Approach Preferences icon in your default icon bar.

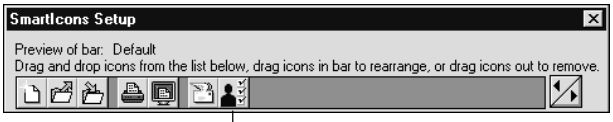
Example of adding an icon

First choose File - User Setup - SmartIcons Setup.

The SmartIcons Setup dialog box appears.



Result



For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

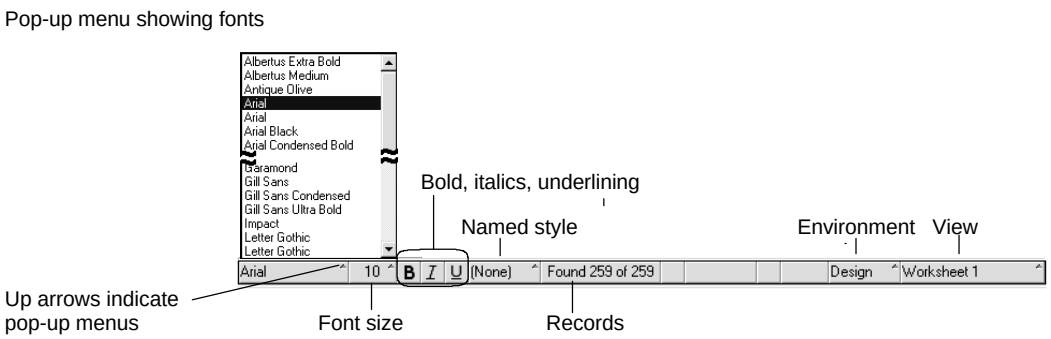
   SmartIcons, overview
3. Click the index entry you want, then click Display.

The status bar: for quick changes

The status bar always appears at the bottom of your Approach screen, providing pop-up menus that switch the view and environment. The rest of the information in the status bar depends on which environment you are in.

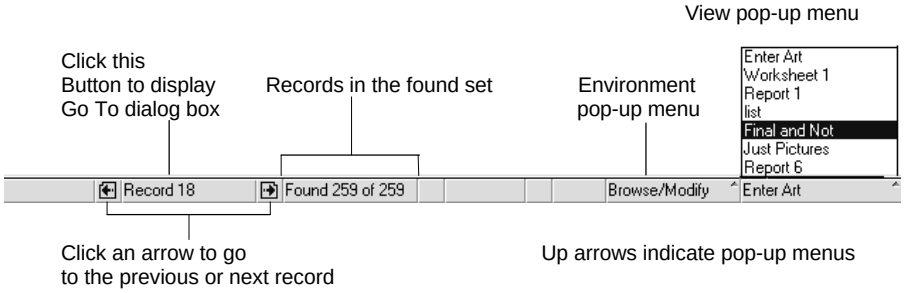
Design status bar

The status bar in Design gives information about the current view and the text and objects in it.



Browse status bar

Options that don't display a pop-up menu toggle between two types of information.

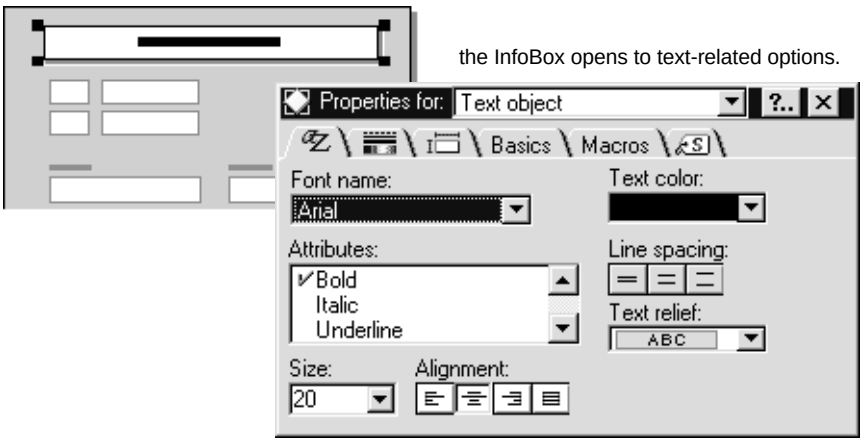


The status bar changes in the Find and Print Preview environments also.

The InfoBox: one-stop shopping for styles

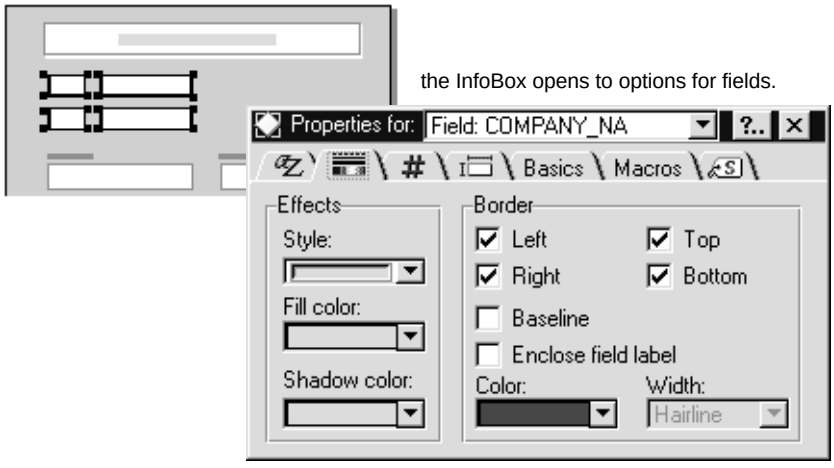
Think of the InfoBox first when you want to change the look of a view, text, or object such as a field or a column. The InfoBox lets you set all the properties for an object in one place. Like other Approach tools, the InfoBox is context-sensitive.

When you are changing the look of a text block...



the InfoBox opens to text-related options.

When you are changing the look of fields...



the InfoBox opens to options for fields.

The InfoBox helps you get your work done in the following ways:

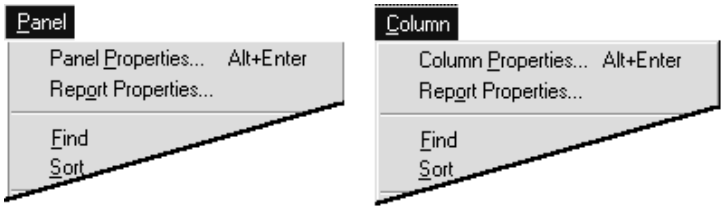
- It changes to include only the options available for your selection.
- It stays open and on top so you don't have to open and close multiple dialog boxes when you are changing the look of text or a report.
- It works the same way, whatever you are designing.

To display the InfoBox

Select what you want to change, then choose its menu option and Properties.

Choose the menu option...

Then choose Properties.



A close look at the InfoBox

The InfoBox below appears when you click a text object. All the tabs relate to options for text objects. Here is how the InfoBox works:

Here is what you have selected

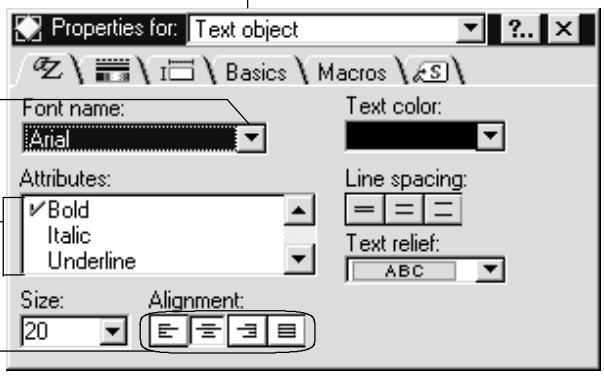
Tabs let you see and choose any related option for what's selected.

Click the arrow to see other choices.

Choices:

Choose as many as you want.

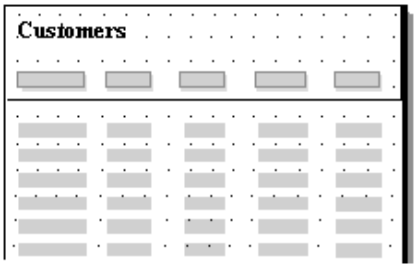
Choose one



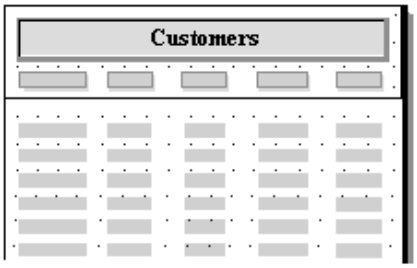
An example of using the InfoBox

Suppose you have a report that looks like the Before example below. You'd like it to look like the After example.

Before



After

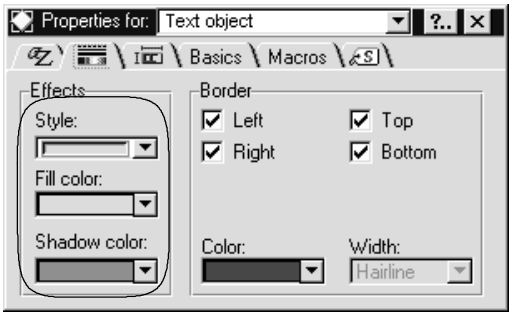


Here's how to do that.

1. Select the header Text object.
2. Click this icon.

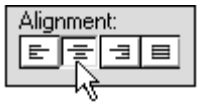
3. Click the color and line tab.

4. Make the selections in the boxes circled below.



5. Click this tab.

6. Select this alignment option.



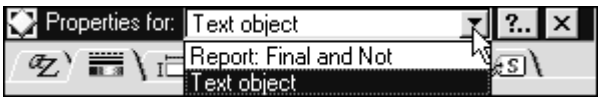
Experiment using the InfoBox

It's easy to experiment using the InfoBox. Click an option. A change takes place instantly. If you don't like the change, try another. In the InfoBox, you don't have to click OK or Cancel to apply the options you select.

Expanding what you can change

Use the Properties list box to select another object to change. For example, if you select text, the Properties list box reads Text object. But you can click the down arrow to see a list of options for the current view.

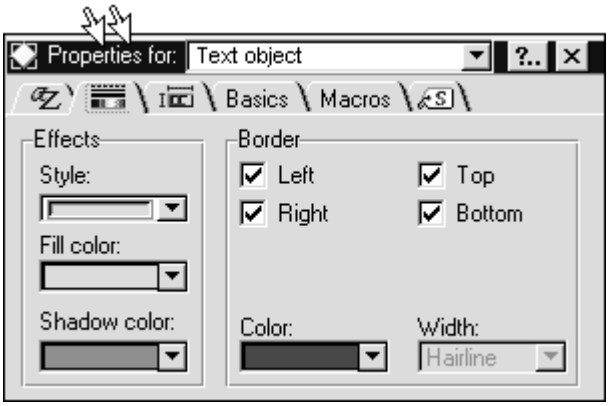
Click the arrow to see options for the entire view.



Collapsing the InfoBox

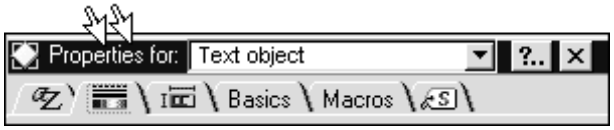
When you expect to make multiple design changes, collapse the InfoBox to keep it handy without crowding your desktop.

- To collapse the InfoBox, double-click the title bar.

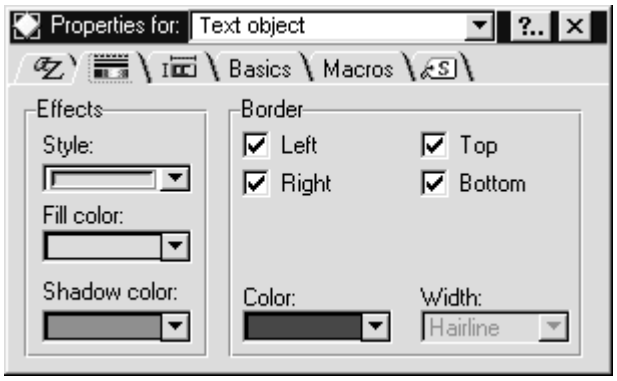


Result

- To return the InfoBox to normal size, double-click the title bar.

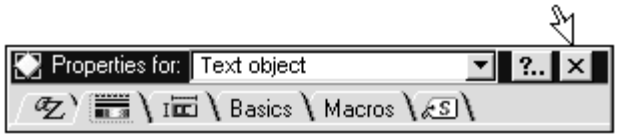


Result



Closing the InfoBox

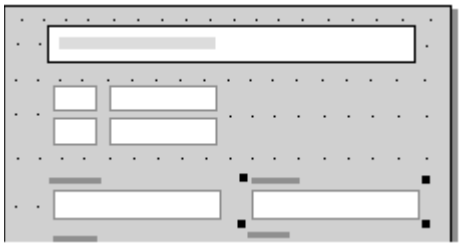
Click the X.



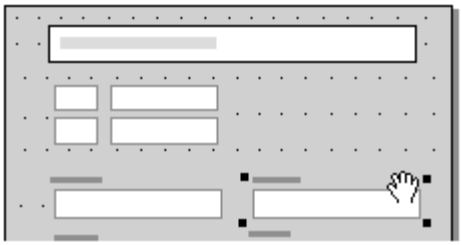
The drag and drop hand

Moving an object by using the mouse is easier than selecting, cutting, and pasting it; and Approach gives you a special hand to do this. This example shows you how to move a field.

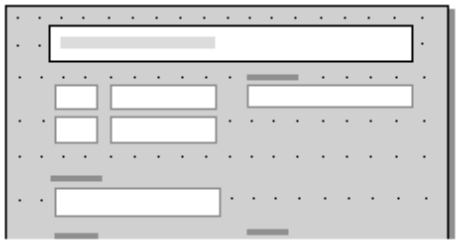
1. In Design, select the field you want to move.



2. Let the mouse pointer rest at the edge of the selected field. The mouse pointer becomes a hand.



3. Press and hold down the mouse button as you drag the field to a new location.
4. Release the mouse button to place the field.

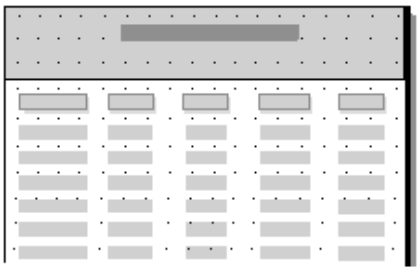


New position of the field

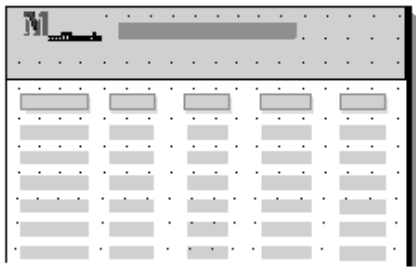
Illustrating your reports

Enhance the look of your reports by importing the company logo to the heading. The logo will print on each page of the report.

Before



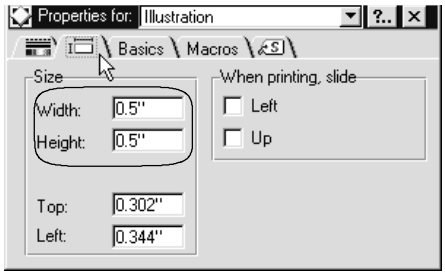
After



To insert a logo or a graphic in a report, you must be in Design.

1. Click the heading and choose Edit - Picture - Import.

   Choose the file that contains the logo or graphic.
2. Drag the graphic to where you want it to appear.
3. To size the graphic, choose Object - Object Properties and change the size.



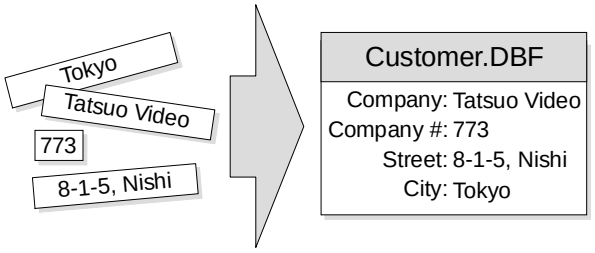
Chapter 4
Learning Approach

Approach is a relational database application that is not only powerful and versatile, but also easy to use. In Approach, you can work with data from a variety of databases (and database format types), you can create your own databases, and you can present the data in attractive and efficient forms, meaningful reports, and other views.

You need no special knowledge of computers or programming to do any of this, nor do you have to have any other database application.

All you need is Approach, the information provided by this book and the online Help system, and a basic understanding of how to use a graphical user interface (clicking and dragging with a mouse, using dialog boxes, and so on).

A **database** is an organized collection of data.* Like other database applications, Approach lets you manage data in sets called **records**. For example, everything about one customer is a record. The data in records is divided into **fields** such as company name, street address, and city.



*You may also see the word “table” used to describe a collection of data. Approach uses the term “database” to include both databases and tables.

Approach separates display from content

Approach handles data in a particularly flexible way: Data (content) is stored separately from its presentation (display). This separation has many advantages:

- Approach can open databases in almost any format.

  You are instantly connected with any of your data sources.
  Try it: File - Open.

- Approach leaves the data in its original database format.

  When you enter or modify data, there are no conversions or copies needed. Your data goes directly and immediately into the database.

- Approach gives you complete control of how you see the data.

- Approach can read many different data sources simultaneously.

  For example, use your company dBASE® records to see which customers order which products, and also access a Lotus Notes database of customer visits to create sales reports.

When you work in Approach, remember the separation of content and display. Approach has two environments that reflect that separation: Browse and Design. (Approach has four environments in all, and you'll learn about the other two later.)

You select an environment depending on the kind of work you want to do. Switching between Browse and Design requires nothing more than clicking a button in the action bar.

- **For content:** Work in the Browse environment. In this environment, you take care of data: you add new records to the database, or edit the records already in the database. You create find requests or use the Find Assistant to extract the data you want from the database.

- **For display:** Work in the Design environment. In this environment, you modify views of your data, add fields, click and drag graphical objects and fields, format field data, pick fonts and colors, add lines — in short, you take care of the presentation of your data.

Approach files and database files

The separation of content and display is reflected in the two most important kinds of files Approach uses:

- **For content:** One or more databases store your data. Approach does not require its own database file type; rather, it lets you create databases or use existing databases in many of the most popular database file types.

  You don't need to own another database application to use Approach. You can create new databases, or if you or your company uses another database format, such as IBM DB2, Paradox®, or dBASE® IV, you can see the data stored in those databases from inside an Approach file. You can work with that data in Approach, and you can create views of that data in Approach.

- **For display:** An Approach file (.APR) stores the presentations of your data, but not the data itself. The various kinds of presentations — such as forms, reports, and worksheets — are called views. You do all your work in Approach in the views you create.

Finally, the content / display separation affects how you save your work.

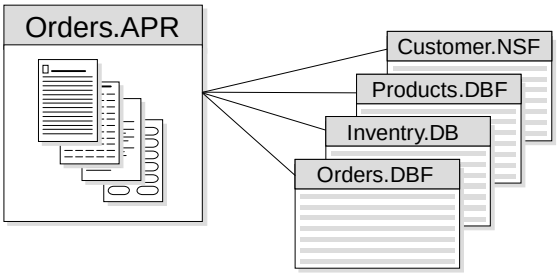
- **For content:** Approach saves any work you do with data automatically. Any edits you make to records; any new data you enter, whether in new records or ones that already exist — Approach saves immediately. You don't have to do anything to save data.

- **For display:** You must save any work you do that affects the display of the Approach file. So any work you do while in Design; any views you generate using the Create menu; any changes you make to field definitions — you must save by choosing File - Save Approach File.

Joins between databases

Even if you don't have a lot of data or complexity to begin with, data and complexity have a tendency to grow over time. A database design that groups data wisely from the start can help you avoid problems later. It's usually most efficient to split up data into separate, manageable databases — such as one for orders, one for inventory records, one for individual customer data, and another for product specifications.

Because Approach is a relational database application, you can bring together data from different database files and use it as if the data were all stored in one place. To do this, you **join** the databases within an Approach file.



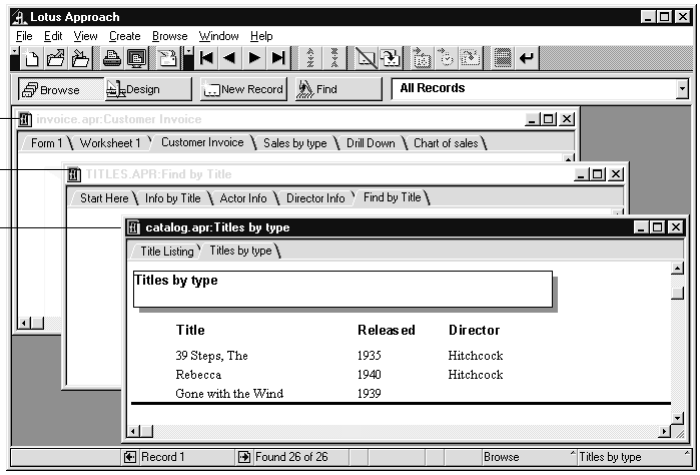
As you work with the data, the underlying joined databases and the relationships among them are completely transparent. The databases can even be of completely different file types; for example, a Paradox 4.0 file and multiple dBASE IV® files can be joined together.

For information about how to create a system of related databases, see Chapter 5.

The Approach work area

Each Approach file you open appears in its own window inside the work area. You can enlarge the Approach file windows to fill the entire work area and manipulate windows in other ways. For information about window commands, see your operating system documentation.

Each open Approach file is a separate window inside the work area.



Environments in Approach

You can work in four different environments in Approach: Design, Browse, Find, and Print Preview. The work area changes in several ways depending on the environment.

Change between Approach environments in one of these ways:

- Click an action bar button

- Select the environment from the status bar

Design

In Design, you edit the layout of views. You can see your data and arrange it as you like, but you cannot enter or edit data.

In Design, you can:

- Add and edit fields
- Draw lines, rectangles, ellipses, and other graphic items
- Resize objects including fields, columns, and panels
- Write text on the background of a view
- Import graphics
- Link or embed OLE objects into the view

In Design, nearly everything in a view is an object that you can modify. You can work with all objects in many of the same ways: you can move and resize them, group and align them, and change their colors.

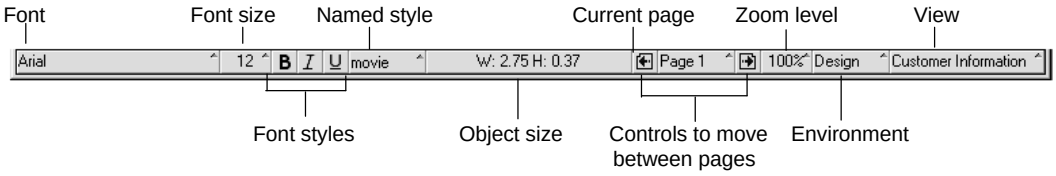
Each object in a view has a set of properties, such as size, text attributes, line and fill colors, and attached macros. The properties for an object are set in the InfoBox. You can keep the InfoBox open as you work and use it to edit objects.

You can save a set of InfoBox properties in a named style and then apply the style to other objects.

When you're in Design, you can show data in fields as it appears in Browse, or you can show the names of fields. If you show data, you see data from the first record (in a form or form letter) or all records (in other views). Return to Browse to enter or edit your data.

Approach provides default icon bars for Design and a floating Tools palette that has icons for drawing objects and adding fields. The Tools palette opens automatically when you go to Design; you can drag the palette by its title bar to move it around in the work area.

In Design, the status bar shows buttons for formatting selected text and the location of the insertion point or the selected object.



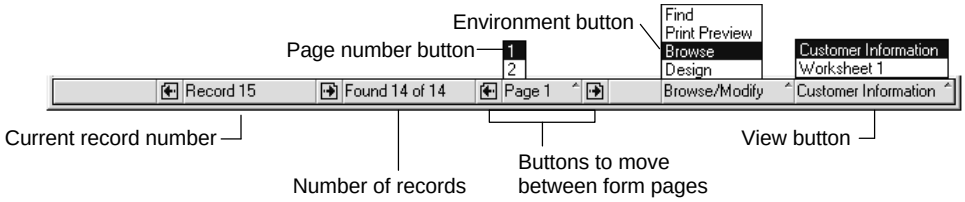
Browse

In Browse, you work with the data in a database. You can enter and edit data here, find and sort records, and print views. You can also create views. Return to Design to customize your new views.

You work in Browse most of the time. When you first create or open an Approach file, you see a view in Browse.

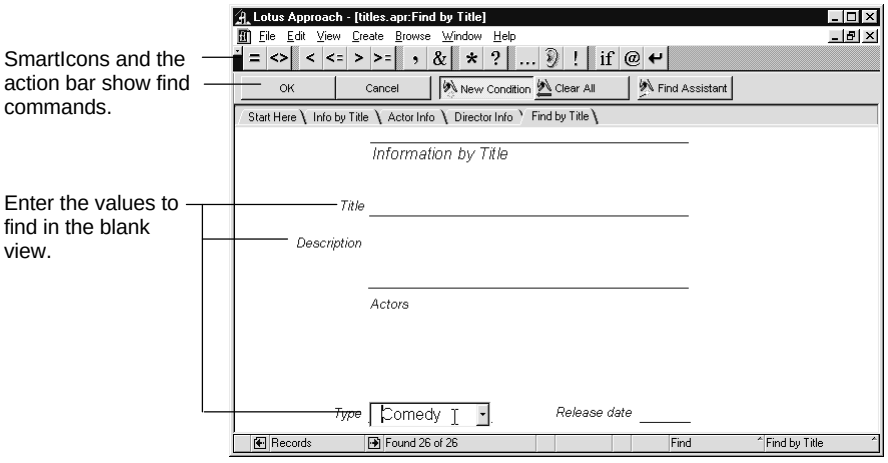
The default icon bar in Browse has icons for entering and editing data, moving from one record to another, finding and sorting records, adding and deleting records, spell checking, and printing.

In Browse, the status bar shows the position of the current record in the found set, the number of records in the found set, and the number of records in the entire database. It also has arrow buttons for moving to another record or another page of a view with more than one page.



Find

In Find, you fill out a find request to search for records that meet certain conditions. A find request is a blank copy of the view you're currently using.



For example, to find all the movies in your library that are comedies using the find request above, you would select Comedy in the Type drop-down box and click OK.

When you finish filling out a find request, Approach returns you to Browse and displays only the records that match the conditions you specified. This subset of records is called the found set.

In Find, the SmartIcons and action bar show some common Find commands. You can also open the Find Assistant from this environment.

Use the icons on the default icon bar to insert operators (**>** for greater than, **=** for equal to, **&** for and, and so on) into the fields on your view to create custom finds. The status bar in Find is the same as it is in Browse.

Print Preview

The Print Preview environment shows what the current view will look like when you print it. This gives you a chance to correct errors or make design changes before committing a view to paper.

All of the data from Browse also appears in Print Preview. You can move through records in Print Preview just as you can in Browse. Return to Browse if you want to edit your data.

If a view has any fields that summarize data from multiple records, Approach calculates the summary and shows the results in Print Preview. If a view has fields or other objects that slide up or left, the fields slide into position in Print Preview.

When you first go to Print Preview, you see the current view reduced to 85 percent of its normal size. You can change to other zoom settings. The mouse pointer changes to a mouse and magnifying glass. Zoom in by clicking the left mouse button. Zoom out by clicking the right mouse button.

The default icon bar in Print Preview has icons for moving through records, finding and sorting records, and printing. The status bar in Print Preview is the same as it is in Browse, except that it has a button for changing the zoom setting.

Opening and building databases

These sections summarize tasks you will probably perform to open or create a database in Approach. For more information, see Chapter 5.

Using existing data

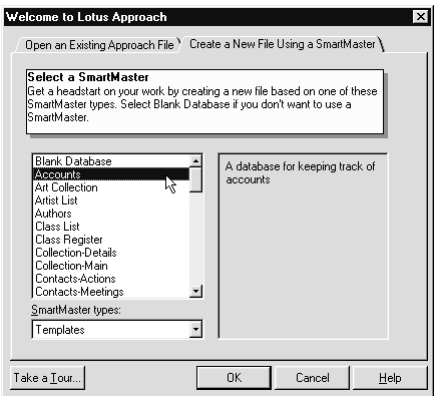
When you already have data, open the existing database or databases in Approach. Choose File - Open, and then choose the type and name of the file. Opening files this way does not convert them from their existing data format; Approach reads the data in its original format.

With Approach's PowerKey™ technology, you can read and write to databases in a variety of formats: Lotus Notes®, dBASE III+ and dBASE IV, IBM DB2, Paradox 3.5 and Paradox 4.0 (including Paradox for Windows), FoxPro® 2.1, Oracle SQL, Microsoft / Sybase SQL Server. And if you have other database applications that use an ODBC™ driver, you can work with those databases in Approach. You can also open spreadsheets and text files and save them as database files.

You can also open Lotus 1-2-3® spreadsheets, other spreadsheets, and text files and save them as database files.

Creating new data

When you haven't entered data yet, you can easily build a database from scratch, or open a SmartMaster application or SmartMaster template that most closely fits your database needs. Select from the list of SmartMaster applications and templates from the Welcome dialog box that appears when you first open Approach, or by using File - New.



SmartMaster applications and templates are completely customizable. Just click Design and adapt the SmartMaster to your needs.

You can also choose Blank in the SmartMaster template or application list to define your own fields for a new database.

For more information about choosing a SmartMaster or building a completely new database from scratch, see Chapter 5.

Defining fields

Whether you start from a SmartMaster or open an existing database, you can easily add fields to the database. Choose Create - Field Definition to create and modify database fields.

Create a new field when you discover that you have new information to track that is related to the main idea of your database. When you define a field, specifying its name and type, you can specify a default value or a validation condition for the field. Default values and validation conditions can help ensure the quality and accuracy of data entered in the database.

Later, if necessary, you can modify field names or increase the length of a field.

Calculated fields

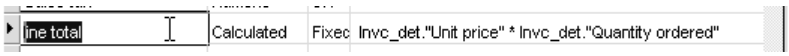
Approach supports special fields that hold the result of a formula. These calculated fields are part of the Approach file instead of the database file, but you can use the result stored in the field just as you would any other field value.

Use calculated fields anywhere you want to show values that are made up of other field values or constants, either in one record or across many records. For example, use a calculated field to show an extended price on an order form where the price is calculated from the individual price of a product multiplied by the quantity ordered:

```
Item_Price * Quantity
```

It is better to have Approach calculate the Extended_Price values than to store another field value for every record in the database.

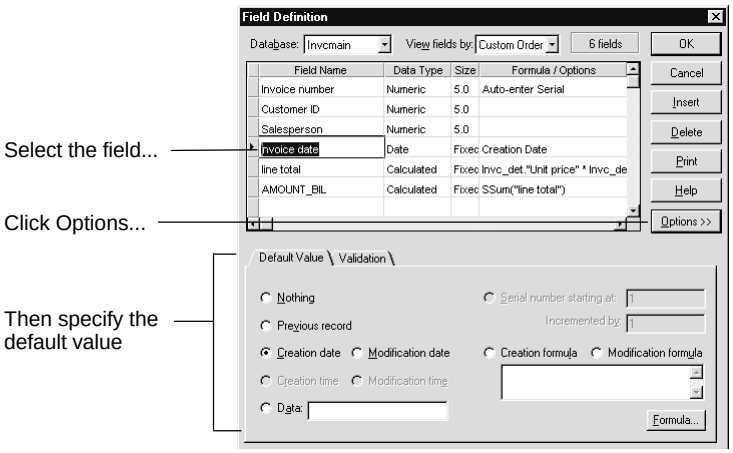
Create calculated fields just like other fields using Create - Field Definition. Select the Calculated data type, and then write the formula used to determine the field value.



Default field values

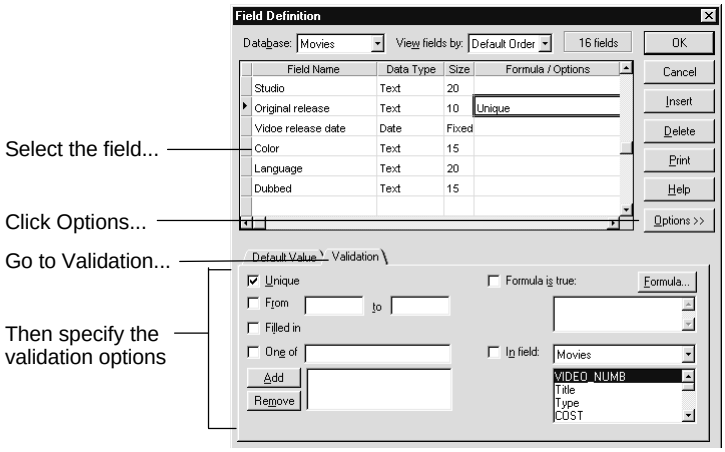
You can have Approach put a value into a field automatically when a new record is created. Use default field values when you

- Expect field data to often have the same value
- Want to insert the current date or the next number in a sequence
- Use check boxes or radio buttons for data entry, and want to have the choices preset.



Validating field values

You can also control what is entered in a field by identifying acceptable data as part of the field definitions. For example, you can ensure that the date entered in a field is unique. Then, in Browse, if you try to enter a duplicate date into the field, Approach alerts you that the date is not acceptable.



Fields in a database and fields in a view

The first time you open a database in Approach or after you create a new database, Approach automatically builds a form and a worksheet view that include all the fields that are currently defined in the database. After that, if you define a field, Approach adds it to the database structure. After creating fields, you may add the new fields to any of your Approach views.

You can delete fields from a view just as you delete other kinds of objects. Deleting a field from an Approach view merely changes your presentation of the data, not the database structure. To add or delete fields from the database itself, choose Create - Field Definition.

Changes in a database and changes in a view

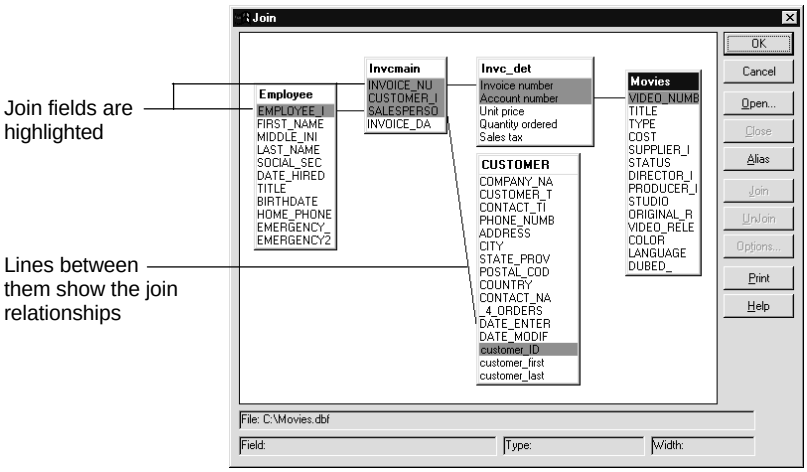
When you make changes to the database structure, such as creating or deleting a field, the changes happen immediately. When you enter data into a record, it's the same thing: You are entering data directly into the database, and the data is saved automatically.

When you make changes to an Approach file, such as placing a field on a view, you must save the changes. Choose File - Save Approach File.

Joins

After you create your databases, you may create relationships between databases. These connections between two databases (called **joins**) make the data from both databases available in Approach views. For example, if you have a customer database and an orders database, when the databases are joined you can show a customer's shipping address (from the Customer database) and outstanding orders (from the Orders database) in the same view.

Join databases using Create - Join. Join the databases on a field or fields that the databases have in common.



For more information about joins and join fields, see Chapter 5.

Creating and modifying views

These sections summarize creating views. For more information, see Chapter 6.

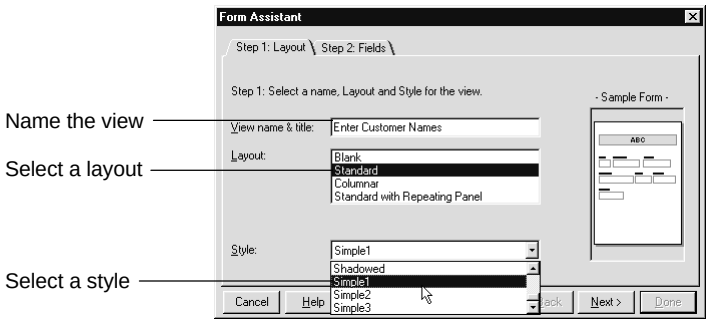
Creating views using assistants

With only a few steps, you can create a view that suits a particular way you use your data.

You create a view in an assistant. All of the view assistants — Form, Report, Worksheet, Crosstab, Form Letter, Mailing Label, Envelope, and Chart — are available from the Create menu.

Assistants let you choose how the view will look, which fields appear in the view, which fields are used in summaries, and how the summaries are calculated.

For example, use the Form Assistant to create a form for entering data, adding fields from left to right or top to bottom and choosing from many color and line styles.



Or use the Report Assistant to create a report to group records and show totals for the groups.

Creating reports using PowerClick reporting

SmartIcons available in Design produce instant summaries in reports. You can group records, show a sum, and calculate an average, a standard deviation, a minimum or a maximum with a single click. This means that you can experiment with how you want to present your data without loosing productivity.

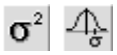
To use PowerClick reporting, create a columnar report using the Report Assistant, select the field to summarize or group by, and click one of the PowerClick SmartIcons.

 Leading and trailing summary

 Sum and Count

 Average

 Maximum and minimum

 Variance and standard deviation

Modifying views in Design

When you make changes to a view, such as moving fields or changing colors, you work in Design.

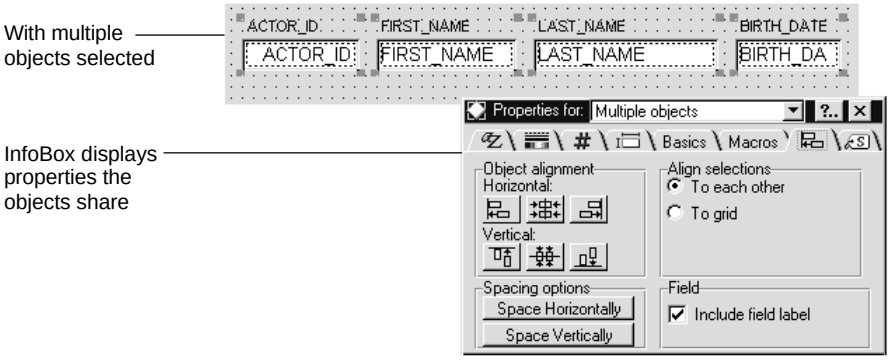
Save changes you make in Design using File - Save Approach File.

In Design, everything in a view is an object you can modify. The view itself is also an object, and can be selected and modified, too.

InfoBox

The properties of objects are available through the InfoBox. To open the InfoBox in Design, double-click an object, or choose the properties command on the context menu.

Changes you make in the InfoBox immediately affect the selected object. When you click another object in the view, the InfoBox changes to show the properties for that object. You can also change the common properties of a group of objects all at once from the InfoBox.



Fast Format

Use Fast Format from the context menu in Design to apply the properties of one object to other objects in the same view. Fast Format transfers the line, color, and text properties of the object.

Adding pictures

You can add clip art, drawings, movies, or any OLE object to the background of a view. Approach offers two powerful ways to work with OLE objects:

- Embed an OLE object on the background of a view so that it appears on the view, no matter what data is displayed.

  For example, a company logo embedded on a form appears on the form for every record.

- Add a PicturePlus™ field to a database and store a different OLE object for each record.

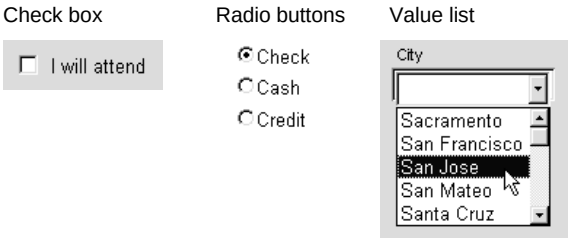
To paste a picture or other OLE object on the background of a view, choose Edit - Picture - Import.

To draw design elements in the view, click drawing tools from the Tools palette.

Adding data-entry controls

When you create a view for data entry, you can add data-entry controls that display a choice of field values that help you enter data consistently.

Display possible field values as a list, or as one or more check boxes or radio buttons. These controls limit the values that users can enter in a field, and also make entering data much easier and more accurate.



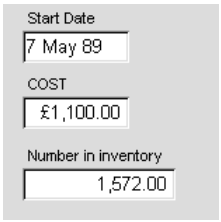
To use a data-entry control for a field, select the data-entry type on the Basics tab of the InfoBox for that field.

Data-entry controls are available for forms, reports, worksheets, and repeating panels.

Formatting field values

Approach provides formats for displaying and printing date, time, numeric, and text data in a field.

When you enter data in a field, enter only the data itself. If the field is formatted, Approach automatically adds the format, such as currency signs or thousands separators.



In Design, set field formats using the Format tab of the InfoBox.

Entering data

This section describes adding data to records. These operations occur directly in your database and are saved automatically. For more information, see Chapter 7.

Remember that you can go into Design from Browse at any time to change how fields are organized, or to add controls for data-entry.

Creating a new record

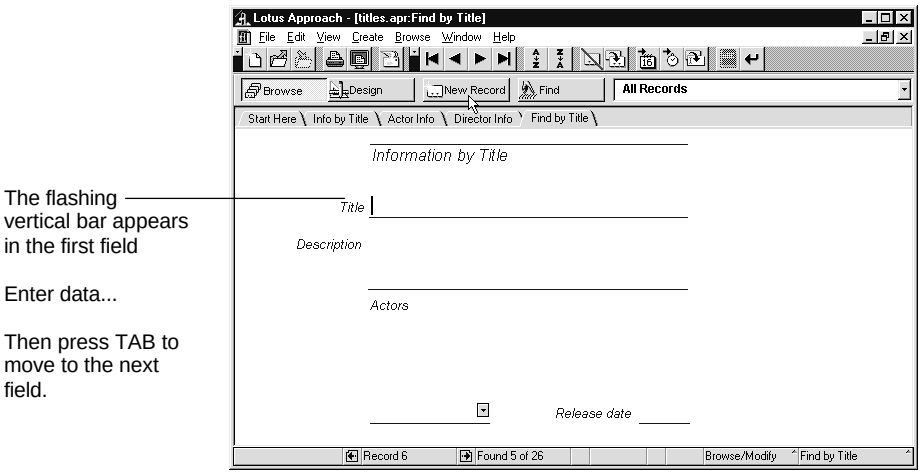
When you want to add a new record to your database, click New Record in the action bar. When you **TAB** out of the last field of a new record, Approach automatically creates another new record.

Entering data in the first field

After you create a new record, your insertion point shows up in the first field in the record. The flashing vertical bar marks where your data goes. To enter data in that field, type the data. If you make a typing mistake, backspace to correct the error.

Tabbing to move the insertion point to the next field

Press **TAB** to move the insertion point to the next field.



Selecting data from lists, check boxes, and radio buttons

When you tab to a field that appears as a set of radio buttons, check boxes, or as a list of selections, you can use several keyboard shortcuts, or use the mouse to make the selection.

If the field uses	*To select a value*
Lists	Use the first letter of an option or the ↑ or ↓ keys.
Check boxes	**TAB** through check boxes, press the **SPACEBAR** to select a check box.
Radio buttons	**TAB** through a group of radio buttons, press the **SPACEBAR** to select a radio button.

Entering the record

Approach saves the data you enter when you:

- Move to another record
- Change to another view
- Click the Enter icon

- Press **ENTER**

You do not need to save data yourself.

Moving between records

You can move forward or backward through a view one record at a time by pressing **PAGE UP** or **PAGE DOWN**.

You can move to the first or last record in the current found set by pressing **CTRL+HOME** or **CTRL+END**.

There are also SmartIcons and status bar buttons for moving between records:

SmartIcons

Status bar

Adding pictures into fields

If you have a PicturePlus field defined in your database and placed in a view, you can enter pictures or other OLE objects in the field. Select the field, and then choose Edit - Picture - Insert to paste an object from a file. To paste the contents of the Clipboard, choose Edit - Paste.

Drawing in fields

If you want to show annotations or add sketches to an object in a PicturePlus field, you can draw on top of objects you add to the field. If the field is set to allow drawing from the InfoBox in Design, your cursor turns into a pen inside a selected PicturePlus field. You can change the color and line width of the pen using the InfoBox.

Finding and sorting records

This section describes the important concepts of finding records, sorting records, and working with a found set of records. For more information, see Chapter 8.

Finding records

If you had a stack of paper invoices and wanted to work only with those for customers in Japan, you would have to search through the stack and select each of the invoices for customers in Japan manually. Create a find in Approach to do the same task much faster.

Find Assistant

Approach provides an assistant to help you identify the records that you want to find. In the Find Assistant, you choose the kind of find you want to do, and then select the fields you want Approach to search.

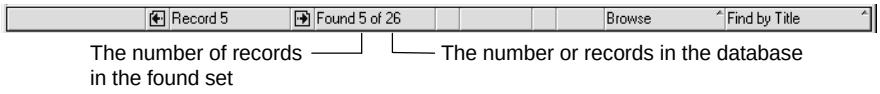
Find request

Another way to find records is by making a find request. Click Find in the action bar in any view and a find request for that view appears. The find request is a blank version of the view that you can fill with find conditions identifying the records you want to find.

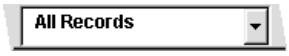
Choose which view you want to find from. Some views may be better than others, depending on the kind of data you are searching for.

Found set

The result of a find is a found set of records. You can tell the number of records found by the numbers in the status bar. You can now use this set of records in any other Approach operation.



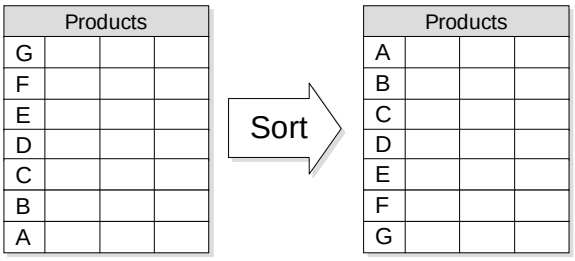
To return to working with the full database of records, choose All Records in the named find box in the action bar.



If you perform another find, Approach searches the entire database again.

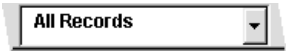
Sorting records

When you sort database records, you reorder the entire database or found set.



Use the sort SmartIcons to sort the database on the selected field or fields. You can also define more complex sorts using one or more fields using Sort - Define from the Browse context menu.

Return the database to its original order by choosing All Records in the named find box in the action bar.

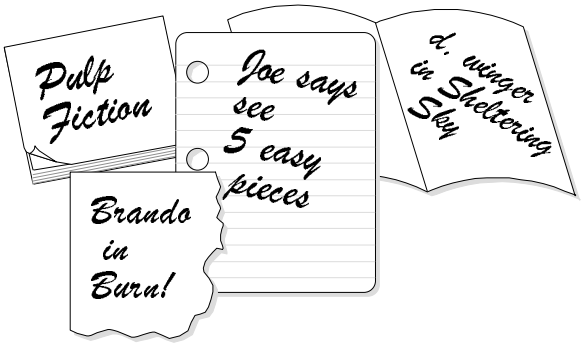


Chapter 5
Creating Databases

Why build a database?

Suppose you're a movie fan who wants to keep track of movies you hear about and want to see. You scan the new arrivals at the video store and read the reviews in the paper. At first, you accumulate a bunch of notes to yourself about the movies you want to see, and you keep the notes in a folder in your desk.

Eventually, the folder becomes a disorganized collection of odd scraps of paper, napkins, and newspaper clippings. You continue to gather data, but because trying to find anything in the folder is frustrating, you're losing track of your information.



You decide to put all the information in a list. You fire up the computer, start Word Pro™, and start typing. You notice that you have more than one note about some movies, but you type in everything because you want to preserve the data you've gathered. Word Pro can even put the list in alphabetical order. (You never realized how many movie titles began with "The".) You get about a third of the way through the folder before you get tired, at least it's a start.

One night, you want to rent a comedy. You leaf through the folder, and scan the list. Alphabetical order doesn't help you find comedies. Nothing is categorized. Some movies you remembered to label; others not. You wish that instead of typing one long list, you had created many lists: one for comedies, one for dramas, one for action movies. . .

The more you think about it, the more lists you wish you had: one for Hitchcock movies, one for movies released after 1960, one for foreign-language movies, one for musicals. But you'd have to put *The Trouble with Harry* on both the list of comedies and the list of Hitchcock movies. That's too much typing, you think.

You say to yourself: I wish I had a list with movable entries. I wish I could press a key and the entries would organize themselves the way I want to see them — or better yet, I'd press a key and I'd see a list of just the movies that fit my mood.

You want dynamic data. You want certain pieces of data pulled out of a large mass and organized into meaningful information. You've just discovered why you need a database. You choose Approach. Good choice!

What will a database do for you?

You don't want to keep all this data in your head, and you now know that keeping it in a static list doesn't help much either. You want the database to track all the pieces of data. That's easy; databases you create in Approach can accommodate lots of data.

So you want the database to be your memory for all this movie data. The amount of data a database has to store won't be a problem, and you'll only have to enter the data once.

But more important, you want to be able to get information — meaningful data ("just the movies that fit my mood") — out. You want to be able to ask a specific question and get a concise answer. The really challenging part is organizing the data so that you can combine it in different ways to answer your questions.

Approach can deliver answers to your questions in seconds. But in order for a database to answer intelligently, you must build some of your own intelligence into the database: Train it to speak your language so that it can respond to the questions you ask.

Organization and planning are key. If you expend the effort in planning now, Approach will do the all the heavy lifting later. Some time spent planning before you create an Approach file pays off in the speed, flexibility, and responsiveness of the database when you start using the information in it.

Designing the database system

What questions will you ask the database?

The example developed through these topics is a simple one based on a personal hobby, but the thought processes are the same that a database administrator would go through to build the databases that store data for a large company.

You can apply what you learn here to any database you design. When you finish reading this series of topics, you'll be ready to plan your database. Once you've got a plan on paper, you'll be ready to create an Approach file (.APR) based on your plan, and then enter the data you want the database to store.

It's likely that the more you use your Approach database, the more demands you'll make of it. Approach will be able to meet these demands. Rely on the user assistance provided in this book and in the online Help to reveal the many tasks you can accomplish in Approach.

Back to the example. . .

Let's say you've built a database. The first task you attempt — or in database parlance, the first find you do — is to look for all of the information on the movie *Strangers on a Train*.

That's easy. If that's the only way you approach movies, you'll be fine with a database containing two units of data (called fields):

- Field: Movie title
- Field: All other data about the movie

Done.

But what about all those other, more complex questions you were asking earlier? What would your two-field database do for you when you ask questions like

- Which of Hitchcock's movies are available on video?

That's a two-part question. You are asking Approach to search every record in the database and present a list of movies that satisfy these two conditions: Hitchcock is in the Director field, and Yes is in the field called Available on video.

If you don't have a field that contains only the director's name and you don't have a field that identifies whether a movie is available on video, you can't ask this question.

You've gone from a two-field database to a four-field database:

- Field: Movie title
- Field: Director
- Field: Available on video
- Field: All other data about the movie

See how it works? You're pulling specific pieces of data out of the mass of movie data and creating individual fields to store those small pieces of data.

If you spend some time thinking about the questions you'll ask — the kind of finds you'll do — you'll discover a lot about the fields you'll need to create.

What kind of data?

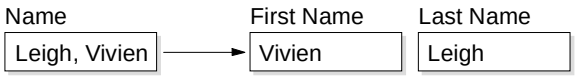
Fields: Think of them as building blocks of data, from which you construct meaningful information. Fields are the smallest unit of data in a database, and in general, the smaller the better.

Don't worry about the number of fields in a database, but do think carefully about how to break up data into fields. Approach looks at fields to find the answers to your questions, and while Approach can search easily and quickly across dozens, even hundreds, of fields to find an answer, it is much more difficult to look deeply into a single field and pull out the one piece of data you want.

Spread your data out into many fields so it's easier to find.

Names in fields

For example, it's common to think of a person's name as a single unit, like the person. Analyzed into its components, however, a name often comprises two or three units; First name, Middle name, Last name. If you're tracking people, it's a good idea to break the idea of Name down into its component parts; therefore, you'll need at least two fields, First Name and Last Name.

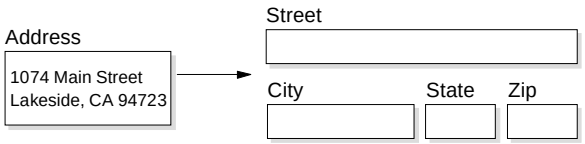


Addresses in fields

Same with addresses. Besides the name of the person living at the address, an address often comprises at least four or five pieces of data: street, city, state, postal code, and country.

If you put all that data into a single field, that may be OK, so long as the only question you ask is: What's John Smith's address? But will you ever ask the question: Who are all the people in my database who live in the 94114 postal code? If so, your single field won't be the best solution.

If you divide the address into its logical, usable components, you can ask all kinds of questions, and get answers back quickly and easily.

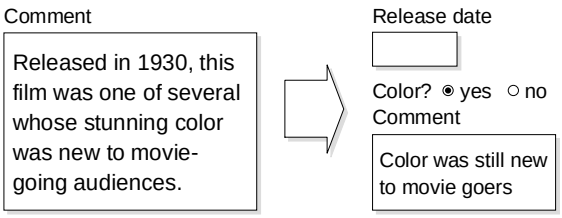


The key to defining fields is to separate each piece of information that you might use to search through the data, to calculate other values, or to categorize your data.

Comment field trap

Beware of "comment" or "note" fields, like that "All other data about the movie" field mentioned earlier. Such fields are great for collecting information that doesn't quite fit neatly into fields; for example, a synopsis of a movie plot. If there is specific information that you need to record, however, you can make the information easier to find later by using smaller, specific fields.

Comment fields can work well for elaborating other specified details or recording a log of changes or additions to a record.



More fields for the movie database

You've been thinking of more questions:

- What movies did Orson Welles direct?
- I remember that Mom had recommended a movie. Which one was that?
- When did *20,000 Leagues Under the Sea* come out?
- Which color movies were produced when color was first popular, say before 1944?
- What Charlie Chaplin movies are available on video?

The list of fields is taking shape. You continue to pull more and more specific pieces of data out of that single giant comment field you started with. Note that these fields are not yet in any particular order.

Title	Release date
Actors (first, last name)	Type of film
Color?	Description
Available on video?	Language
Director (first, last name)	Recommended by?
Producer (first, last name)	Video release date

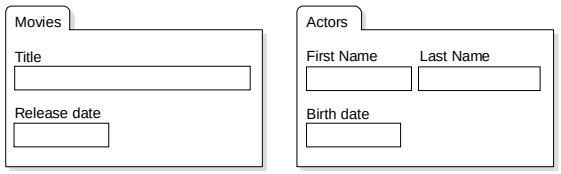
Identify main ideas and group fields under them

Records

The database you design collects related fields into groups called records. "Related" is the important word here.

For example, you have fields that describe the different characteristics of a movie, like the director, the title, and so on. All of the fields for one movie appear in the same record.

The fields with actor information, though, like the actor's birth date, hometown, and real name, would not go into a record about a movie. Collect these fields into a record that describes a particular actor.

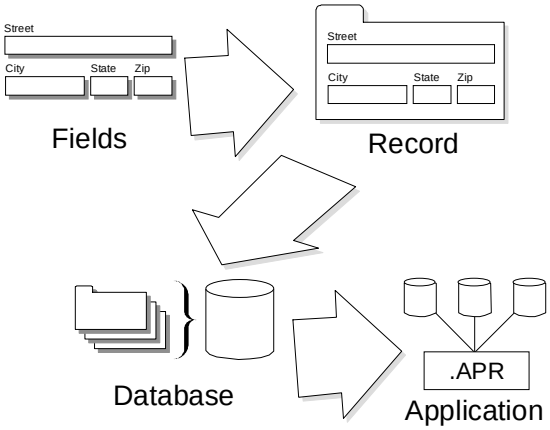


If you collect all of the movie records together, you have a database. If you collect all of the actor records together, you have another database.

Databases

Just what is a database anyway? A **database** is a collection of *related* records. Again, that crucial word related. If you have records that each describe a movie, when you collect all of the records about movies together, you have a database.

You may end up with a lot of small fields, records, and databases that are built up on very narrow relationships among the data. These databases together form a system, or **application**, to help you use the information in the easiest way possible.



Main ideas for movies

Now that you have all of these fields, the next step is to gather them into meaningful groups.

What makes a meaningful group depends on how you are going to use the information. Database design keeps coming back to "what are you going to do with the data?"

Look back at the questions you asked earlier, like “What movies did Orson Welles direct?” These questions refer to the movie title, and data about the movie such as release date, color, and who recommended it to you. They also refer to other information that isn’t so dependent on one movie: information about directors, actors, and producers.

For the movie list, the main ideas are best represented by these categories:

- Movie
- Director
- Producer
- Actors

Here’s another example of choosing main ideas. If you are setting up a database to track your small business’s paperwork, such as invoices and orders, your list of main ideas might look like this:

- Orders
- Customers
- Products
- Suppliers

Records for movies

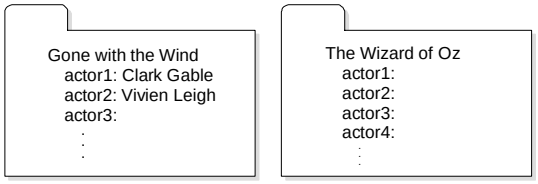
In this process you group fields to build records. All of the fields in a record must relate to each other in the same way. That is, if your main idea for the group revolves around the field Title, all of the fields in the record must further describe the movie with that title. You wouldn’t put an actor’s birth date in such a record, but you would include the date the movie was released.

You are working towards a clear one-to-one correspondence between each of the fields in a single record. A more complicated relationship between a field and the main idea of the record indicates that the field belongs in another, separate database.

At this point, you need to identify fields that need to contain more than one piece of data, or need to appear more than one time.

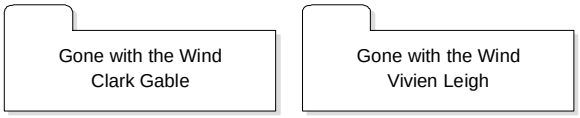
If you have sequentially numbered fields, or more than one piece of information in a field, group these fields under another main idea.

You discover such a field: Actors. Movies typically have more than one actor. But don't add all of the names to a single Actors field. And don't make a separate field for each actor in the movie. The following records show you the kind of repeated fields you want to *avoid.*



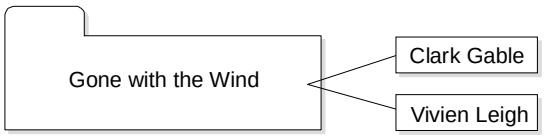
Because you don't know in advance how many actors each movie has, this method may leave many fields blank. Also, if you search for an actor, you have to look in all of the actor fields, because you won't remember — and you shouldn't have to! — if you put Vivien Leigh in the actor1 or actor2 field.

Another way to handle more than one actor is to make another record in the same database and repeat the movie information in the second record. These are repeated records and you want to avoid this, too, to save disk space and assure accuracy of the information.



When you design a database system for a relational database manager like Approach, fields numbered in sequence tell you that you need to pull those fields out into their own database.

In this case, that's what you will do for actors: Make Actor a main idea, build records around that main idea, and build another database to store those records. Later, you can join the two databases so that you can perform finds on them together.



Your plan now calls for four groups of fields:

Movies	*Actors*	*Directors*	*Producers*
Title	Actor Last Name	Director Last Name	Producer Last Name
Release date	Actor First Name	Director First Name	Producer First Name
Type of film	Birth date	Birth date	Birth date
Description	Nationality	Nationality	Nationality
Available on video?	Hometown		
Color?			
Language			
Recommended by?			

Make connections between the groups

A group of related records forms a database. Each group you created around Movie, Actor, Director, and Producer becomes the basis for records in four separate databases.

Approach makes it easy to see the data in one database from inside another database. You can get to the data in both databases. In this way, Approach really helps you cut down on tedious data entry because you don't have to duplicate all of the data needed by all groups.

Now it's time to create the connections between the databases so that the information can be shared between them. Note, however, that you're still working on paper. Later, in Approach, you can make these same connections with a few clicks of the mouse.

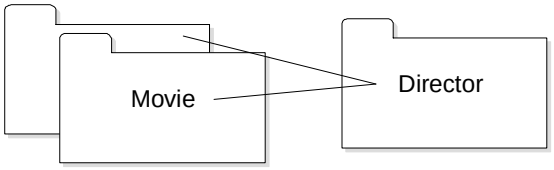
Join fields and joined databases

Approach connects databases using joins between fields common to both databases. The join establishes the relationship between the two databases. For example, the join tells which director needs to be put with which movies.

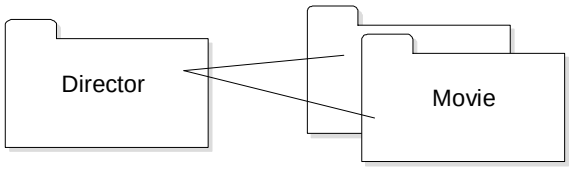
Databases can be related in four ways:

- **One-to-many**: The main idea in one database can be connected to more than one record in another database. At first you think that the Movie database and the Actor database are related this way because one movie can have more than one actor. This relationship, however, ignores that one actor could be in many movies. A better example is the relationship between a customer database and an orders database. One customer can have many orders.

- **One-to-one**: The main idea in one database is connected to only one main idea in the other database. You don't normally use one-to-one relationships in Approach, because you can put all of the fields in a single database.
- **Many-to-one**: Many of the records in a database can be connected to only one idea in another database. The Movie database is related to the Director database this way: many movies have one director.



  Approach treats this relationship as the reverse of the one-to-many relationship. You don't have to do anything special to make a distinction between the two types. For example, the Movie and Director databases are also related one-to-many if you express the relationship like this: One director can direct many movies.



- **Many-to-many**: The main idea in a database can be connected many times to many of the records in another database. This is the best way to describe the relationship between the Movie and Actor databases. One actor can be in many movies, and one movie can have many actors.

If you look at your database system, you see three relationships:

- Movie to director (many-to-one)
- Movie to producer (many-to-one)
- Movie to actors (many-to-many)

To make the connections between these databases, you need to identify a field that each pair of databases has in common. That field will be the **join field**.

Identify the join field

So far, there isn't a duplicated field between the databases. You have to create a field to be the join field.

It's usually best to define one field in each database specifically to be a join field and then enter a unique value, like a serial number or an ID, in that field in the records. Define the field in the "one" database.

For the relationships between movies and their directors, the Director database is the “one” database (one director directs many movies). If you put a “Director Last Name” field in the movie database, you have a field that joins the databases. However, several directors may have the same last name, so this join doesn’t identify unique director records. There are ways you can make a better connection.

The join field or fields must uniquely identify a record in one of the databases — the Director database, in this case. If it doesn’t, here are some things you can do to make the join field unique:

- Generate another field that is unique for each record; an ID field, for example, an order number or a part number.

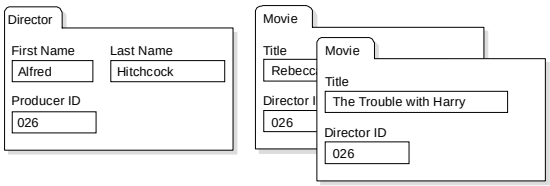
  For example, generate a Director ID just in case two directors in the list have the same name. (This is true for movies, too. Remember *King Kong*? There’s one version starring Fay Wray, and another starring Jessica Lange.)

  When you build your database in Approach, you can have Approach automatically fill a field with a unique ID number for every record.

- Use more than one field in the join.

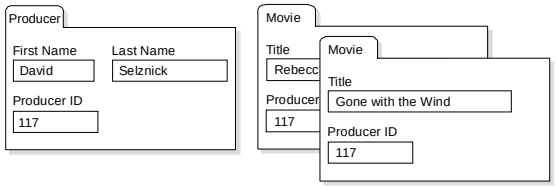
  You could use First and Last Name fields to make sure you have specified a single director. (For the movie, you can use Title and Release Date. The original *King Kong* was relesed in 1933. The remake appeared in 1976.)

To apply this idea to the Movie and Director databases:



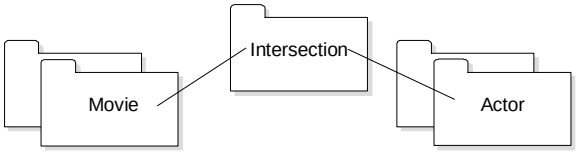
Both the director Alfred Hitchcock and the movies share the Director ID of 026. This value serves as the connection between the two databases.

The same arrangement works for the relationship between the Producer and Movie databases: create the join field in the "one" database (Producer) and add that field to the "many" database (Movie).

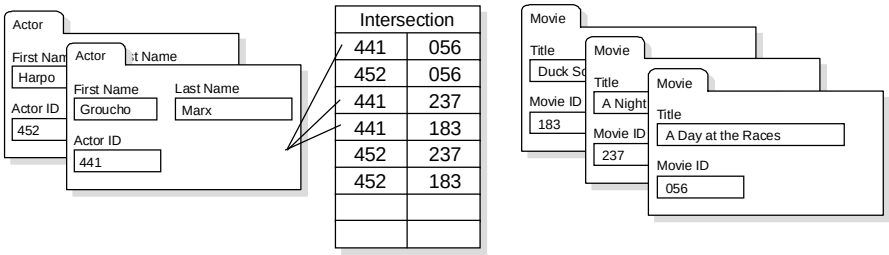


Building a many-to-many relationship

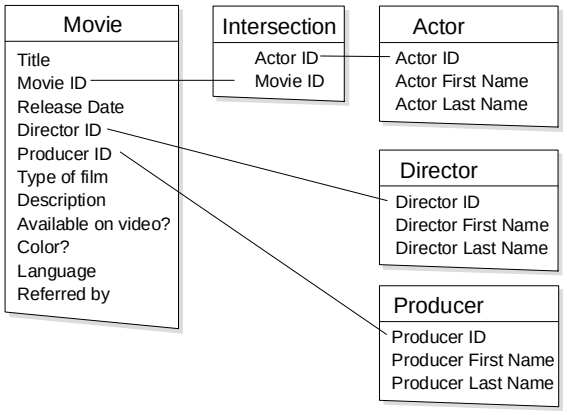
The Movie and Actor databases have a many-to-many relationship. The nuts and bolts for creating this join in Approach are described in *Joining databases*, later in this chapter. This relationship uses a third database (Intersection) to act as the "one" database between two "many" databases. The new "one" database contains two join fields: One for the one-to-many with movies and the other for the one-to-many with actors.



The Intersection database must meet the same requirements that the other databases meet: each field in the database must describe the main idea of the database and must appear only one time to describe that main idea. There is a record in the Intersection database for each actor and movie combination, each "filming event" for that actor. For example, Groucho Marx appears in three movies on your list: *A Day at the Races*, *A Night at the Opera*, and *Duck Soup*. So there are three records for Groucho in the Intersection database, one for each movie. Each of these records stores only the Movie ID and Groucho's Actor ID.



Looking at the your database system, you now have five databases and four joins between them:



Check for redundant information

This final pass through the fields you listed for your database application is a clean-up step that makes the databases as small and fast to search as possible.

Duplicated fields

In most cases, if two databases have more than the join field or fields in common, figure out which database is a better fit for the duplicated fields and remove them from the other database. You may want to go back over your main ideas for each database to help decide where the data belongs.

No field other than a join field should appear more than one time in the entire set of information.

The exception to this rule is a case where you want one copy of the data to stay the same even if you change the original. For example, in your database for your business, you have only one field for the price of a product, and you refer to that price field on an order. Later, if you change the price in the product database (for example, a sale price at the year's end), the old orders automatically update to use the new price.

In this case, you would keep the duplicate price fields to allow for a current price that can change, and a price history that stays the same. Approach makes it easy for you to look up the value in a field, like the current price for a product, when you fill in another field, like the price on an order.

Unnecessary fields

If any fields can be produced from other data or existing information, remove these fields from your lists. Approach can make calculations using database information, current time and date, and constants, so that you do not need to store values that can be generated.

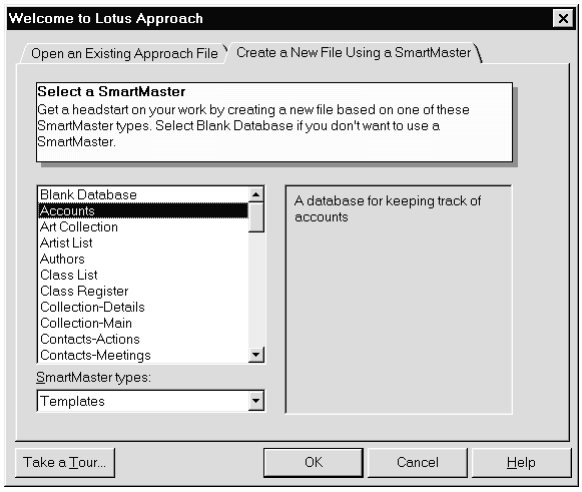
For example, if you record the quantity and price of an item ordered, you can define a formula to describe the "Extended Price" as equal to price * quantity.

Building the database in Approach

After you walk through this process to create an outline of fields and databases, you are ready to create the database application in Approach.

Using SmartMaster applications or templates

The planning process is crucial. Once you design your database system, however, check to see if Approach has already built a database template or application like the one you planned. Approach provides lots of SmartMaster templates and applications that are ready to use. Templates provide the basic structure for creating your own set of joined databases. SmartMaster applications provide complete, pre-built solutions for common database systems. You can use the templates and applications as they are, or customize them to suit your needs.



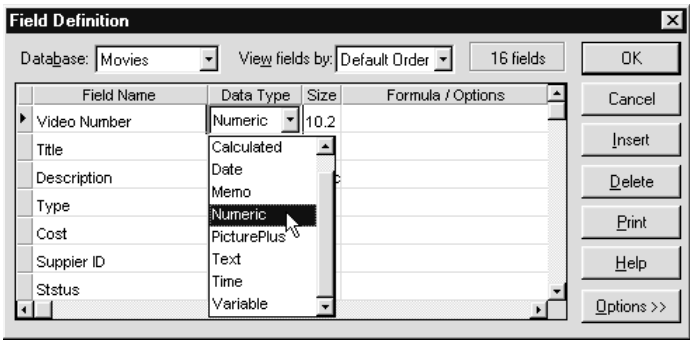
Choose the SmartMaster template or application that is the best match for your needs.

Defining fields: field name

If you choose to start with a blank database, the next step if to define the fields you need for your data. When you define a field, you must give the field a name. A field name should be easy to recognize later. It must also comply with restrictions on the length of field names imposed by the database file type.

Defining fields: data type

When you define a field, you specify the type of data the field can store.



The data type affects how you can use the field when you do finds, sorts, and calculations. It also determines whether you can apply specific formatting characteristics to the field.

The possible data types are text, numeric, memo, Boolean, date, time, PicturePlus, calculated, and variable.

Text fields

A **text field** can store any characters you can type — letters, numbers, and symbols — up to a maximum of 254 characters. Search on a text field using any character in the field. A sort on a text field is alphabetical in either ascending order (0 to 9, then A to Z) or descending order (Z to A, then 9 to 0). When you define a text field, specify the maximum number of characters you want the field to store for each record.

If you want to sort on a numeral, a date, or a time, use a numeric, date, or time data type instead.

Numeric fields

A **numeric field** stores numeric data that you need to use in calculations or to find or sort arithmetically. You can sort records using a numeric field in either ascending order (smallest to largest) or descending order (largest to smallest).

Although numeric fields are limited to numbers, Approach provides format properties for fields to display non-numeric characters. These characters are stored as part of the Approach file and are not stored in the database. For example, if you are displaying numbers ranging into thousands, you can format the numbers with a thousands separator, such as a comma or a period. Numbers in the field appear with the separator, but are stored in the database without a separator.

Memo fields

Like text fields, a **memo field** can store any characters you can type. However, memo fields can store many more characters than text fields. You can perform a search on a memo field. Memo fields are not used in sorts or formulas.

Boolean fields

A **Boolean field** can store a value of Yes, Y, or 1; or No, N, or 0.

Define a Boolean field to store yes-or-no responses, such as whether a payment has been received. A Boolean field often appears as a check box in a view, to make data entry easier.

Date fields

A **date field** stores a single date. You can find and sort records on a date field, and you can use a date field in calculations. A sort on a date field is in either ascending order (earliest to latest) or descending order (latest to earliest).

Time fields

A **time field** stores a single time. You can find and sort records on a time field, and you can use a time field in calculations. A sort on a time field is in either ascending order (earliest to latest) or descending order (latest to earliest).

PicturePlus fields

A **PicturePlus field** can store a graphic or an object that comes from another application that supports OLE (Object Linking and Embedding). Some common OLE objects are pictures, sound files, and data ranges. You paste or import the graphic or object into the field in a record. You can specify a default type of OLE object when you define the field.

Calculated fields

A **calculated field** stores the result of a formula. You write the formula when you define the field; then Approach calculates the result for each record and enters it in the field. The result can be a text string, a number, a date or time, or a Boolean value. At any time, you can return to the field definition dialog box to modify your calculated field formula.

Variable fields

A **variable field** is a temporary storage area. Specify the data type and, optionally, a default value for the field. Any data in a variable field is stored in memory, not on disk. A variable field is accessible whenever the Approach file in which it's defined is open.

Variable fields differ from other types of fields in that the value in a variable field is the same for every record in a database. They are like other fields, though, in that they can be displayed, formatted, and used in calculations and macros.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Defining, fields

   Data types, changing
3. Click the index entry you want, then click Display.

Creating fields for a database, adding fields to a view

If you create a database from scratch, the Field Definition dialog box appears automatically so you can create fields for the database. You can also open the Field Definition dialog box at any time to create new fields or modify existing fields for a database.

With the exception of the first time you open a database in Approach, fields do not automatically appear in views. Add fields to views by dragging them from the Add Field dialog box or by drawing them with the Field tool on the Tools palette.

To create new fields for a database, choose Create - Field Definition. You can create fields for any of the databases associated with the Approach file.

Writing a formula for a calculated field

To add a calculated field to a database, add a new field with the data type Calculated, and write a formula for the field.

For example, you can use a simple calculated field to determine an amount due for each line item in an order. (Each line item is a record.) Your formula might look like this:

```
Item_Price * Quantity
```

Approach can also calculate a formula that evaluates values in more than one record. For example, to determine the total amount due for all the line items in an order, use the function SSum(Amount). This adds up the values in the Amount fields for all the records in the order.

More about formulas for calculated fields

Your formula may be a simple number or reference to another field, or may be built from symbols and Approach functions.

Write a formula in the Define Formula tab. The result appears in the field in each record.

Use values from other fields in a record: For example, define the field Line Total with a formula to calculate the cost of one line in an invoice:

```
"Product Price" * Quantity
```

Double quotation marks tell Approach to treat Product Price as a field name. Use double quotation marks when the field name contains a space.
The result of this expression appears in the Line Total field of every invoice record.

Summarize values across records: For example, define the field SubTotal with a formula to calculate the total across all of the lines in an invoice:

```
SSum("Line Total")
```

Specify that this formula applies to all line item records in the invoice by selecting "Summary of all records in Invoice_details" in the Define Summary tab.

Include other calculated values: Another calculated field could use the SubTotal result to calculate invoice total including tax. The value for Invoice Total would be calculated using this formula:

```
SubTotal * "Tax Rate"
```

where Tax Rate is a field containing the current local tax rate.

For more information, see Formulas, overview in online Help.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Fields, adding

   Formulas, in calculated fields
3. Click the index entry you want, then click Display.

Editing fields in a database

You can edit the name, type, length, or formula of fields. The change applies to the field throughout the database, even if the field already has data in any of the records.

If you change the field	*Then Approach*
Name	Automatically uses the new name wherever the old name appeared, such as field references in formulas and in macros.
Data type	Converts the data to the new type. If you specify a new data type which is incompatible with the original data, Approach warns you.
Size to be shorter	Cuts off the data to the new length.
Formula	Recalculates the formula in all records. If the result is used in formulas in other fields, those formulas are also recalculated automatically.

Customizing a field for data entry

Approach provides several ways to customize the entry of data in fields:

- For a text, numeric, date, time, or Boolean field, you can have Approach enter data automatically or check the accuracy of data when it is entered.
- For a PicturePlus field, you can specify whether it uses an OLE object and which application is its default OLE server.
- For a variable field, you can specify the type of data allowed and set an initial value.

Entering data automatically

Entering data automatically makes filling out records quick, easy, and accurate. For example, have Approach date revisions or number invoices for you, rather than entering this information yourself.

For example, when you define a field for invoice numbers, have Approach fill in the next invoice number in sequence when you create a new invoice record. Choose Create - Field Definition, define the invoice number field, and click Options. In the Default Value tab, select “Serial number starting at,” and enter first number Approach should use to number the invoices.

Formulas for entering data automatically

Your formula may be a simple number or reference to another field, or may be built from symbols and Approach functions.

Write a formula in the formula box under the Default Value tab in the Field Definition dialog box. The result appears in the field when you create a new record.

Set one field equal to the value in another: You can set the Billing Address field equal to the Shipping Address field until the value is deliberately changed:

"Shipping Address"

Double quotation marks tell Approach to treat Shipping Address as a field name.

Set one field equal to the value in another: You can set the Billing Address field equal to the Shipping Address field until the value is deliberately changed:

"Shipping Address"

Double quotation marks tell Approach to treat Shipping Address as a field name.

Set a future date for a field: You can set the Payment Due Date value for a record using today's date:

Today()+30

The function Today() produces today's date.

For more information, see Formulas, overview in online Help.

Verifying the accuracy of entered data

Have Approach verify that the data in a field is valid for that field. For example, Approach can check to see that a customer name in the current record is unique in the database, or that a numeric value falls within a certain range.

Approach verifies the accuracy of data as you enter it. If you try to enter data that is invalid according to your validation options, an alert appears describing the problem. Before you can move to another field, you must enter a value that satisfies the validation conditions.

Formulas for verifying the accuracy of entered data

Your formula may be a simple number or reference to another field, or may be built from symbols and Approach functions.

Write a formula in the formula box in the Validation tab in the Field Definition dialog box. The result determines if data entered into the field is acceptable.

Control the number of characters entered in a field: For example, to require that data entered into a postal code field be 5 or 9 digits, create this validation formula as part of the field definition:

Length("Postal Code") = 5 or Length("Postal Code"") = 9

The function Length determines the number of characters in the value in the Postal Code field. If true, Approach lets you to enter more data in the record. If that value is not 5 or 9, an error message appears when you try to enter the value into the database.

For more information, see Formulas, overview in online Help.

Setting OLE options for a PicturePlus field

An OLE object is an object created in another application that you can link or embed in a PicturePlus field in Approach. OLE objects let you include a variety of different kinds of information in your database — including graphics, video, sounds, and text ranges.

You can set these options for PicturePlus fields:

- Embed or link the object in the field.

  When you embed an OLE object, the object is stored in the field and has no live connection to any file in the server application.

  When you link an OLE object, the object is not stored in the field, but a copy of the object appears there. The original object remains in its source file, and if the original object changes, the display of the object in the PicturePlus field is updated to match it.

- Specify a default OLE type.

  Even if you have a default application, you can still store objects from other applications in the PicturePlus field.

Setting data options for a variable field

You can specify what type of data to allow in a variable field. If you try to store an incompatible type of data, Approach alerts you so that you can change it.

You can also set an initial value for a variable field.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   Default, values entered automatically in fields

   Data, verifying

   PicturePlus fields, setting OLE options
3. Click the index entry you want, then click Display.

Joining databases

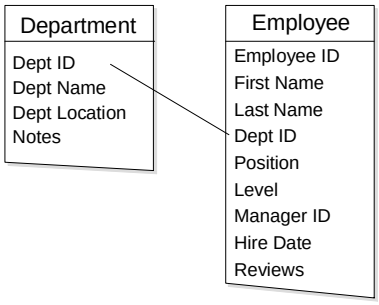
As described earlier in this chapter, to design a set of joined databases, divide the fields for the data into logical groups. Each group becomes a separate database. Your goal should be to minimize data entry — thus decreasing the chances of error — by making data entered in one database available for use with other, related databases.

After creating the databases, you establish a relationship between two or more databases using one or more fields that the databases have in common. These are the **join fields**. It's usually best to define one field in each database specifically to be a join field and then enter an ID value in that field in the records.

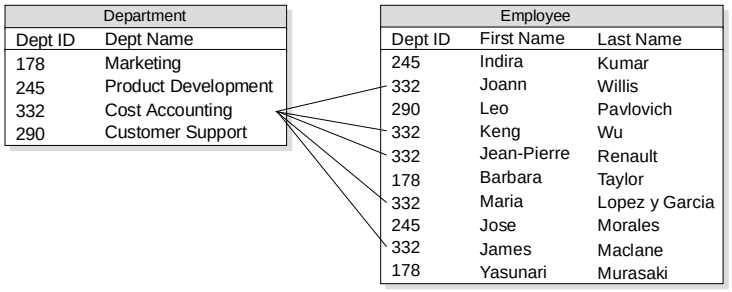
If you do not have a specific field you can use as a join field, you can join databases on other fields they have in common. The fields must together uniquely identify records in one of the databases, such as first name, last name, and phone number.

For example, suppose you want to compile a list of all the employees in each department in your company. Rather than putting all the data in one database, divide the data into two smaller database files: one for departments and one for employees. In addition to the department and employee information, the databases have at least one join field with ID values that identify each department.

The department and employee databases use a join field called Dept ID:



When a record in one database has the same join value as a record in a joined database, the two records are "related" and can be used together in views. In the department and employee databases, records with a matching value in Dept ID are related.



Department

Dept ID	Dept Name
178	Marketing
245	Product Development
332	Cost Accounting
290	Customer Support

Employee

Dept ID	First Name	Last Name
245	Indira	Kumar
332	Joann	Willis
290	Leo	Pavlovich
332	Keng	Wu
332	Jean-Pierre	Renault
178	Barbara	Taylor
332	Maria	Lopez y Garcia
245	Jose	Morales
332	James	Maclane
178	Yasunari	Murasaki

Approach protects the joins you create by preventing you from deleting the join fields. If you need to delete a join field, first unjoin the databases, or join them on a different field.

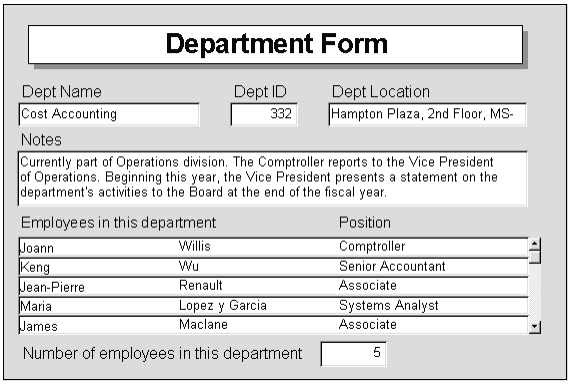
If the join field is a calculated field, you cannot delete any fields referred to in the formula, until you unjoin the databases.

To make the join in Approach, choose Create - Join, and then open the other database and select the join fields.

How joined data appears in views

After you join databases in an Approach file, you can design views that use related data from the databases joined in that file. As you work in a form, report, or other view in Browse, Approach looks up a matching value in join fields. If it finds a match, it displays data from each record that has the matching value.

In a form that displays one department record, you can see all the employees that have the same value in the department ID field as the current department.



If you're in Design and are showing field names rather than data, each field in a view shows both the name of the joined database and the name of the field.

Main and detail databases in a view

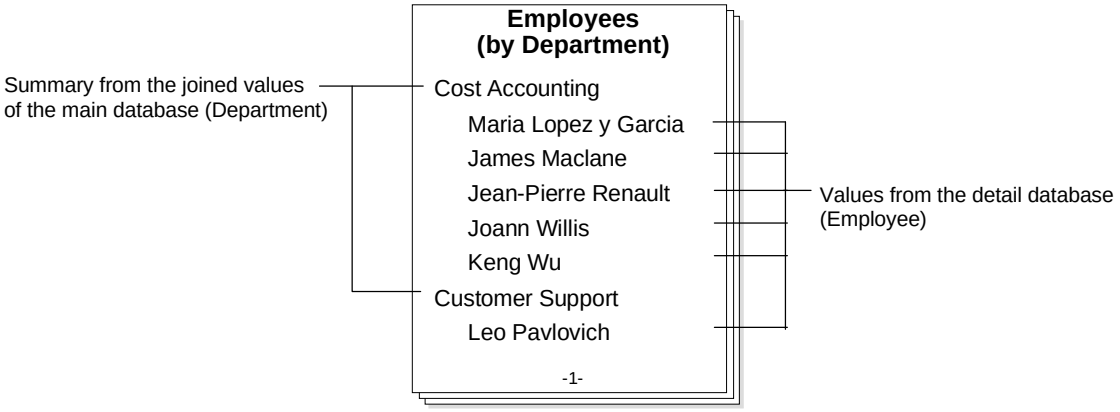
Each form, report, or other view that uses joined databases has one main database and one or more detail databases. The **main database** provides the basic information for that view. Each record from the main database can appear in that view. The other joined databases act as **detail databases**, providing additional, related information to display in the view.

Each view in an Approach file can have a different main database.

A form displays one record from the main database. For example, the department form is based on the Department database. The Employee database is a detail database of this form.

A **repeating panel** in a form is always based on one of the form's detail databases. The panel shows all the records from the detail database that match the value in the main database's join field or fields.

In a report, you see all the records from the main database as line items in the report body. For example, if you want to list all the employees in your company and group them by department, you design a report based on the Employee database and then use summary panels for the department groupings.



When you design a report that uses joined data, it's important to base the report on the database from which you want to display *all* the records. In the Employees report above, you want to see all the records from the Employee database. Therefore, you make the Employee database the main database of the report. If you were to base the report on the Department database rather than on the Employee database, you would see all the departments, but only *one* employee for each department.

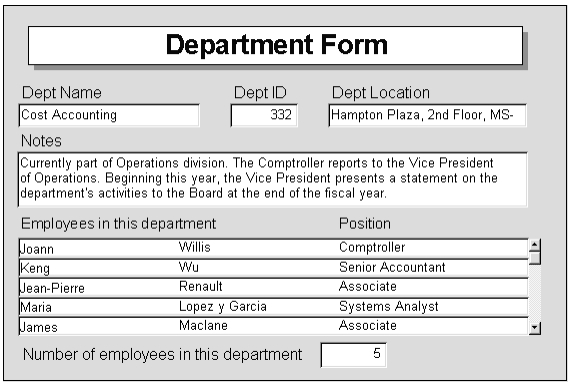
You specify which database is the main one for a view when you create the view. You can change to another main database later using the InfoBox.

Join relationships

The relationship between records in any two joined databases can be one-to-many, many-to-one, one-to-one, or many-to-many.

In a **one-to-many** relationship, a record in one database is related to one or more records in the other database. For example, one department can have many employees; in other words, one record in the Department database has the same Department ID as several records in the Employee database.

To show a one-to-many relationship, add a repeating panel to a form that is based on the “one” database. The repeating panel is based on the “many” database, and each line in the panel is a record in that database.



In a **one-to-one** relationship, a record in one database is related to only one record in the other database. For example, a vehicle number in one database might be related to a license number for that vehicle in a joined database.

You don’t normally need to create joins that are one-to-one relationships in Approach. Instead, store data related in this way — such as everything about one vehicle — in a single database.

A **many-to-one** relationship is the reverse of a one-to-many relationship. This relationship is often used when “looking up” joined data. Create a many-to-one join the same way you create a one-to-many.

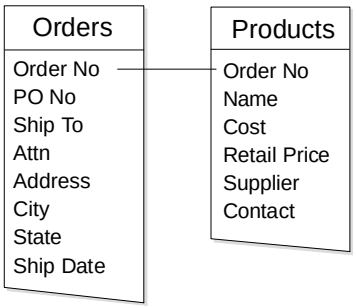
To show a many-to-one relationship, add fields from the “one” database to a view based on the “many” database. When you enter data into the join field, the fields from the “one” database are automatically filled with the data matching the join value.

For example, one department record in the Department database can be related to many employee records in the Employee database. The join between the two databases is a value representing the department, Dept ID. When you enter a value in Dept ID in an employee record, it makes a connection between that record and the corresponding record in the Department database. To automatically lookup department information in an employee view, place fields from the Department database on a view based on the Employee database.

In a **many-to-many** relationship, many records in one database are related to many records in the other database. A set of orders for products is a common application of a many-to-many relationship. Each order can

include many products, *and* each product can appear on many orders. A many-to-many relationship is a one-to-many relationship in both directions.

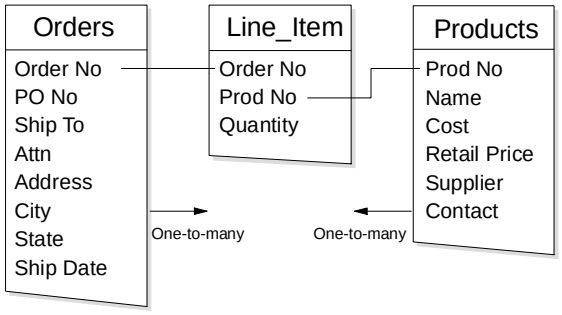
You cannot set up a many-to-many relationship directly between two databases. For example, if you join the Orders database and the Products database directly on an order number, each product can appear on only one order (because the order number becomes part of the product record).



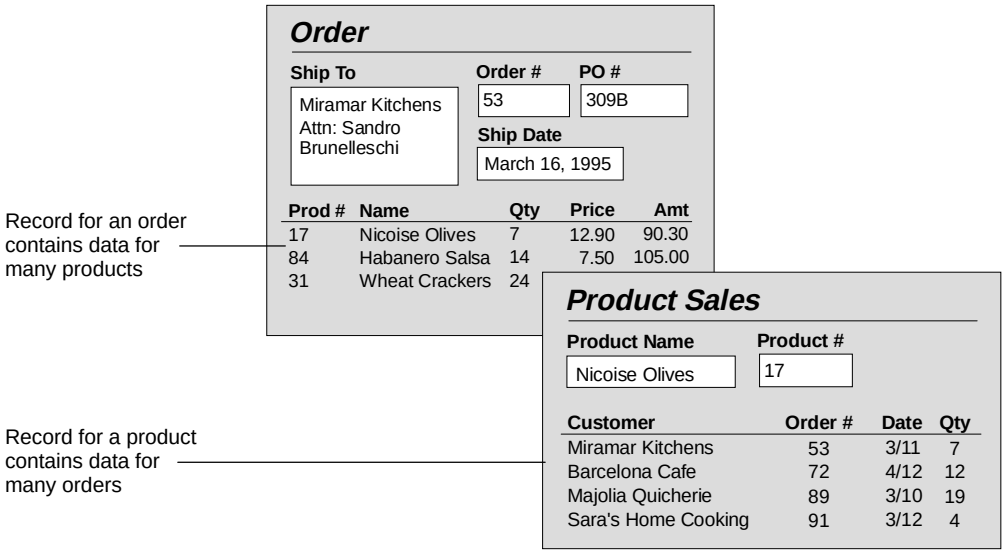
Similarly, if you join the two databases on a product number, each order can have only one product (because the product number becomes part of the order record).

To set up a many-to-many relationship between two databases, you need to add an intermediate, or intersection, database. Each database has a one-to-many relationship with this intersection database.

For the Orders and Products databases, you might use a third database that stores the product information from each item in the order; call the new database Line_item. Then show the records from this Line_item database in a repeating panel on a form based on the Orders database. This keeps the orders data out of the Products database and the products data out of the Orders database.



Now each order can have many products, and each product can be on many orders. You can display one-to-many data both on order views and on product views.



Alias joins

It's sometimes useful to join a database to itself. For example, suppose you want to keep track of which employees in your company are managers and who reports to them. The Employee database can have employee IDs to uniquely identify each employee and manager IDs to identify each person's manager by employee ID.

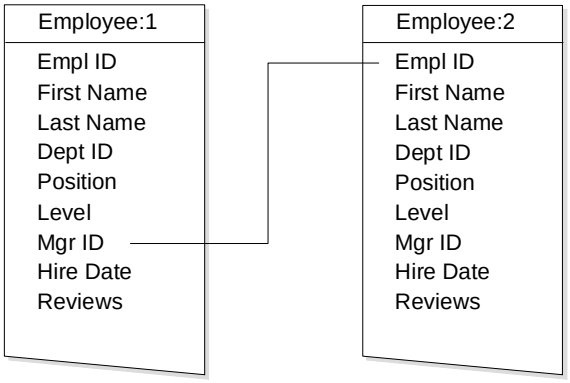
Employees

Empl ID	First Name	Last Name	Mgr ID
25	Indira	Kumar	81
74	Joann	Willis	97
95	Leo	Pavlovich	35
29	Keng	Wu	74
33	Jean-Pierre	Renault	74
49	Barbara	Taylor	43
85	Maria	Lopez y Garcia	74
35	Jose	Morales	28
63	James	Macleane	74
12	Yasunari	Murasaki	20

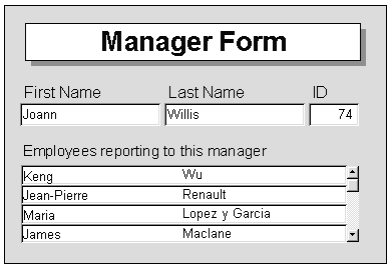
This can be an efficient way to use data because you don't need to duplicate the manager records in a separate database. But you do need a second database to express the join relationships properly.

To join a database to itself, you create a virtual copy of the database in the Join dialog box. By virtual, we mean the copy is not an actual duplicate of the database, but just another listing of it called an **alias**. After you create the alias database, you can set up a join between the database and its alias as you would between any two databases.

For example, you can join the manager ID in an Employee database to the employee ID in a Manager database, that is a virtual copy of the Employee database.



The alias Manager database has a one-to-many relationship with the employee database. You can display the results of this self-join using a repeating panel on a form based on the Manager database.



If you create more than one alias copy of a database, you can join one alias to another and even join an alias to a different database.

When you create an alias for a database, Approach adds 1 to the name of the database, and names the alias with the same name as the database, plus a 2 (or a 3 and so on); for example, EMPLOYEE:1 and EMPLOYEE:2. These names appear only in the Approach file with the joins, and they do not affect the name of the database file itself or the name of the database in any other Approach file.

Joining and unjoining

The forms, reports, and other views in an Approach file can use data from any of the databases joined in that file.

For each join, you can specify whether you want Approach to automatically insert or delete related records from a joined database when entering or editing data in a view based on a different database.

After you create joins across databases, remember to save the changes to your Approach file.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Main database for a view

   Alias joins

   Joins, setting options
3. Click the index entry you want, then click Display.

What's next: creating views

Now that you have designed your database system, you are ready to build views to enter, analyze, and present your data. For all of your database operations, use views. Depending on how often you perform a task, you may want to specialize a view so it's easy to use, and does what you need each time.

Chapter 6
Designing and Modifying Views

This chapter describes ways you can build and customize Approach views to enhance how you enter and present your data. The tasks discussed in this chapter affect views and objects stored in the Approach file (.APR). Perform these tasks in the Design environment.

Choose File - Save Approach File periodically to save the changes you make in Design.

Design environment

In Design, you create forms, reports, worksheets, form letters, envelopes, mailing labels, crosstabs, and charts to view and work with your data. You can add, edit, and delete these views at any time.

To go to Design, do one of the following:

- Click the Design button in the action bar.
- Click the environment button in the status bar and select Design.
- Choose View - Design.

As you work in Design, remember to save the changes you make to views. For information about customizing your Design work area, see Chapter 9.

Design SmartIcons

Approach provides sets of SmartIcons for manipulating objects, editing text, and changing the Design work area.

- To work with an icon, click it.
- To find out what an icon does, rest the mouse pointer on the icon. A short description of what the icon does appears.

Click the button in the top left corner of a SmartIcon bar to select icon bar commands, such as “Hide this bar of SmartIcons,” and to display related icon bars.

For more information about controlling which sets of SmartIcons are available when, see Chapter 3.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   SmartIcons, overviews

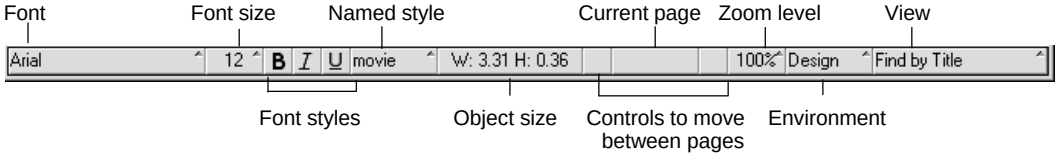
   SmartIcons, displaying
3. Click the index entry you want, then click Display.

Menu bar and status bar in Design

In Design, the menu bar includes a **context menu** that changes depending on the current view or the current selection. If you have no current selection, this menu is called whatever the current type of view is: Form, Report, Letter, Envelope, Mailing Label, Worksheet, Crosstab, or Chart.

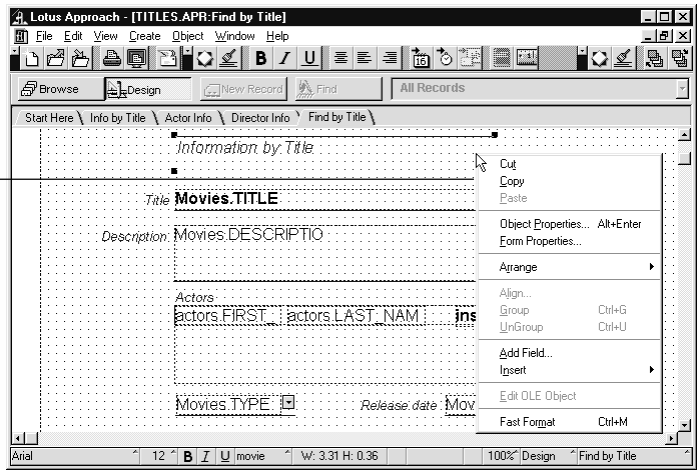
The context menu provides commands for working with the current type of view. If an object is selected or if you've clicked in text, a repeating panel, or a summary panel, the menu changes to Object, Text, Column, or Panel, and has commands for working with that type of element.

In Design, the status bar gives information about the current view and the text and objects in it. Most parts of the status bar are buttons you can click to change the selection or work area.



Shortcut menus

When you're in Design, you can open a shortcut menu listing the most commonly used Design commands for the selected object. These commands are a subset of the ones in the main menu.



Shortcut menu appears with right mouse click

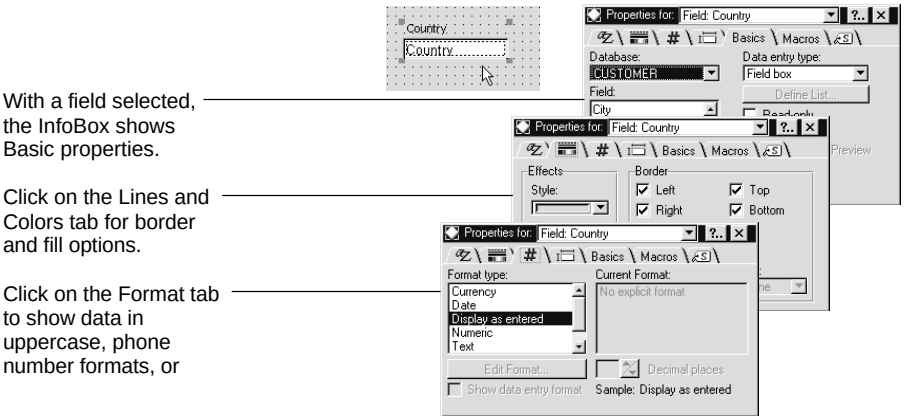
To choose a command from the shortcut menu, click an object or the page margin of a view with the right mouse button. When the menu opens, click the command you want.

The shortcut menu closes after you choose a command. To close the menu without selecting a command, click anywhere outside the menu.

InfoBox

The design properties for objects are all set in the InfoBox.

The InfoBox has tabs containing the properties for the currently selected object. If no object is selected, the InfoBox shows settings for the current view. Click a tab at the top of the InfoBox to go to another set of properties for the object.



When you click another object or click in the background of a view, the InfoBox changes to show the settings for that object or view.

You can save a set of InfoBox properties together in a **named style**. If you want to change the properties of a particular object, you can apply a named style to it or use the InfoBox to change properties manually. You can also make one named style the default for views.

Tools palette

Use the Tools palette for drawing objects and adding fields to a view.

- Click an icon to work with it.
- Double-click the icon to draw more than one object of that type.

After you create radio buttons, field boxes, and check boxes using icons from the Tools palette, Approach displays a dialog box in which you connect the new objects to a database field. If you draw a button, the InfoBox appears, open to the Macros tab.

Select options in this tab to

- Select the user action that activates the macro
- Specify the name of the macro to attach to the button

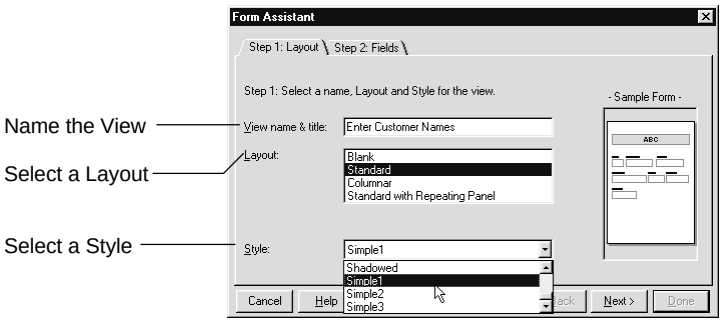
Assistants

With only a few steps, you can create a view that suits a particular way you use your data.

You create a view in an assistant. All of the view assistants — Form, Report, Worksheet, Crosstab, Form Letter, Mailing Label, Envelope, and Chart — are available from the Create menu.

Assistants let you choose which fields appear in the view, which fields are used in summaries, and how the summaries are calculated.

For example, use the Form Assistant to create a form for entering data, adding fields from left to right, or top to bottom, and choosing from many color and line styles.



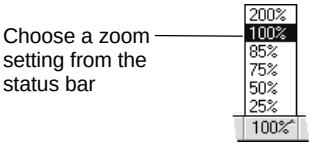
Or use the Report Assistant to create a report to group records and show totals for the groups.

Approach provides a number of predesigned layouts and styles for views; select one layout and one style from the assistant to determine the basic appearance of the view. You can customize a view after you create it.

Zooming in and out

As you work in Design, you can **Zoom in** for a closer look at your view or **Zoom out** for the big picture. The possible zoom settings are 25, 50, 75, 85, 100, and 200 percent.

Zoom settings affect only how a view appears on the screen, and not how it is printed. Approach always prints at 100 percent.



For more information

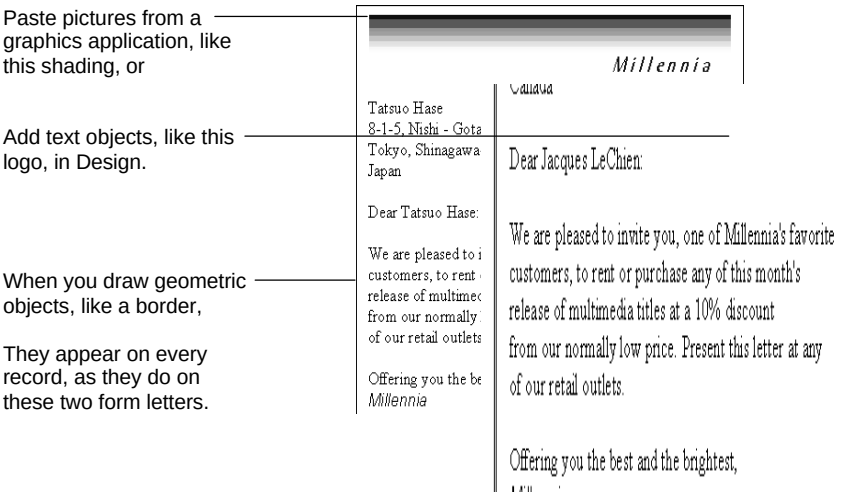
1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   Zooming, views
3. Click the index entry you want, then click Display.

Working with objects in Design

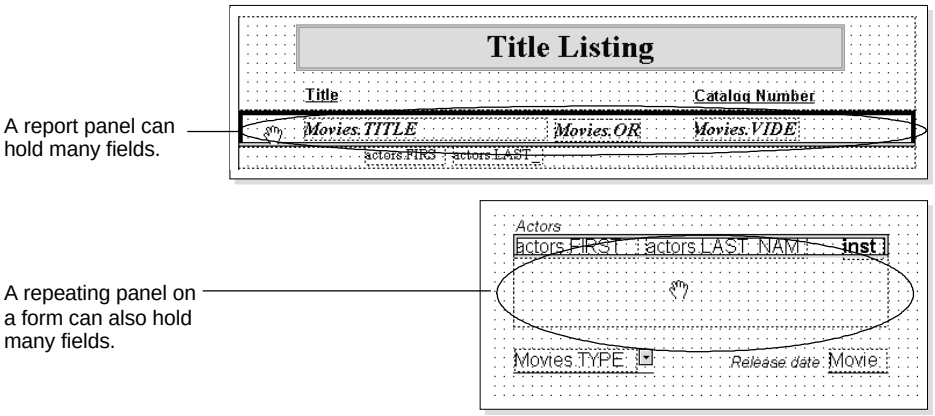
In Design, everything in a view is an object that you can modify. You can select and manipulate objects in many of the same ways, including resizing the objects and applying line and color properties to them.

You can add objects to the background of a view. In Browse, these objects stay the same for every record. (By contrast, text and pictures in fields change from record to record in Browse.)



Field objects display data from records in a database. By default, a field object is a box that you type data into in Browse, but it can also be a set of radio buttons, a set of check boxes that you use for selecting data, or one of several different kinds of lists.

Some views can have panels that can contain fields or other objects. For example, a form can display a repeating panel, and a report can include a summary panel.



A view itself is also an object. It can be edited in some of the same ways as other objects. It provides the background on which to display the other objects.

Showing field names or actual data

You can show either field names or actual data in field objects in Design.

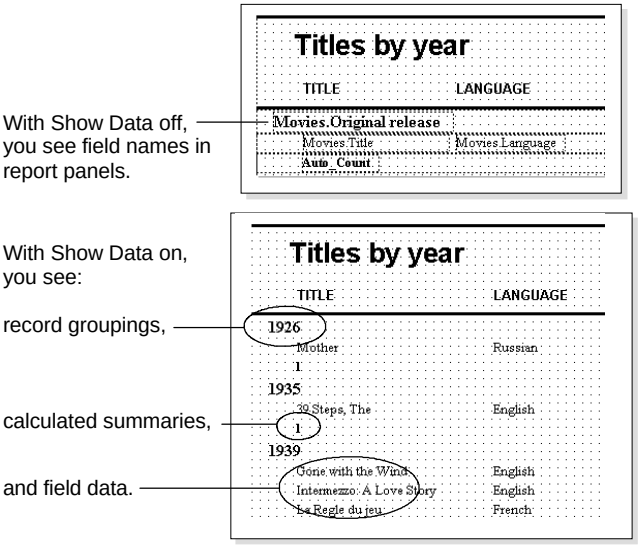
When you show field names in Design, the object borders also appear in the work area. If the Approach file has joined databases, the database names appear along with the field names (for example, EMPLOYEE.Address).

If you look at a report showing field names, you can see how fields and other objects are placed in the report panels.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   Showing, field names in Design
3. Click the index entry you want, then click Display.



When you show actual data in Design, you see field data as it prints:

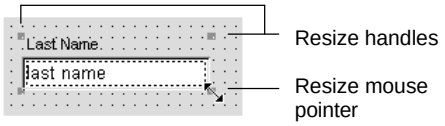
- Fields set to slide when printing appear as they would print.
- Objects set not to print do not appear in the view.

You can switch between these ways of seeing objects in Design.

- To show data in Design, choose View - Show Data.
- To show field names, choose Show Data again.

Selecting objects

A selected object has handles around it. Drag one of these handles to resize the object.



If you select more than one object, you can change the properties of all of the objects at one time. The InfoBox displays options common to all selected objects.

- To select an object, click inside the object or on its border.
- To select more than one object, **SHIFT**+click the objects. Or click an empty part of the view, and drag diagonally to draw a selection rectangle around the objects.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   Objects, selecting
3. Click the index entry you want, then click Display.

Selecting text

You need to select a text object or text before applying text attributes (such as italics or bold) to it.

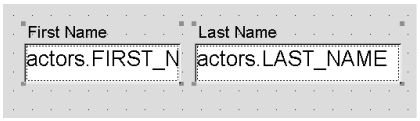
If you select an entire text object, any attribute you use applies to all text in the object. You can select particular text in a text object; text is highlighted when it is selected.

Aligning and distributing objects

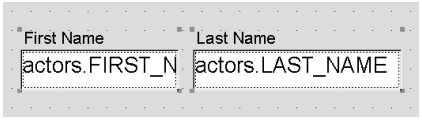
Approach lets you align objects vertically, horizontally, or both. You can specify alignment along the top, bottom, side, or center of the object boundaries. The objects can align to the position of one object or to the nearest point on the grid.

Align the objects:

to each other, or



to the grid.



You can also distribute objects vertically, horizontally, or both. This places an equal amount of space between the objects.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

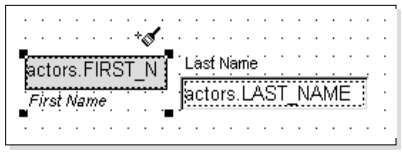
   Objects, aligning
3. Click the index entry you want, then click Display.

Fast Format

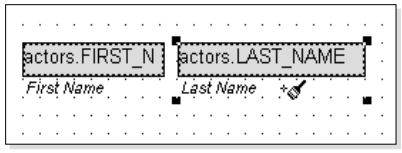
You can copy the line and color properties and the text attributes of one object and apply them to another object with a click of the mouse.

Each object you click takes the line and color properties and the text attributes of the selected object.

Select the first object and choose Fast Format.



Then select the objects to change.



Named styles

A named style is a set of object properties that you define and save. You can apply a named style to any object, and you can define one style to be the default for any new views.

Named styles allow you to apply consistent formatting to objects within an Approach file.

A named style can include these properties:

- Text attributes for field data and for text in text objects
- Line and color properties for all objects, and border and baseline properties for fields
- Text attributes for field labels
- Picture properties, such as cropping and shrinking, for PicturePlus fields
- Border and color properties for the background of views and panels

The properties in a named style are the same as they are in the InfoBox, but by saving properties in a style you can easily apply them to more than one object. If you change any properties of a named style, all objects that use the style are updated to match the changes automatically.

When you create a view using an assistant, you can apply your current default style to the view or apply one of the predefined styles. Approach uses the properties in a style for the background of the view and for all objects you add to the view.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

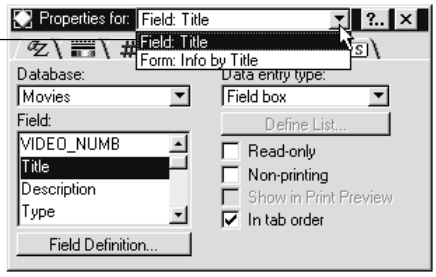
   Named styles, applying
3. Click the index entry you want, then click Display.

Views

In addition to editing individual objects in a view, you can make changes that affect the view as a whole. Just like other objects, the properties of a view are available through the InfoBox.

When you select a view or click the background of a view in Design, the InfoBox changes to show the properties for the view. To make sure you are changing the properties for a view, look for the name of the view in the title of the InfoBox.

The InfoBox title bar shows the object currently selected.



To create a view that is similar to one you already have, choose Edit - Duplicate [View] and then modify the copy.

When you duplicate a view, Approach gives the duplicate a name such as Form 2 or Report 2. Rename the view in the Basics tab of the InfoBox.

To delete a view, choose Edit - Delete [View].

Field properties in Design

Add a field to a form, report, envelope, or mailing label using either the Add Field dialog box or using any of the icons for creating field objects on the Tools palette. You can also use Add Field in a worksheet or crosstab. The Add Field dialog box lets you drag existing fields on to any of your views; click Field Definition in the dialog box to create new fields.

When you add a field to a form or report, the field appears as a **field box** for entering and editing data in Browse. A field box in a view is a connection to the underlying database field. You can make any number of connections to the same database field — from a single view, or from many views.

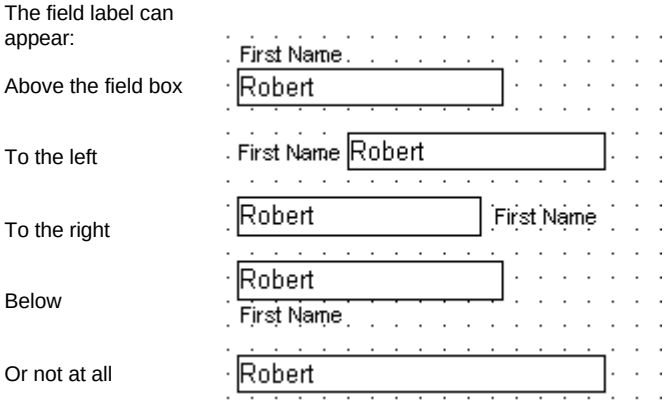
Approach gives the field box the border width, text attributes, and other properties of the named style for the current view.

You can delete fields from a view just as you can delete other kinds of objects. Deleting a field from an Approach view merely changes your view of the data, not the database structure. To add or delete fields from the database itself, choose Create - Field Definition.

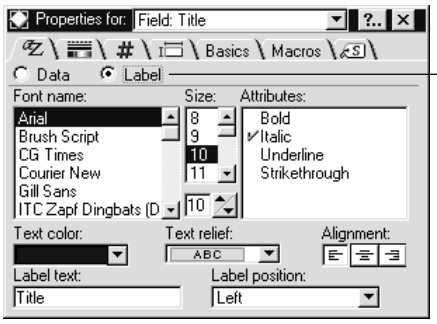
Field labels

A field label is the descriptive title for a field that you see in Browse. A label is initially set to have the same wording as the field name, but you can edit the label to use any text you want.

A label can appear above or below the field object, or to the left or right of it. You can also hide the field label.



Change the text properties, label text, or position of a label, in the Text format tab of the InfoBox. Select Label to modify the label properties.



Click Label to see the field label properties.

Displaying values for a field

Besides displaying a field as a simple box for entering data, you can also display it as:

- One of several kinds of scrolling lists (drop-down box, field box and list, or list box)
- One or more check boxes
- One or more radio buttons

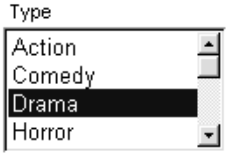
Use one of these controls to make entering data much easier and more accurate.

Displaying a field as a list of values

You can have a field appear in Browse as a list that doesn't close (list box), a drop-down box, or as a combination of a drop-down box and a field box.

List Box

Type



Select from the list

Drop-down box

Type

Drop-down and select from the list

Field box & list

Type

Select from the list or enter a new value

To display a field as a list, start with a field already in the view. Only memo fields and PicturePlus fields cannot be displayed as a list.

You can specify which values are available in the list in several ways:

- Enter custom values you want to appear in the list.
- Use existing values from a database field.
- Use the values from another field as a description of the value that is added to the field.

  For example, suppose a field with a list stores an employee ID. To make it easier to enter the employee IDs, display the employees' last names in the list rather than their IDs. Then, when you select a name in the list in Browse, the ID corresponding to that name is entered into the field.
- Filter the list of values using a field value already entered into the record.

  For example, suppose that not all your company's products are available in other countries. To see only the products that are available in any given country, add a Country field to the Product and Order databases. Then limit the list to products that have the same value in the Country field (in the Product database) as the Country field in the current record (in the Order database).

When you have joined databases, you also can use fields from the joined databases to describe or filter the values in a field list.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Descriptive values, displaying in drop-down boxes

   Fields, displaying as list boxes

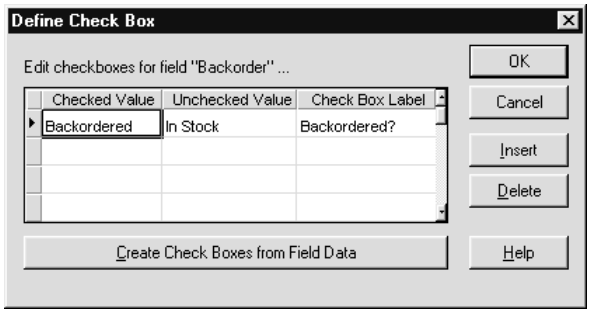
   Fields, displaying as drop-down boxes

   Fields, displaying as field boxes and lists
3. Click the index entry you want, then click Display.

Displaying a field as a check box

You can display a field as one or more check boxes. A **check box** has these values: a Checked value, which is entered in the field if the check box is on, an Unchecked value, which is entered if the check box is off, and Null, if the check box hasn't been selected. Click a check box in Browse to turn it on or off. Any type of field can be displayed as a check box, except for memo or PicturePlus fields.

For example, you might use a check box to identify a product as backordered. The Checked value would be Backordered, and its Unchecked value would be In Stock.



Because each check box has only two values, you should typically set up one check box for a field. When you click the check box, you go back and forth between its two values.

If a field has more than one check box, only one check box can be on at a time (but it is also possible for no check box to be on). When you turn on a check box, any box already on in the set is turned off. Turn off a check box to enter its Unchecked value in the field.

You can add a field to a view as check boxes, or display a field already in a view as check boxes. You can provide check box values, or use values from the current field data.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   Fields, displaying as check boxes
3. Click the index entry you want, then click Display.

Displaying a field as a set of radio buttons

You can display a field as a set of radio buttons. Each radio button provides a Clicked value. Click a radio button in Browse to enter its value in the field. Any type of field can be displayed as radio buttons, except memo and PicturePlus fields.

For example, you might use radio buttons to list the possible status levels for customers.

Because each radio button has only one value, you should normally use a set of two or more radio buttons for a single field. In a set of radio buttons, only one button can be on at a time. When you turn on a radio button, any button that is currently on in the set is turned off.

You can add a field to a view as radio buttons, or display a field already in a view as radio buttons. Radio buttons can have custom values that you provide or values from the current database field.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

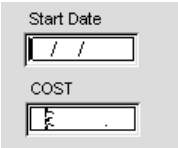
   Fields, displaying as radio buttons
3. Click the index entry you want, then click Display.

Formatting data in fields

Approach provides predefined formats for displaying and printing date, time, numeric, and text data in a field.

Whenever you enter data in a field, you enter only the data itself, whether or not the field is formatted. Approach automatically formats the character you enter, such as currency signs or thousands separators. You see the data in its format when you move out of the field.

If you turn on “Show data entry format” for a date, time, or numeric field, characters appear in the field when you click it to enter data, and underlines show the maximum number of characters.



If you turn on “Show data entry format” for a text field, you see the data in the format you chose in Design (such as ALL CAPITALIZED or Lead capitalized) as you enter the data.

A field's formatting information is set in the Format tab of the InfoBox. When you select a format type, the tab shows the options for that type. The available formats depend on the data type of the field.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Fields, formatting dates

   Fields, formatting numbers

   Fields, formatting times
3. Click the index entry you want, then click Display.

Working with PicturePlus fields

You can add a PicturePlus field to a form, report, worksheet, form letter, envelope, or mailing label to hold a picture, an OLE object, or an image you draw with the mouse in Browse. The graphic appears only in the PicturePlus field in that record. It is part of the record, not part of the design of a view.

You can change the width, color, and frame properties of a PicturePlus field, and move, resize, cut, copy, paste, and delete the field as you can other types of objects.

Changing the tab order for fields

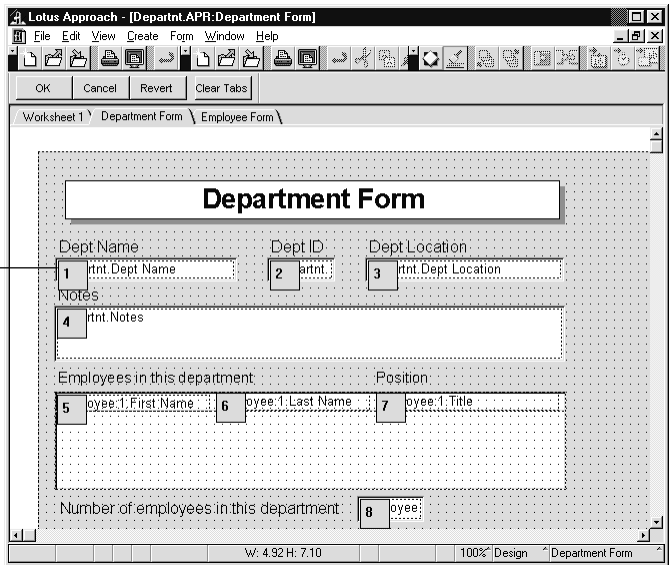
When you enter data in Browse, you can press **TAB** to move through the fields of a record. (You can also press **ENTER** to tab through fields if your Preferences are set this way.) The order in which you move through fields is the tab order.

Radio buttons and check boxes each have a separate position in the tab order. Text blocks, macro buttons, and graphic objects can be included in the order. Include an object in the tab order by selecting "In Tab Order" on the Basics tab of the InfoBox for that object.

View - Show Tab Order shows the order and allows you to edit the order numbers.

Numbers in boxes indicate the tab order.

Edit the numbers to change a single entry.



Approach initially sets the tab order to the order in which fields (and objects) were added to a view, but you can change the order whenever you want. You can change the order of a few items or reorder all the items by editing the tab order numbers.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Tab order, adding objects to

   Tab order, changing

   Tab order, removing objects
3. Click the index entry you want, then click Display.

Views

The following sections describe the eight kinds of views available in Approach. Although views can show much of the same field data, each one is tuned to different tasks.

The main database for a view

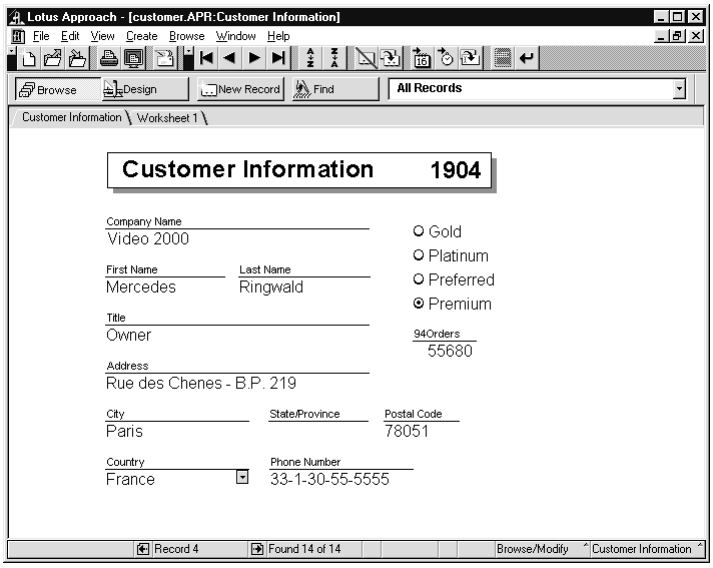
If you have joined databases in an Approach file, Approach identifies a main database for each view. The number of records you can see using the view depends on the number of records in the main database.

The other joined databases are the detail databases of the view. You can add fields from the detail databases to the view.

For more information about main and detail databases, see “Joining databases,” in Chapter 5.

Forms

A form is a type of view that focuses on a single record. You use the same form to see every record in a database, but the form shows you only one record at a time. For example, for a database of customers, create a form to enter and display information about a single customer.



Forms and records aren't the same

Like any other view in an Approach file, the form is a way to look at data from records in a database. A record, on the other hand, is a storage unit in a database. This split between forms and records is useful. For example, when you create a form, select only the fields from the database that store the data you want to show on the form.

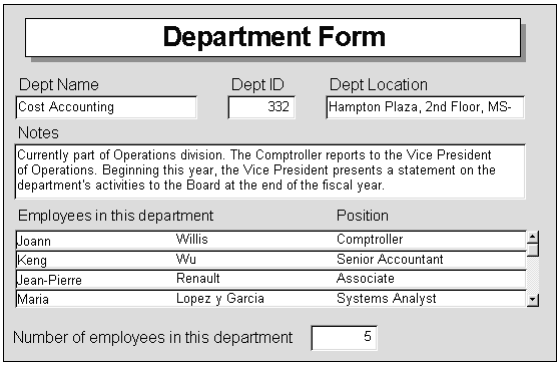
Repeating panels in forms

If the records of the main database are in a one-to-many relationship with records from a detail database, you can add a repeating panel to a form. The repeating panel shows the many records from the detail database that are related to each record in the main database of the form.

For example, a department and its employees have a one-to-many relationship. One department can have many employees. To list the employees for each department, join a Department database to an Employee database on a Department ID field.

Then set up a form that has the Department database as its main database. Give the form a repeating panel for the employees. The panel lists all the employees that have the same department ID as the current department.

Each employee in this repeating panel has 332 in their Department ID field, the same ID the department has in the Department database.



When to use forms

- Enter data while displaying one record at a time
- Do finds, especially when you want to find a check box, radio button, or a list selection

Create and modify forms

To	*Choose*
Create a new form.	Create - Form
Copy an existing form in the same Approach file and modify the copy.	Edit - Duplicate Form, in Design
Import views from another Approach file, then customize them.	File - Import Approach File, in Design

What you can do with forms

Consider these tips on defining fields and designing forms to improve data entry on your forms. For more information, press **F1** to open Help.

To	*Do this*
Filter the values that you can select to enter in a field	Select the field, open the InfoBox, choose a list data-entry type on the Basics tab (Drop-down list, Field box & list, or List box). In the dialog box that opens, define the list values, click Options, and then define the filter values.
Define ranges within which field data should fall	Choose Create - Field Definition. In the dialog box that opens, select the field and click Options. Define the range in the Validation tab.
Use field formats to help indicate how information should be entered into a field	Select the field, open the InfoBox, click the Format tab. Select an existing format or define your own. 
Set a tab order for the objects and fields in the form	Choose View - Show Tab Order, in Design. Change the tab sequence by editing the numbered boxes.
Add macro buttons to guide someone entering data to the correct views	Choose Create - Control - Button, in Design and drag a button in the view. In the dialog box that opens, define and attach a macro to the button.
Add pages to the form if you have many fields to show	Choose Form - Add Page, in Design.
Add graphics or embedded objects to help distinguish the form from other forms	Choose Edit - Picture - Import, in Design.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Forms, creating

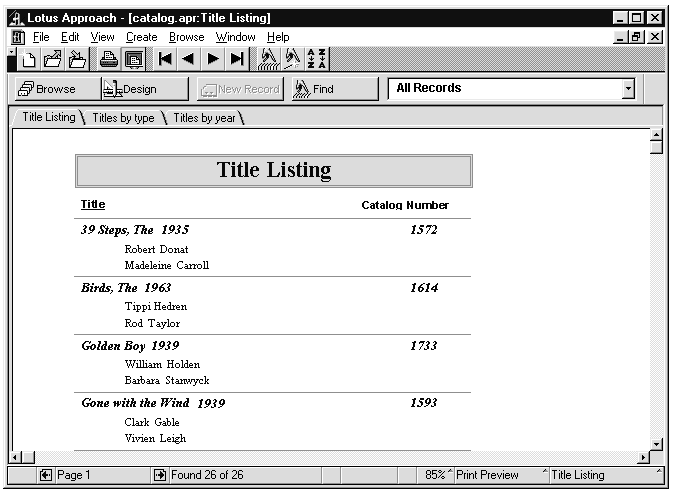
   Forms, pages in

   Macro, buttons to run

   Pasting, pictures in views
3. Click the index entry you want, then click Display.

Reports

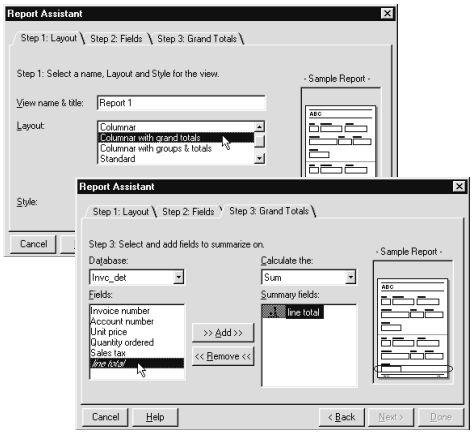
Reports organize and present data from records in powerful ways. Select the fields that appear on the report, group the records by field values, and calculate summary information for groups and the entire report.



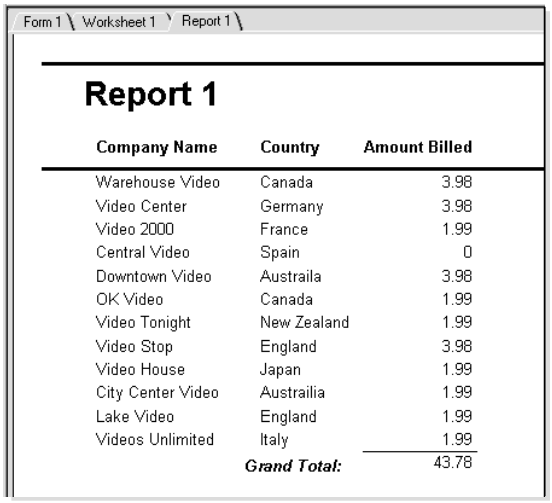
When you build a report with the Report Assistant, you can easily total the data from any field. Approach calculates the total over all of the records in the report.

Select the Layout "Columnar with grand totals"...

Choose the field to total...



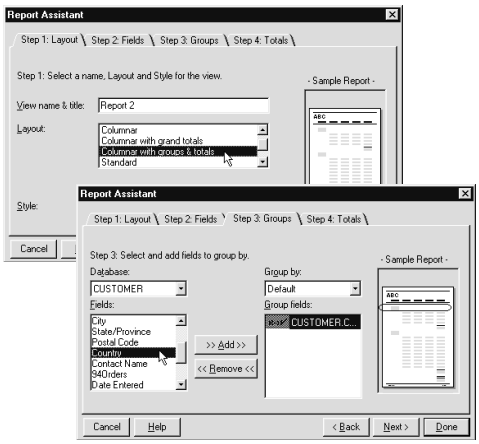
To create this report



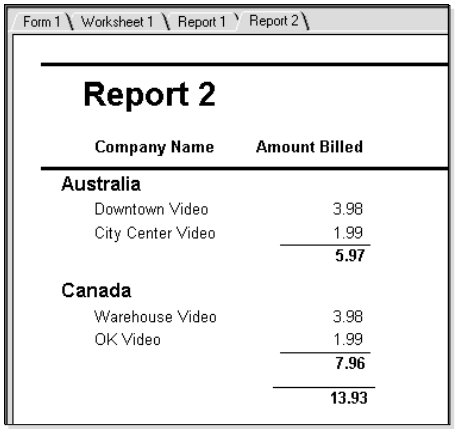
Reports can present data in groups, also. You can easily add subtotals for each group.

Select the Layout "Columnar with groups and totals...

Choose the fields to group by...



To get this report



When you find records, the report displays only the records in the found set. The totals are recalculated using only the found set of records, and the groups that appear are the groups represented in the found set.

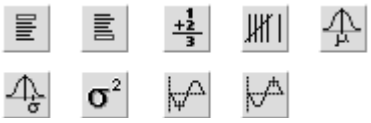
Turn on Show Data to design reports with “live data” for fields and summaries.

For information about including data from joined databases in reports, and about the database on which to base the report, see “Joining databases” in Chapter 5.

When to use reports

- Organize and summarize data.
- Enter and edit data while displaying more than one record at a time.
- Display or print more than one record on the same page.

Create and modify reports

To	*Choose*
Create a new report	Create - Report.
Use PowerClick reporting	A PowerClick icon with a field selected: 
Copy an existing report in the same Approach file and modify the copy	Edit - Duplicate Report, in Design.
Import an Approach file and modify the imported report	File - Import Approach File, in Design.

What you can do with reports

Consider these tips on how to improve the organization and presentation of records in reports. For more information, press **F1** to open Help.

To	*Do this*
Add totals, counts, averages, and other summary calculations to reports	Select the field to summarize, then click one of the following PowerClick icons, Total, Count, or Average: 
Create summary groupings for the report data	Select the field to group on, then click one of the following PowerClick icons, Leading summary or Trailing summary: 
Create a special header or footer for the first page of the report	Choose Report - Add Title Page, in Design. Then modify the header or footer in the title page.

Continued

To	*Do this*
Create headers and footers for the report	Choose Report - Add Header or Report - Add Footer, in Design.
Add graphics or drawings to report headers or footers	Select the header or footer, choose Edit - Picture - Import.
Fit more columns on a report page	Select the report, open the InfoBox, click the Basics tab. Specify the new number of report columns.
Expand or reduce sections of the report to show all of the data when printing	Select the report panel, choose Panel - Panel Properties, click the Basics tab. Select "When printing" options.
Set page breaks to fall where appropriate for your data	Select the report panel, choose Panel - Panel Properties, click the Basics tab. Select "When printing, Insert page break."
Summarize groups of records on a report using a chart	Expand the summary panel, choose Create - Control - Chart, and drag an area for the chart. Create the chart using the Chart Assistant, which opens automatically.
Display reports in Print Preview automatically	Choose File - User Setup - Approach Preferences, click the Display tab, and then select "Show Report summaries."
Add graphics or embedded objects to help distinguish the form from other forms	Choose Edit - Picture - Import, in Design.
Set the tab order if you are using a report in Browse for data entry	Choose View - Show Tab Order, in Design. Change the tab sequence by editing the numbered boxes.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Page, breaks in reports

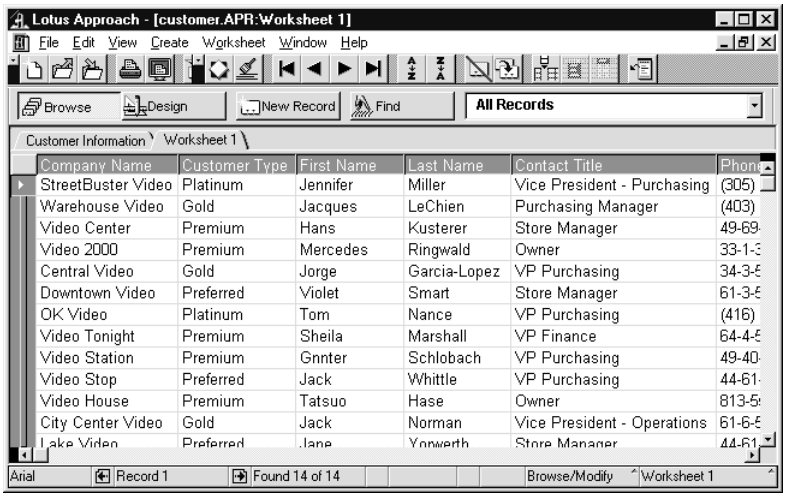
   PowerClick reporting

   Reports, creating

   Summaries, in reports
3. Click the index entry you want, then click Display.

Worksheets

Worksheets present database records in a grid of columns and rows. The columns are database fields, and the rows are individual records.



When to use worksheets

- Enter and edit data
- Find records
- Sort records
- Browse through many fields for many records
- Display and compare data from many records

Create and modify worksheets

To	*Choose*
Create a new worksheet	Create - Worksheet.
Copy an existing worksheet in the same Approach file and modify the copy	Edit - Duplicate Worksheet, in Design.
Change the order of columns	The column heading and drag it to the new location.
Add a formula column	The location of the new column, position the mouse pointer between and at the top of two column headers, and click when the wedge-shaped mouse pointer appears.

What you can do with worksheets

Consider these tips for displaying columns in worksheets. For more information, press **F1** to open Help.

To	*Do this*
Modify column heading text	Select the column heading, click in the heading, and then edit the text.
Change the order of columns	Select the column heading and drag it to the new location.
Add a formula column	Position the mouse pointer between and at the top of two column headers, and click when the wedge-shaped mouse pointer appears.
Add color to worksheet text or background	Select the text or cells to change, choose Worksheet - Worksheet Properties. In the InfoBox, click the Lines and Colors tab, and then select the new color.
Perform a find	Choose Find in the action bar, and then enter the find conditions.
Perform a sort	Select the field to sort, and then choose Worksheet - Sort - Ascending or Descending. 
Insert values determined by a formula	Select the field to the left of where you want the new column, and then choose Worksheet - Add Column. Enter a formula in the Formula dialog box, which opens automatically.
Show two or four sections of a worksheet	Move the mouse pointer over the black rectangle at the bottom left or top right corner of the worksheet. Drag the rectangle toward the center of the screen.
Convert a worksheet into a crosstab	Select a column heading and drag it to the left edge of the worksheet.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Worksheets, creating

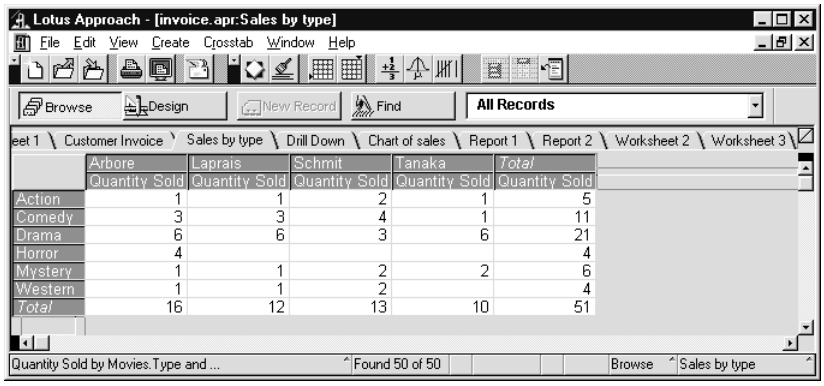
   Columns, adding

   Worksheets, adding formulas
3. Click the index entry you want, then click Display.

Crosstabs

A cross-tabulation worksheet, or crosstab, categorizes and summarizes database records. A worksheet has rows containing individual records, but a crosstab shows cells that summarize data from the underlying records.

A crosstab is especially useful for analyzing data with three or more variables. For example, use a crosstab to present products by type, by quantity sold, and by sales representative.



When to use crosstabs

Use crosstabs to analyze data that depends on more than two variables or categories.

Create and modify crosstabs

To	*Choose*
Create a new crosstab	Create - Crosstab.
Copy an existing crosstab in the same Approach file, and modify the copy	Edit - Duplicate Crosstab, in Design.

What you can do with crosstabs

Consider these tips for producing the best crosstab data summaries. For more information, press **F1** to open Help.

To	*Do this*
Change the calculation used in a summary column or in all crosstab cells	Select the a summary heading or any column heading. Choose Crosstab - Crosstab Properties, click the Formula tab, and select a new formula.
Convert an existing worksheet into a crosstab	Select a column heading and drag it to the top or left edge of the worksheet.
Add a Summary column	Move the mouse pointer to the outside edge of the last column or row heading, and click when the wedge-shaped mouse pointer appears.
Show two or four sections of a crosstab	Move the mouse pointer over the black rectangle at the bottom left or top right corner of the crosstab. Drag the rectangle toward the center of the screen.
Create a chart from crosstab values	Choose Crosstab - Chart this Crosstab.
Show the records that contribute to values summarized by the crosstab	Select a column, row, or cell of the crosstab, and then choose Crosstab - Drill Down to Data.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Crosstabs, adding summaries

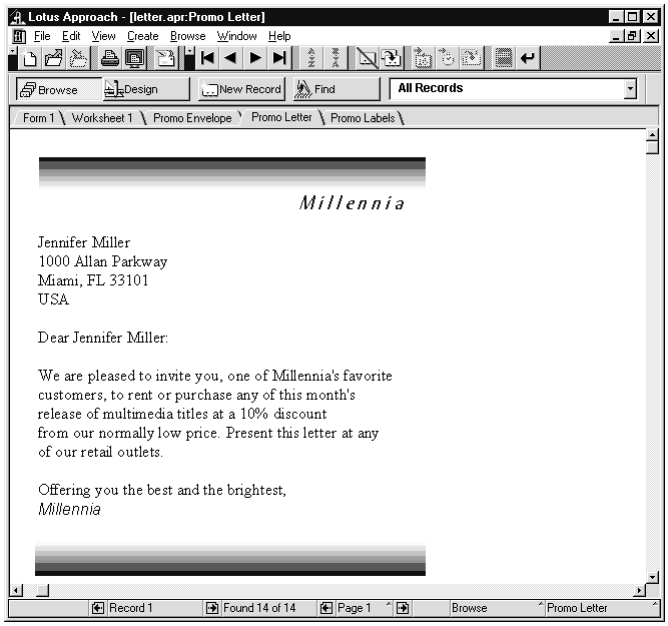
   Charts, creating from crosstabs

   Drill down, in crosstabs
3. Click the index entry you want, then click Display.

Form letters

A form letter displays a combination of field data and text you enter in a letter format. Approach displays a copy of the letter for each record in the found set, adding the name and address information from the records to the standard text you provide.

Besides the body of the letter, a typical form letter consists of a salutation, closing, and a return address. You can use all of these elements, or select the ones that are appropriate to your mailing. The Form Letter Assistant also lets you create envelopes to match the inside address of your letter.



Approach automatically adjusts the spacing around fields to create a smooth flow between typed text and field data. You see the adjusted spacing when you go to Browse, Print Preview, and Design (if View - Show Data is on).

When to use form letters

Use form letters to display a combination of data and text formatted as a letter or block of text.

Create and modify form letters

To	*Choose*
Create a new form letter	Create - Form Letter.
Add field data to a form letter	Letter - Insert - Field Value, in Design.
Select Properties from the InfoBox	Letter - Form Letter Properties, in Design.

What you can do with form letters

Consider these tips for enhancing your form letters. For more information, press **F1** to open Help.

To	*Do this*
Exclude extra records with the same names or addresses from the letters you print	Choose Browse - Find - Find Assistant, in Browse. In the Find Assistant, select "Find distinct or unique records."
Add graphics or drawings to the background of the form letter	Choose Edit - Picture - Import, in Design.
Modify the colors or fonts used in the form letter	Select the text you want to change in Design, and then choose Object - Object Properties. In the InfoBox, click the Text Format tab, and change the text properties.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Form letters, creating

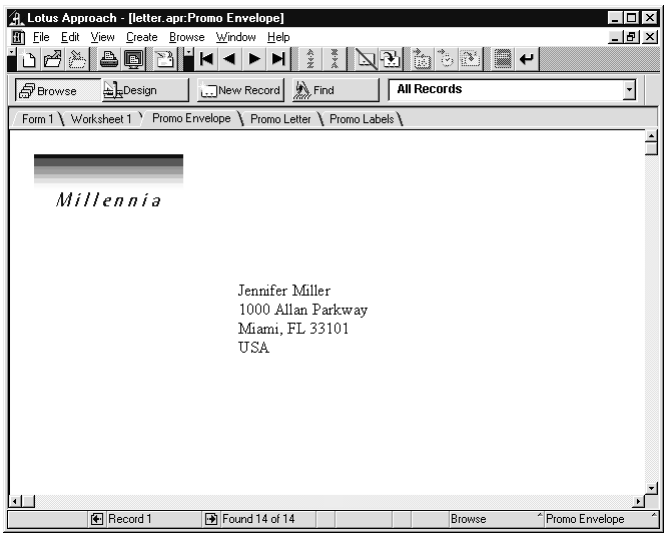
   Unique, records, finding

   Graphics, importing from files
3. Click the index entry you want, then click Display.

Envelopes

An envelope displays a combination of field data and text you type into the return address. Approach displays a copy of the envelope for each record in the found set, using the name and address information from the records.

You can also select layout, style, and print properties for the envelope.



Approach automatically adjusts the spacing around fields to create a smooth flow between typed text and field data. You see the adjusted spacing when you go to Browse, Print Preview, and Design (if View - Show Data is on).

When to use envelopes

Use envelopes to print directly on an envelope with or without a return address.

Create and modify envelopes

To	*Choose*
Create a new envelope	Create - Envelope.
Create an envelope matching a form letter	Create - Form Letter. In the Form Letter assistant, select “Create envelopes to match the inside address” in Step 6.
Add field data to an envelope	Text - Insert - Field Value, in Design.
Select properties in the InfoBox	Envelope - Envelope Properties, in Design.

What you can do with envelopes

Consider these tips for enhancing your envelope. For more information, press **F1** to open Help.

To	*Choose*
Exclude extra records with the same names or addresses from the letters you print	Choose Browse - Find - Find Assistant, in Browse. In the Find Assistant, select "Find distinct or unique records."
Add graphics or drawings to the background of the envelope	Choose Edit - Picture - Import, in Design.
Modify the colors or fonts used in the envelope	Select the text you want to change in Design, and then choose Object - Object Properties. In the InfoBox, click the Text Format tab, and change the text properties. 
Print an envelope for each form letter	Select the envelope view tab, and then File - Print. Do this with the same found set you used to print the form letter.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Envelopes, creating

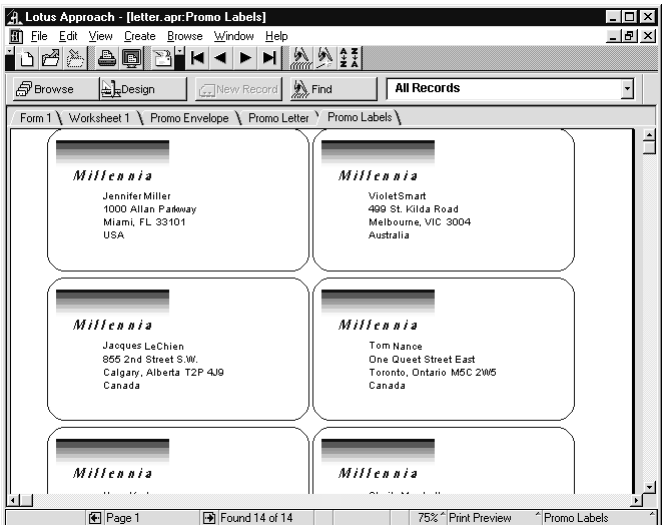
   Unique, records, finding

   Graphics, importing from files
3. Click the index entry you want, then click Display.

Mailing labels

A mailing label view displays field data and text in a mailing address format. The field data for each mailing address comes from one record.

Many mailing labels fit on a page. The number of mailing labels you see on a page depends on the label size and page layout you select when you create the labels. Choose from more than 50 standard Avery® label formats, or create other formats of your own.



Approach automatically adjusts the spacing around fields to create a smooth flow between typed text and field data. You see the adjusted spacing when you go to Browse, Print Preview, and Design (if View - Show Data is on).

You can add graphics or change fonts and colors to create special labels.

When to use mailing labels

Use mailing labels to create address labels and other labels such as file folder labels, product SKU labels, or disk labels.

Create and modify mailing labels

To	*Choose*
Create a new mailing label	Create - Mailing Label.
Add field data to a mailing label	Text - Insert - Field Value, in Design.
Select properties in the InfoBox	Mailing Label - Mailing Label Properties, in Design

What you can do with mailing labels

Consider these tips for enhancing your mailing labels. For more information, press **F1** to open Help.

To	*Do this*
Exclude extra records with the same names or addresses from the letters you print	Choose Browse - Find - Find Assistant, in Browse. In the Find Assistant, select "Find distinct or unique records."
Add graphics or drawings to the background of the mailing label	Choose Edit - Picture - Import, in Design.
Modify the colors or fonts used in the mailing label	Select the text you want to change in Design, and then choose Object - Object Properties. In the InfoBox, click the Text Format tab, and change the text properties. 

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

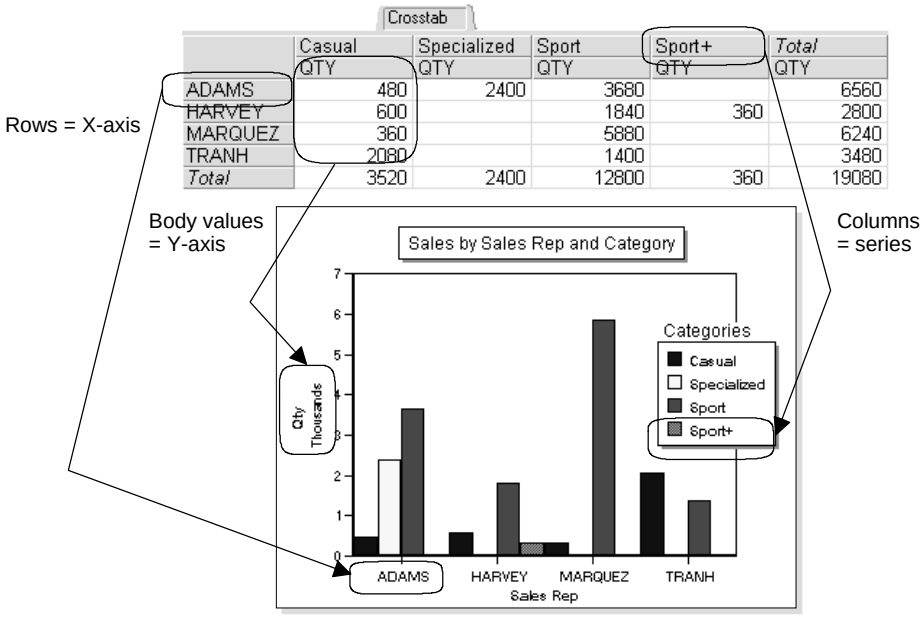
   Mailing labels, creating

   Graphics, importing from files
3. Click the index entry you want, then click Display.

Charts

Charts represent data graphically. A chart can reveal the significance of data and often make complex data easier to understand, or make trends and relationships easier to identify.

In Approach, charts are closely related to crosstabs. The x-axis in a chart is shows values like the rows in a crosstab. The y-axis shows values like the body values in a crosstab. Finally, the series values in a chart are like the columns in a crosstab.



Charts are dynamic in Approach: if you change the data that the chart is based on, whether by modifying field data or by creating a found set, the chart updates automatically.

You can create charts in two or three dimensions and in color. After you create a chart, you can easily change the chart type using the InfoBox, enhance it by working with its components, or add text and graphics to it.

When to use charts

Create charts to show relationships between data. Choose which kind of chart to use based on the type of relationship you want to show:

- For items that change over time, create bar, line, stacked bar or area charts.
- For items at a specific point in time, create horizontal bar or horizontal stacked bar charts.
- For parts of the whole, create 100% pie, horizontal stacked bar, or 100% area charts.
- To show a series as it relates to the whole, use stacked bar charts.

- To show frequency distributions, create bar charts.
- To show relationships between variables, create bar or scatter (XY) charts.
- To show ranges of data, create bar charts.

Create and modify charts

To	*Choose*
Create a new chart	Create - Chart.
Create a chart using the same values as a crosstab	Choose Crosstab - Chart this Crosstab, in the crosstab view.
Create the same chart with a new source of data	Chart - Chart Data Source.
Select properties in the InfoBox	Chart - Chart Properties.

What you can do with charts

Consider these tips for getting more from your chart view. For more information, press **F1** to open Help.

To	*Do this*
Show the records that contribute to the values summarized by the chart	Select an element of the chart, and then choose Chart - Drill Down to Data.
Create 3-D charts	Choose Create - Chart, and select 3D Charts in the Style box in the Chart Assistant.
Show the records that contribute to values summarized by the crosstab	Select a column, row, or cell of the crosstab, and then choose Crosstab - Drill Down to Data.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Charts, creating

   Charts, creating from crosstabs

   Drill down, in charts

   3D charts, creating
3. Click the index entry you want, then click Display.

Chapter 7
Entering Data

After you create a database and define fields for it, you're ready to enter information for the specific records.

This chapter describes how to add and duplicate records, move to other records and fields, enter data in different types of fields, check the spelling in a database, find and replace specific text in records, and hide and delete records.

When you enter or modify data in a database, you don't have to save your work; Approach saves the data in the database file the moment you enter a record.

Browse environment

In Browse, you work with the information in a database rather than with the design of views. You can enter and edit data, add and delete entire records, find and sort records, and see your data in different ways.

As soon as you finish defining fields for a new database, Approach automatically takes you to a standard single-record form in Browse so that you can begin entering data.

You can also switch to Browse from another environment at any time. To go to Browse, do one of the following:

- Click the Browse button in the action bar.
- Click the Environment button in the status bar and select Browse.
- Choose View - Browse & Data Entry.

Browse SmartIcons

Approach provides sets of SmartIcons for moving between records, finding, sorting, filling fields, and checking spelling.

- To work with an icon, click it.
- To find out what an icon does, rest the mouse pointer on the icon. A short description of what the icon does appears.

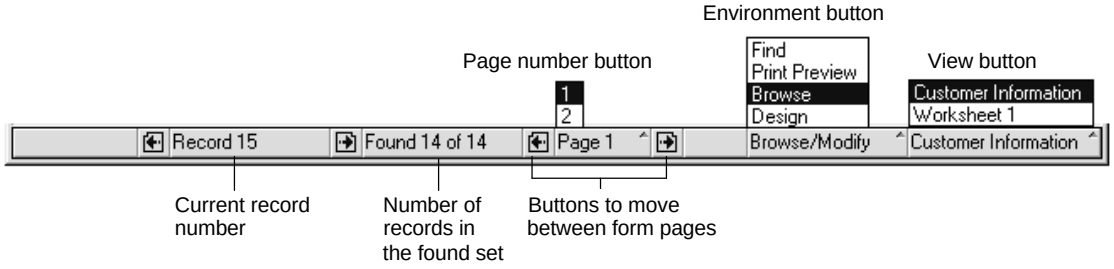
- Click the button in the top left corner of a set of SmartIcons to select icon bar commands, such as “Hide this bar of SmartIcons,” and to select related icon bars for display.

For more information about displaying different sets of SmartIcons, see Chapter 3, “Approach Work Area”.

Menu bar and status bar in Browse

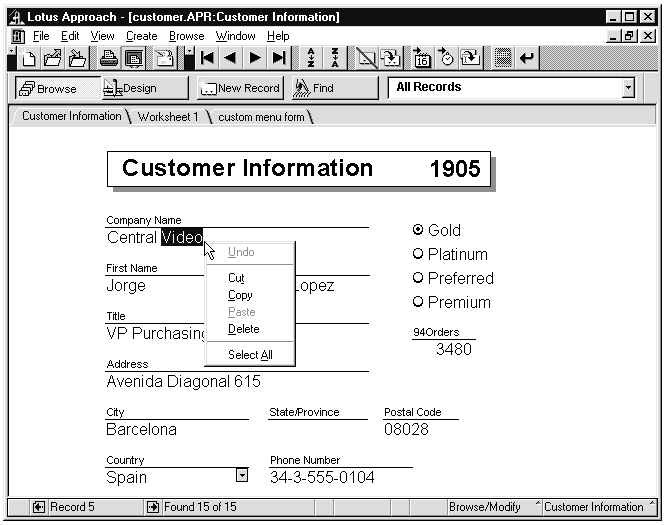
In Browse, the menu bar includes a **context menu** that changes depending on the current view or the current selection. If you have no current selection, this menu is called Browse, Worksheet, or Crosstab and provides commands for working with the current records. If you select a PicturePlus field, the menu changes to PicturePlus and includes a command for opening the InfoBox for the PicturePlus field, in addition to other Browse commands.

In Browse, the status bar gives information about the current view and the current set of records. Most parts of the status bar are buttons you can click to change the selection or work area.



Shortcut menus

When you're in Browse, you can open a shortcut menu listing text-editing commands. These commands are a subset of the ones in the Edit menu.



To choose a command from the shortcut menu, click a field box with the right mouse button. When the menu opens, click the command you want.

The shortcut menu closes after you choose a command. To close the menu without selecting a command, click anywhere outside the menu.

InfoBox

There are only a few places where the InfoBox contains options for objects in Browse. Worksheet, Crosstab, and PicturePlus context menus give you access to the InfoBox.

Choosing a view for data entry

Approach is flexible in how it lets you work with data. You can enter and edit data in a variety of views — forms, reports, worksheets, form letters, envelopes, and mailing labels. The type of view you use depends on how many records you want to see at a time and how you want their fields to be organized.

Forms are often the best type of view for entering data. A form shows one record at a time, so you can see many fields for each record. Design forms with data entry in mind, using a graphical, easy-to-understand format.

On other occasions, you may want to see more than one record at a time, perhaps to enter data quickly or with fewer details for each record. In these cases, you can use a columnar or standard report or a worksheet for entering data. Reports and worksheets can show many records on a single page. Design the report or worksheet to show the fields you want. Collapse worksheet columns or rearrange them to make entering data more convenient.

Filling in a record

Go to Browse to enter and edit data in the fields of a record.

You do not need to save data yourself. Approach saves the data you enter or edit as soon as you:

- Move to another record
- Change to another view
- Click the Enter icon

- Press **ENTER**

Approach may enter data automatically in a field because of how the field was defined. For example, a date or serial number is often entered this way. You can edit data that was entered automatically (unless the field is read-only or the Approach file has a password).

In a form, report, worksheet, or other view with specified field boundaries, you see only as much data as fits in a field's boundaries, even though the field may contain more data than is visible. Use the mouse pointer or → and ← keys to see the entire entry.

Selecting in Browse

Select a field to begin to enter or edit data in it. In a report or mailing label, a border appears to indicate the current record. Select a field in one of these ways:

- Click a field.

  Clicking places the insertion point in the field. Data you enter is added to the data already there.

- Press **TAB** to go to the next field in the tab order.

  Tabbing selects the entire contents of a field. Data you enter replaces everything that's already there.

Entering text

In most respects, you can enter and edit data in field boxes as you do in a word processing application. You can type letters, numbers, symbols, spaces, punctuation. Approach alerts you if you try to type more characters in a field than the field allows.

You can change the length of a field in the Field Definition dialog box. Choose Create - Field Definition.

Entering numbers, dates, times and Boolean values

When you define fields to hold specific types of data, such as numbers, dates, or times, Approach alerts you if you try to enter other values in those fields.

Indicate to your users what the appropriate values are by creating descriptive field labels, adding instructions in the view, or by displaying a format for the field value.

Numbers

Enter only numbers in a numeric field. Approach helps you ensure that only numbers are saved in a numeric filed by automatically removing text or non-numeric characters (such as , and ") in a numeric field.

Dates

You can type up to eight characters in a date field to represent one date.

If a field has a date format and “Show data entry format” is on, slashes appear in the field as separators and underlines show the maximum number of characters. Enter a date in the order set in your operating system settings (for example, month first, then day, then year), even though the date may be formatted to display in a different order. For example if your operating system settings specify dates as month first, then day, then year (12/19/95), enter dates in that order. You can then display the date in a different order (19 December 95) using the format tab in the InfoBox.

Tip You can press **SPACEBAR** to enter the current day, month, or year.

Times

You can type up to eight characters in a time field to represent one time.

If a field has a time format and “Show data entry format” is on, colons appear in the field as separators and underlines show the maximum number of characters. You can press **SPACEBAR** to enter the current hour, minute, or second and move past the next colon.

Your system may require a different time separator than the colon for entering times. Use whatever separator is specified in your operating system settings.

Boolean values

A Boolean field holds a value of yes or no. If you refer to a Boolean field in a formula, Approach uses 1 for a yes value and 0 for a no value to calculate the result.

To enter a value in a Boolean field, type **Yes**, **Y**, **yes**, **y**, or **1** for yes. Type **No**, **N**, **no**, **n**, or **0** for no.

When you move out of the field, the value appears in the field as Yes or No.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Dates, entering in fields

   Time, fields

   Numeric fields, entering values in

   Boolean fields, entering values in
3. Click the index entry you want, then click Display.

Duplicating values from the previous record

Duplicate a record when it contains much of the same data you want to appear in other records. Then just change data in fields that differ.

Choose Insert - Previous Value from the context menu to enter the value from the same field in the last record you modified in your current session with Approach. This is especially helpful when you are entering business card information, for example. If you have many individuals from the same company, just press **CTRL**+**SHIFT**+**P** (the keyboard shortcut for Previous Value) in a common field to have Approach automatically duplicate the value you entered in the previous record.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   Values, duplicating
3. Click the index entry you want, then click Display.

Filling a field in all records

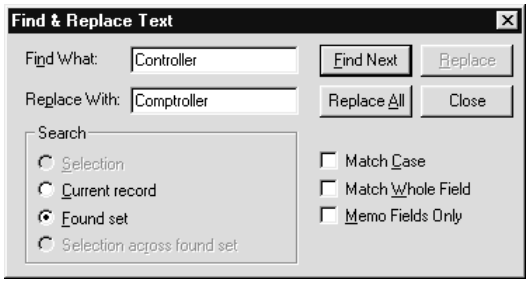
You can enter a value in all of the fields in a found set or in a database using the Fill Field command from the context menu. This command lets you specify a value or a formula to calculate a value to enter in a given field in all records in the current found set.

Use this command to update a set of records with new information. For example, if you record when you send catalogs to customers, you can find the customers who received the catalog in the most recent mailing, and fill the Catalog Sent field to the date of the mailing.

Find and replace text

To search for specific occurrences of text in your data, choose Edit - Find & Replace Text. Use this command to enter global changes in your data, or to correct text errors.

For example, to change the name of one of your sales representatives, use Find & Replace Text to change references to the name wherever the name appears in the data, such as memo fields containing telephone contact logs.



Selecting values from lists, check boxes, and radio buttons

In a form or report, a field can have a list of values, a set of radio buttons, or a check box. On a worksheet, a field can have a list of values. You enter a value into the field by choosing from the list or by turning on a radio button or check box.

Set up these data-entry controls in Design from the InfoBox for the field.

Selecting from a list

A field box and list, a drop-down box, or a list box show the possible values for a field. When the list is combined with a field box, you can either select from the list or type a value.

- To select from a list, do one of the following:
- Click the value you want
- Begin typing the value
- Press the ↑ or ↓ key until the value is selected

Then press **TAB** or **ENTER**.

Selecting radio buttons or check boxes

To select a radio button or check box, click it. You can also tab to the radio button or the check box and then press **SPACEBAR**.

Note After you have selected a radio button, you may deselect it by selecting another button in the set, or by changing the field value from another field box or view.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Selecting, from drop-down boxes

   Selecting, radio buttons

   Selecting, check boxes
3. Click the index entry you want, then click Display.

Adding pictures or drawings

A graphic added to a PicturePlus field appears only in the PicturePlus field in the current record. It is part of the record's data, not part of the design of a view.

Note Be sure to work in Browse when you want to make a graphic part of a record. If you are in Design, you add the picture to a view rather than to a field in a record.

When a pasted picture is too large for a field, the picture may be either cropped or reduced, according to the option you set for the field in the InfoBox.

The following types of graphic files can be pasted in a record:

Extension	*File type*
.BMP	Windows bitmap
.EPS	Encapsulated PostScript
.GIF	Graphics interchange
.JPG	JPEG (Joint Photographic Experts Group)
.PCX	Windows Paintbrush
.TGA	Targa
.TIF	TIFF (Tagged Image File Format)
.WMF	Windows metafile

You can also paste a picture that you copy to the Clipboard from its source application.

If you define a PicturePlus field to allow drawing, you can draw freehand lines in it. These lines appear on top of any picture that you have pasted in the field. Use the mouse pointer to make annotations to the picture, or to highlight parts of it.

Selecting pen colors and line widths

When you select a PicturePlus field, the Browse menu changes to the PicturePlus menu. If you want to change the pen color or line width for your freehand lines, choose PicturePlus Properties from the PicturePlus menu, and then select the color or width in the InfoBox. The color or width is applied to any lines you draw until you choose a different color or width.

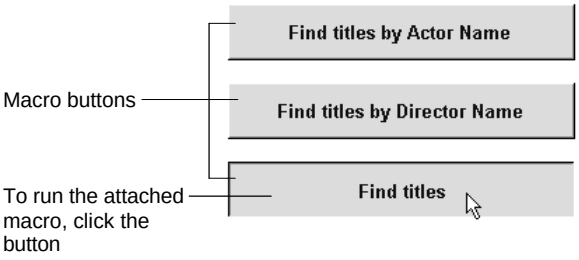
For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   Pictures, pasting
3. Click the index entry you want, then click Display.

Pressing buttons to activate macros or scripts

You can add buttons to a view in Design that trigger macros or scripts when they are selected in Browse. To select a button, click the button, or if the button is in the view's tab order, tab to the button and press **SPACEBAR**.



Working with records

When entering and editing data, you work with one record at a time, the **current** record.

- In a form, form letter, or envelope, the current record is the one showing.
- In a report or mailing label, the current record is the one with a solid border.
- In a worksheet, the current record is the row with the pointer on the left edge of the worksheet.

When you move between views, the same field and record is selected in each view.

Moving between records

Use SmartIcons, keys, or status bar buttons to move between records:

- Move one record forward or back, same as **PAGE UP** and **PAGE DOWN**

- Move to the first or last record, same as **CTRL+HOME** and **CTRL+END**

Each record has a number in the current order of records in an Approach file. The numbering always starts at one and continues unbroken to the total number of records in the found set or in the whole database.

To go to a specific record, in Browse, click the record number in the status bar and enter the record number in the Go to Record dialog box.

For more information

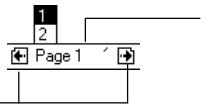
1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   Records, moving between
3. Click the index entry you want, then click Display.

Multipage forms

A form shows one record at a time. However, a form can use more than one page to show all the fields associated with a record. When your form contains more than one page, make sure that you are on the correct page of the form and in the correct record.

Move between pages of a form using the page buttons in the status bar.



Click this button to choose a page from a list.

Click one of these buttons to move to the previous or next page of the form.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   Pages, moving to
3. Click the index entry you want, then click Display.

Hiding and showing records

You can hide records from view to make them unavailable. This does not delete the records from the database, but just temporarily hides them from the group of records you're browsing.

A hidden record is not included in sorts or calculations. It cannot be printed or deleted while it is hidden.

- Choose Hide Record from the Browse, PicturePlus, or Worksheet menu to hide the current record or records.
- Show hidden records by choosing Find - Find All from the context menu, or by choosing a find from the named find box in the action bar.

Deleting records

You can delete individual records or a set of records from a database. The records are permanently removed from the database, not just from the Approach file you're browsing.

Deleted records cannot be retrieved.

If you want to delete records that all match the same condition, fill out a find request that specifies the find condition. To delete *all* records in a database, find all the records using an asterisk (*) in a field as the find condition. Then choose Delete Found Set from the context menu. Use this feature carefully, as it cannot be undone.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   Records, deleting
3. Click the index entry you want, then click Display.

Checking spelling

Approach can check the spelling of text in your databases and Approach files. The text it checks depends on which environment you're in:

- In Browse, Approach checks the spelling of data in records, including text in memo fields.
- In Design, Approach checks the spelling of text in field labels and text objects, including text in the body of form letters.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   Spelling, checking
3. Click the index entry you want, then click Display.

Importing data

You can create or update records in a database with existing data by importing the data from another file. For more information, see Chapter 11.

Chapter 8
Finding and Sorting Data

Finding data and sorting data help you present information in meaningful ways:

- Finding isolates and displays a set of records that match conditions that you specify.

  The result of a find, called the found set, is an equal or smaller number of records than the total number of records you were working with. The found set contains only records that fulfill the conditions you set during the find.

- Sorting reorganizes a set of records in an order you specify.

  After you do a sort, you are working with the same number of records as before the sort. The same number of records have been shuffled into a new order. These records can be an entire database or a found set of records.

Example 1: Using part of your data

Suppose your small company has international customers. Your Customer database, in which you keep the addresses of your customers, contains a field called Country. You have a hundred customers.

There is a delay in a shipment of goods to all your customers in Austria. The shipments to other countries are on schedule.

You know you have 15 customers in Austria. You decide to create a form letter to inform them of the delay. Before you create the form letter, which task do you do?

- **Sort?** Your sort would reorganize the whole Customer database by Country. The 15 records with Austria in the Country field would be grouped together; the 20 records with Japan in that field would be grouped together; and so on.

  If you sort by Country, create the form letter, and then print the form letter — one for each customer — how many form letters will you print?

- **Find?** Your find condition would tell Approach to search the Customer database and display only the records that have Austria in the Country field. These records would make up the found set.

  If you do the find, create the form letter, and print it — one for each customer in the found set — how many form letters will you print?

Clearly, you want to begin by doing a find in this case because you want to create only 15 letters, for your 15 customers in Austria. By doing a find, you save yourself 85 sheets of your company's expensive letterhead stationery.

Example 2: Adding order to your results

You are preparing to send out a catalog to all your customers. You want to create a mailing label for each customer. Before you create the mailing labels, which task do you do?

- **Sort?** Your sort would reorganize the whole Customer database by Country: The 15 Austrian records would be grouped together; the 12 French records; the 20 Japanese records; the 20 United States records; and so on, reorganizing all 100 records.
- **Find?** You would have to specify a find condition for each country. Each find would create a different found set: One for Austria, one for France, one for Japan, one for the United States, and so on.
- **Do nothing?** The order of your mailing labels would be the same as the order of the records in the database. This generally is the order in which you entered the records into the database.

In this case, a find is probably not the best preparation for creating mailing labels, because you want all of the customers in the database.

Doing nothing always sounds easy, but it may mean extra work later. The order of records in a database is for all intents and purposes arbitrary. Wouldn't it be easier to address, choose postage for, and mail the catalogs if all the labels for each country were printed together?

You decide that sorting the Customer database is the best way to prepare for creating the mailing labels.

Preparing for finding records

One of the important things a database can do for you is make your information easy to reach. It does this by quickly retrieving specific records that answer questions you ask about the data.

Two qualities make this process of asking questions and retrieving answers work smoothly:

- The database uses a good relational design.
- Your questions are clear and specific.

To create a good relational database application, use the suggestions from Chapter 5.

Approach has two tools that help you ask clear and specific questions: the Find Assistant and the find request.

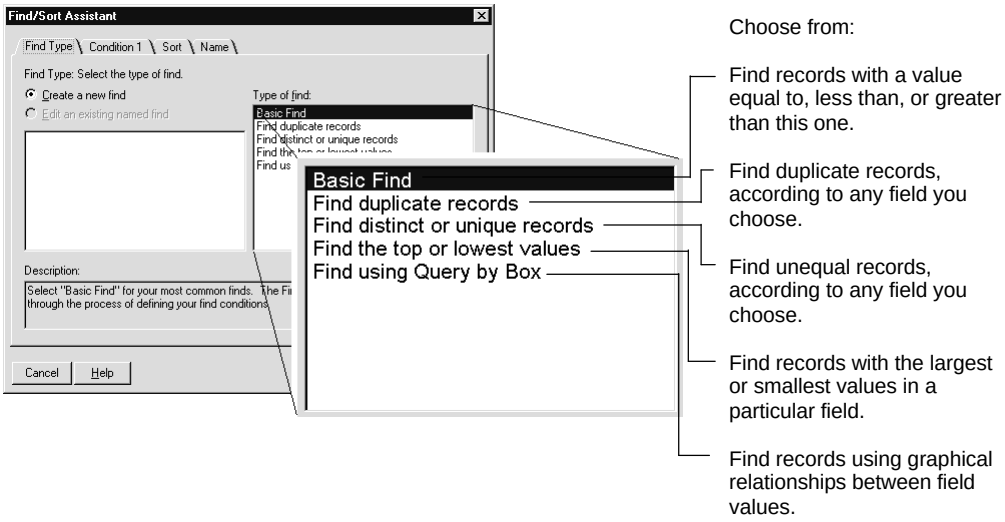
- The Find Assistant lets you adapt predefined questions to your data.
- The find request employs your views to help you build specific database questions.

Both tools help you turn your questions into a find condition that Approach can understand.

Find Assistant

The Find Assistant guides you through the process of finding a set of records that answer your database questions. Choose Find - Find Assistant from the context menu in Browse to open the Find Assistant.

With the Find Assistant, you select a type of find:



and then specify a **find condition**. Find conditions express your questions so that Approach can understand which records you want to find. The condition tab changes depending on the type of find you select.

The assistant then takes you through steps to

- Sort the results of the find
- Give the find conditions a name so you can repeat the find without recreating the find conditions

Other tabs become available as you need them to define your find question. These tabs include controls for creating a find by building a graphical representation of the find conditions, called Query by Box.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

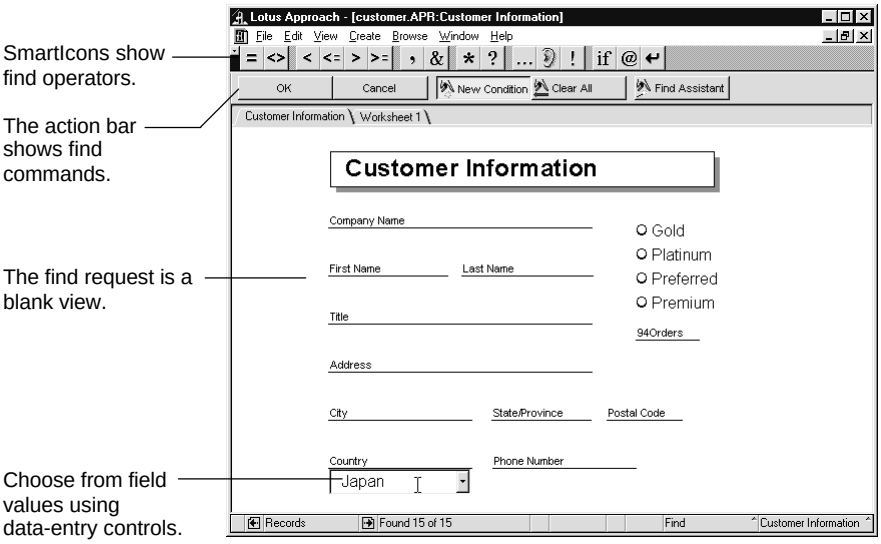
   Find Assistant
3. Click the index entry you want, then click Display.

Find request

Another tool to translate your questions into find conditions is a find request. To create a find request, select the view you want to work with and then click Find in the action bar.

A find request is a blank copy of the current view. You enter find conditions in the fields of the blank view, just as you would enter data in a regular form or report. If the view contains check boxes, lists, or other data-entry controls, you can use these controls in the find request as well.

Use a find request to perform a simple find very quickly. For example, to find the records for your customers in Japan, create a find request in a customer form and choose Japan in the Country field.



The Find Assistant helps you through creating complex finds, but as you learn more of the operators Approach uses to build a find, the find request can be a shortcut to producing all types of finds.

After you find records using a find request, you can name the find by entering a name in the named find box in the action bar. For more information, see “Naming a find to use again” later in this chapter.

Creating find conditions in a find request

Wildcards are one of several ways to indicate find conditions besides entering field values. The wildcards are symbols you can enter in the find request by typing or clicking SmartIcons.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Conditions in finds
3. Click the index entry you want, then click Display.

Finding records that satisfy multiple conditions (AND)

When you enter a condition in more than one field in a find request, Approach finds the records that match all the conditions. This is known as an AND find. For example, if you enter Paris in the city field and France in the country field, the find condition finds all records where both conditions are true.

Finding records that satisfy at least one of several conditions (OR)

You can specify several conditions and have Approach find the records that match at least one of the conditions. This is known as an OR find.

If the OR find involves data in only one field, you can separate the conditions with a comma (,) in that field of the find request. For example, the find text France,Spain finds records that contain either France or Spain in the field. Potentially this find condition returns more records than the AND find with the same condition text.

To find records with OR conditions in more than one field, create a separate page of the find request for each condition by clicking New Condition in the action bar and entering the next condition in the new page of the request.

Move between pages of the find request using the same icons or buttons that you would normally use to move between records.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   AND conditions

   OR conditions
3. Click the index entry you want, then click Display.

Finding text

In a text field, Approach can find text that matches a string of characters, a word, or a phrase. To find text, type the characters in a text or memo field. Be careful not to type any extra spaces in the field.

You can also qualify the text with wildcards:

- Asterisk (*****)

  The asterisk matches any number of characters in the field, including no characters.

This condition	*Finds records that contain*
past	The text past anywhere in the field. This is the best way to find text in a memo field, because it finds text beyond the first word in the field.
san*	San Francisco and Santa Rosa.
r	Red and Green, but not Blue. Blue has no r.
*o	solo and trio but not dot. dot does not end in o.
g*s	grants and goods, but not green. green starts with g but does not end in s.

- Question mark (**?**)

  The question mark matches any single character.

This condition	*Finds records that contain*
to?	toy and Tom but not today. today has more than one letter after to.
?an	ran and pan but not plan. plan has more than one letter before an.
to??y	today and Tommy but not toy and Tom. toy and Tom start with to but they don't have two letters and a y.
?o?	Tom and son but not today and Troy. today has more than one letter after the o, and Troy has more than one letter before the o.

- Equals sign (=)

  Precede the text with an equals sign to find exact matches.

This condition	*Finds records that contain*
June	June, June 14, 1995, and June Q2.
=June	June. The other records with June in the field contain other characters, so only the record with June alone is found.

- Ampersand (**&**)

  Include an ampersand (**&**) in a find condition to look for a string that contains two text values.

This condition	*Finds records that contain*
France&Spain	Both France and Spain anywhere in the single field

- Exclamation point (!)

  Precede the text with an exclamation point to limit a find to be case-sensitive.

This condition	*Finds records that contain*
Madrid	Text that begins with Madrid, madrid, and any other combination of uppercase and lowercase letters in the condition.
!Madrid	Text that begins with Madrid, with an uppercase M and lowercase adrid.

You cannot use the equal sign and the exclamation point together.

- Tilde (**~**)

  Precede the condition with a tilde to find a word that sounds like another.

This condition	*Finds records that contain*
~Philip	Philip, Filip, Philippe, and similar-sounding words

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Find requests, using operators

   Find requests, using wildcards
3. Click the index entry you want, then click Display.

Finding numbers, Boolean values, dates, and times

You can find a value in a numeric, Boolean, date, or time field or in a calculated field that returns a number, Boolean value, date, or time.

If you have a number, date, or time as a find condition, the match must be exact, so you don't need to precede the condition with an equal sign. But you may want to use the operator **< >**, **<**, **<=**, **>=**, or **>** with the condition. For example, >200 finds numbers that are greater than 200, and <>8:30 finds times that are not 8:30 AM.

- To find a number, enter the number in a numeric or calculated field.

  Do not enter other characters, such as currency symbols or commas, with the number.
- To find a Boolean value, type 0 or 1 in a Boolean or calculated field.
- To find a date, enter the date as numbers in a date or calculated field. Separate the numbers with non-numeric characters such as slashes (/).

  You can enter a single number to find a date for the current month and year.

  Enter one, two, three, or four digits for the year. One-digit and two-digit years are assumed to mean the twentieth century. If you don't type a year, Approach assumes the current year (based on your system settings) and enters it for you.
- To find a time, enter the time as numbers in a time or calculated field. Separate the numbers with colons.

  You can enter a single number to enter an hour only.

  You can use either a 12-hour or a 24-hour format. If you enter an hour less than 12 without a suffix of AM or PM, Approach assumes AM.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Numbers, finding

   Dates, finding

   Time, finding
3. Click the index entry you want, then click Display.

Finding values in a range

Approach can look for values that fall within an inclusive range in a text, numeric, date, or time field, or in a calculated field that returns a number, date, or time.

To find values in a range, enter an ellipsis (...) between the beginning value and the ending value of the range.

For example:

- H...JZZZ in a text field finds all text strings that begin with H, I, or J.
- 7...9 in a numeric field finds the values 7, 8, and 9.
- 5/1/96...5/31/96 in a date field finds all dates in May 1996.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   Range, finding
3. Click the index entry you want, then click Display.

Finding radio button and check box settings

You can look for all records that have a particular combination of radio button and check box settings.

To find radio button and check box settings, turn on the radio buttons and check boxes in the find request to specify the combination you want to find.

Note If you want to specify a No value for a check box, such as payment not received, click the check box to turn it on, and then click it again to turn it off. A check box is Null (that is, neither on nor off) until it is clicked at least one time.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Radio buttons, in find requests

   Check boxes, in find requests
3. Click the index entry you want, then click Display.

Finding blank or nonblank values

Approach can isolate records with blank values in a particular field. This can help you identify errors in data entry or find records that don't have complete information. A field is blank if it has a Null value or no value.

Approach can also find fields that are not blank.

To find blank values, enter an equal sign (=) by itself in a field. To find nonblank values, enter a not-equal sign (< >) by itself in a field.

Using an If statement to find data

An If statement is a concise and powerful tool for comparing data in two or more fields. You can use an If statement in a find request to build complex find conditions.

When you use an If statement in a find condition, Approach finds records for which the find condition returns Yes. You must write the If statement so that its result is Yes or No.

To use an If statement to find data, type an If statement in any unused field in a find request.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   If statements, in find requests
3. Click the index entry you want, then click Display.

Constructing a formula for finding records

Your formula may be a simple number or reference to a field, or may be built from symbols and Approach functions.

Compare values. For example, this statement finds records that have a higher value in the ActualCost field than in the Budget field:

```
If(ActualCost>Budget)
```

You can also combine expressions in an If statement with the AND and OR operators. For example,

```
If((Department='Finance')AND(City='San Francisco'))

If((Amount>200)OR(Date<'4/30/94'))

If((Today()-InvoiceDate<=90)AND(BalanceDue>0))
```

Find dates and date ranges. For example, these statements find records with yesterday's date, dates in this month, or dates already past in this year, respectively:

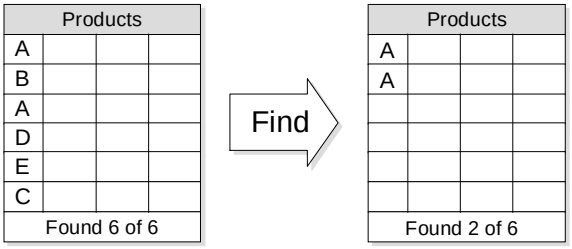
```
If ("Date field" = Today() - 1)

If ((Month("Date Field") = (Month(Today()))AND(Year("Date Field") = Year(Today()))

If (("Date Field" >= '01/01/1995')AND("Date Field" <= Today())
```

The Today() function produces the current date.

For more information, see Formulas, overview in online Help.

Using the found set

The group of records that Approach selects to match your find conditions is a **found set**. Now that these records are isolated from the rest of the database, you can browse through them, modify their data, delete them one at a time or delete the whole set, print views presenting the found set, or export only these records to another application. In effect you have a temporary mini-database with all of the functions of the original database.



The status bar shows the number of records in the current found set and the number of records in the entire database.

The other database records haven't disappeared; they are simply hidden until you indicate that you want to work with them again.

Approach works with the current found set until you do another find or select All Records in the named find box in the action bar. Choosing All Records shows all the records in the database and returns the records to their original sort order.

Repeating a find

Approach keeps track of your most recent find so that you can easily repeat it, as long as you are still in a view based on the same database and you have not used the Find All command. Choose Find - Find Again on the Browse context menu.

Naming a find to use again

If you've created a find request that you would like to save for future use, save that find by giving it a name. Finds that you name are listed in the named find box in the action bar.

To save a find, do one of the following:

- Click the named find box on the action bar, replace the text with the new name of the find, and then press **ENTER**.

- Name the find when you create it in the Find Assistant.
- Choose Create - Named Find/Sort to name the current find, edit a find, or to create a new one.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

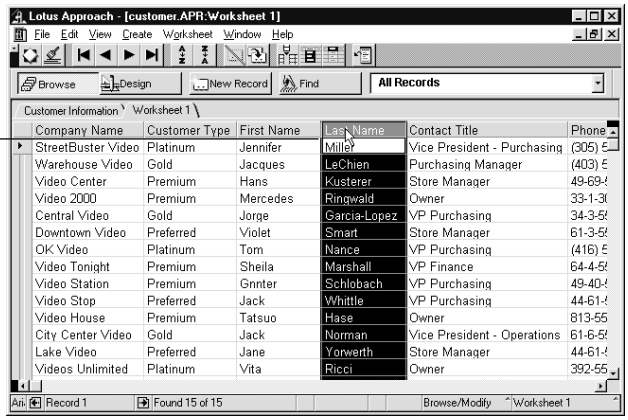
   Named finds
3. Click the index entry you want, then click Display.

Sorting records

Approach displays records either in the order in which you add them to the database or according to an order that you specify in Approach Preferences. If neither of these is the order you want for viewing or for working with the records, sort records according to data in one or more fields.

Select the field to sort.

Click a sort icon.



Sorting only temporarily changes the order of records. You can re-sort records a different way or go back to the original order at any time. Approach also keeps track of the last sort you did so that you can perform the same sort again. Find All in the named find box on the action bar returns records to their original order.

Defining sorts

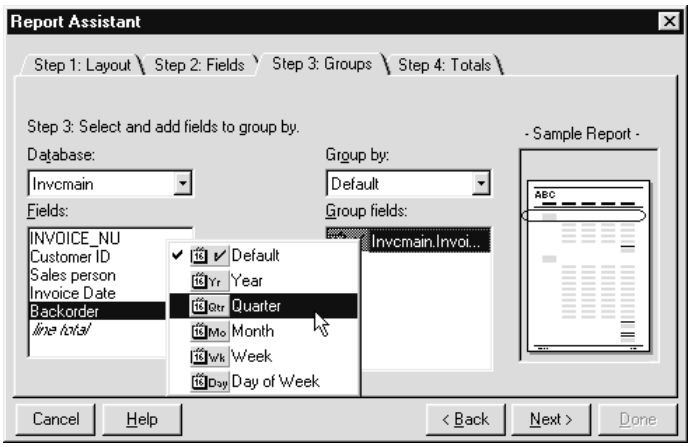
To specify more than one field to use for the sort choose Sort - Define on the context menu in Browse. The Sort dialog box allows you to choose multiple fields and whether to sort in ascending or descending order.

Setting sort defaults

You can specify a default sort order in the Order tab of the Approach Preferences dialog box. When you first open the Approach file, or choose Find All, the records are displayed in this default order.

Sorting and grouping in reports

In addition to sorting the records in the database in a specific order, the Report Assistant provides some powerful options to group the sorted records. For example, if you want to display sales by date on a report, the sort shows you the sales records chronologically. The Report Assistant allows you to then group the dates into months or quarters so you can display the records in meaningful ways.



For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Records, sorting

   Sort, named

   Reports, grouping records
3. Click the index entry you want, then click Display.

Chapter 9
Customizing and Automating Approach

As you work in Approach, you probably will notice that there are some tasks you do more than others, and some tasks take more planning and new input than others. Approach provides several tools to allow you to spend your time improving and using your data, and less time changing Approach.

One way to move towards this productivity goal is to decide how to set up Approach so that the tools you need are at hand when and where you need them. Do this by customizing Approach: set display preferences, customize menus and icon bars, and otherwise change Approach's behavior to suit the way you work.

Another way to improve your productivity is to automate the tasks you perform most often. For example, naming a find so it is always available is a quick way to focus your attention on the data, and spend less time searching for the data you want. Approach macros go a step further: a macro is a single command that completes a sequence of tasks.

When many people are using a database system or one person is doing the work of many, LotusScript provides another method for making every move count. LotusScript allows you to integrate Lotus's applications with other Windows applications, paving the way for the right data to flow to the right tool.

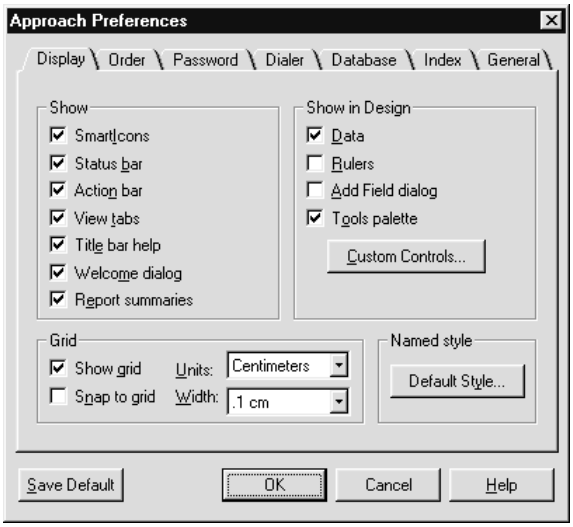
Customizing Approach

You can customize Approach at three levels:

- Set Approach preferences that affect the Approach file and its connection to your databases
- Configure sets of SmartIcons
- Create special menus for views that show commands for a specific database application

Preferences

Choose File - User Setup - Approach Preferences to open a tabbed dialog box containing preference options. When you change these options, the changes take effect in your current Approach session immediately. If you want the new preference settings every time you open Approach, click Save Default.



Preference settings are broken up into the categories described here:

Tab	*Description*	*Go to this tab to control...*
Display	Control window components	Elements of Approach that are visible, such as SmartIcons, action bar, view tabs; tools in Design that are visible, such as the Tools palette; grid size and snap; default named style definition available through view assistants.
Order	Database record sort order	The fields used to determine the default record order for each database. Select All Records in the named find box in the action bar to return the current database to the order your specify here.
Password	Database passwords	Passwords for accessing your dBASE or FoxPro database files. Gives you access to TeamSecurity options where you set Approach file passwords and define password privileges for individual users or groups.

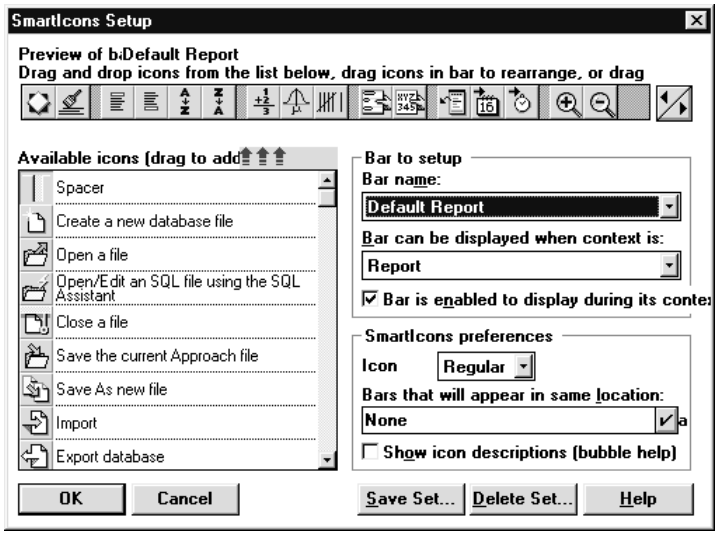
Continued

Tab	*Description*	*Go to this tab to control...*
Dialer	Modem connection and dialing requirements	The baud rate, modem port, and dialing prefixes, suffixes, and codes.
Database	Database-specific controls	Database compression, read or write status, character set preference.
Index	Database-specific index controls	Index options for each database, based on the database type.
General	Approach behavior	Calculated fields for joins, behavior of Add Field and Cancel Macro dialog boxes, keys used for field navigation and field value selection, and network operation preferences.

SmartIcons

Choose File - User Setup - SmartIcons Setup to open a dialog box for configuring your sets of SmartIcons. When you make changes to these options, the changes appear immediately in your current Approach session.

Use the SmartIcon Setup dialog box to choose which SmartIcons to group together in a set and then choose when that set is available.



For more information about SmartIcons and their context-specific nature, see Chapter 3.

Custom menus

Approach allows you to define the commands that appear on specific menus. The menus are associated with a particular view. Use custom menus when you want to emphasize specific commands that are appropriate for the tasks that your database application performs.

For example, if you have a data-entry form for entering customer's information, you might want to remove all of the Approach menus that contain commands for designing new views or for changing to Design. Replace these commands with macros that you write to offer specific instructions. A new menu might read "How to Enter Customer Data" in which the commands Addresses, Customer Type, and so on, open message boxes with instructions for entering customer information.

To create custom menus, first create the view to which you'll attach the custom menu. Then in Design, choose Create - Custom Menu. After you create the menu, attach the menu to the view on the Basics tab of the InfoBox for that view. The custom menu is available when you go to the view in Browse.

The Custom menu dialog box lists a predefined short menu that you can use when you want other users to be able to enter data in the view, but not change its design. The **short menus** are a subset of the default menus; they do not include commands for modifying the file. For example, the short menus do not have the Create - Form command.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Preferences, setting

   SmartIcons, creating new sets

   Menus, creating
3. Click the index entry you want, then click Display.

Automating Approach

Approach provides tools for automating tasks — from small tasks like finding records, to larger tasks like generating end-of-the-quarter financial reports.

Named finds and sorts

When you find a category of records that you often use, you can save the find conditions. (Give the find a name that distinguishes these conditions from other conditions of records you might use for a find.)

Name a find when you create it in the Find Assistant. You can also name the find last performed by selecting the named find box in the action bar and entering a name for it. Make sure to press **ENTER** after you enter the new name.

For more information about creating a find, see Chapter 8.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Named finds, editing

   Named sorts
3. Click the index entry you want, then click Display.

Macros

A macro is a single command that executes a series of instructions. You name the macro, define the series of commands, and assign it a location from which it can be run.

Macros can simplify your work by automating repetitive tasks. You can also link macros to each other to automate a sophisticated series of tasks. Macros can:

- Automate procedures you often use
- Perform complex tasks and programming procedures, such as loops and if-then-else statements
- Guide users who are unfamiliar with Approach through tasks and applications that you create and control

What's the first step in creating a macro?

Thoroughly understand the task you want to accomplish with the macro. If it's a complex task, the best way to understand it is to do the task, and write down all the steps you take in order to complete the task.

Once you understand what's involved in doing the task, you're ready to create the macro.

Combining macros with LotusScript

Using LotusScript, you can run macros in Approach that perform sophisticated tasks, potentially incorporating functionality from other Lotus applications. You may want to include a LotusScript program in a macro, or conversely, incorporate a macro into a script.

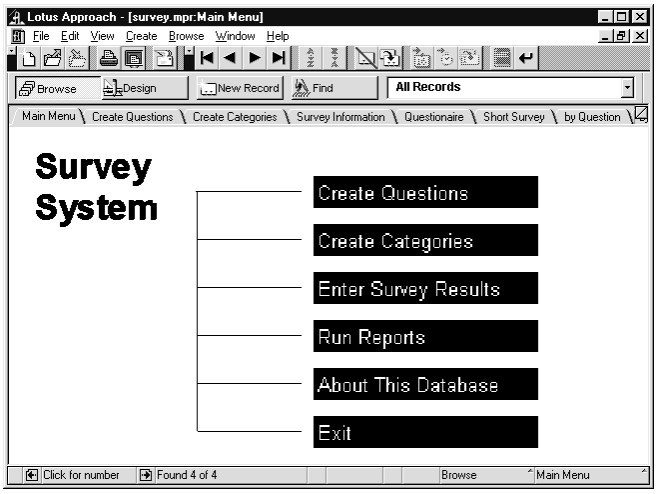
Running macros

Run a macro manually, or trigger the macro when something happens in the Approach window.

Choose Edit - Run Macro to run a macro that you have already created.

To trigger a macro from an event in Approach, attach the macro to an object in a view or a menu. You can attach a macro to a view, a button, a field, or any object in the data-entry tab order. Select what action starts the macro in the Macro tab of the InfoBox for that object.

For example, to click a button to change from one view to another, create the macro using the View macro command, create the button, attach the macro to the button with the option "On clicked." When you go to Browse and click the button, Approach runs the macro, switching the view. Use this method to help a database application user know which view is used for which database task.



Use macro buttons to guide a user to appropriate views.

You can use a macro to perform a simple task, such as switching from a form to a report, or multiple tasks, such as finding all unpaid invoices, sorting them by date in ascending order, switching to a past-due notice form letter, and printing individual past-due notices.

Control when to run a macro using a formula

Your formula may be a simple number or field reference, or may be built from symbols and Approach functions.

Run a macro under a condition. You can use the Run macro command to perform a conditional macro.
For example, you have a macro that prints domestic mailing labels for the found set of customer records. This macro has a formula in a Run command to decide whether the customer record has a domestic address or not:

```
If (Country = 'USA')
```

If true, the macro calls another macro to change views and print the labels. If false, the macro continues, perhaps hiding this record, and then moving to check the next record.

Simplify common tasks. In another example, you have a macro attached to a button that reads "Print Overdue Notices." This macro has a Run command to calculate which invoices have not been paid in time:

```
If ("Invoice Date"<(Today()-30)AND(Paid<>'Yes')
```

If true, the macro calls another macro to print a Late Payment form letter. If false, the macro continues, checking the next record.

For more information, see Formulas, overview in online Help.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

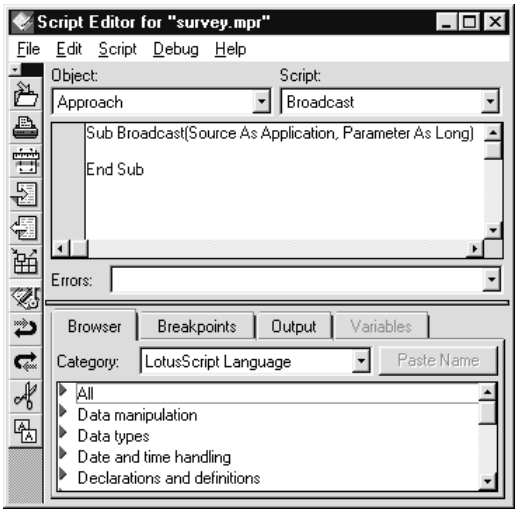
   Macros, creating

   Macros, running
3. Click the index entry you want, then click Display.

LotusScript

Use LotusScript programming language for sophisticated programming tasks. LotusScript is a version of BASIC that offers not only the standard capabilities of structured programming languages like Pascal and C, but a powerful set of language extensions that enable object-oriented application development. LotusScript gives you a programming connection to commands for all of your Lotus applications; you can write scripts that use the functionality of many applications, including other Windows applications.

To create a script using LotusScript in Approach, choose Edit - Show Script Editor to open the integrated development environment (IDE). This window provides a list of the objects available in the current Approach file, LotusScript language elements, and classes specific to Approach.



For information about programming in Approach using LotusScript, see *Using LotusScript in Approach.*

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Scripts, creating

   LotusScript language Help
3. Click the index entry you want, then click Display.

Chapter 10
Team Computing

Approach's team computing features give your workgroup the data you need, when you need it. Use file-sharing controls to keep your data and applications secure and yet available. Approach works across your network, allowing you to avoid storing and maintaining multiple copies of your data. TeamMail allows you to circulate specific data through the workgroup for reporting and data revision.

File-sharing

Approach supports file-sharing features that let you use data simultaneously with other members of your workgroup.

TeamSecurity

When many people use an Approach application, often one person is in charge of designing the application and modifying how the workgroup uses the data. Others in the group often spend most of their time entering data or creating reports based on data. With Approach's TeamSecurity options, you can easily configure the application to provide different levels of access to different levels of users.

For example, if your workgroup is using an Approach application to track orders and produce invoices, many of the group only need to open the application in Browse and Print Preview. They have access to all the application views and enter new records and modify existing ones. They wouldn't modify the appearance of the application itself in Design. All of these users would have the same security levels, so they would all use the password to open the Approach application. This password would be associated with a group name in TeamSecurity, for example, these users would be Team A.

Potentially this same application is used at the front desk for visitors to register and to have name tags printed out. These "users" or visitors to the office would read information, but not add data. They wouldn't have access to all of the views: you wouldn't want your customer list available to casual office visitors, but you would want to expose a form for entering potential

customer or vendor information. Again, the visitors couldn't modify the application itself in Design, because you wouldn't grant Design privileges to the Visitor group that you define.

Choose File - TeamSecurity to set or edit security controls. When you edit privileges for users, you can change the default privilege settings or create your own category of user.

Groups of users

You don't have to keep a log of users for Approach's TeamSecurity. Instead, a security group consists of the individuals who use the same password to access an Approach file.

For example, if you wanted to have a group called Team A, enter Team A as the group name, enter the password, and set the privileges you want everyone in the group to have. Then inform everyone belonging to Team A to use a particular password to open the Approach file.

Single-password access

After you set your password, a user has only to enter a single password to have access to the Approach file (.APR) file. Even if the database is joined to other database files, the user only has to enter the password once when opening the joined files.

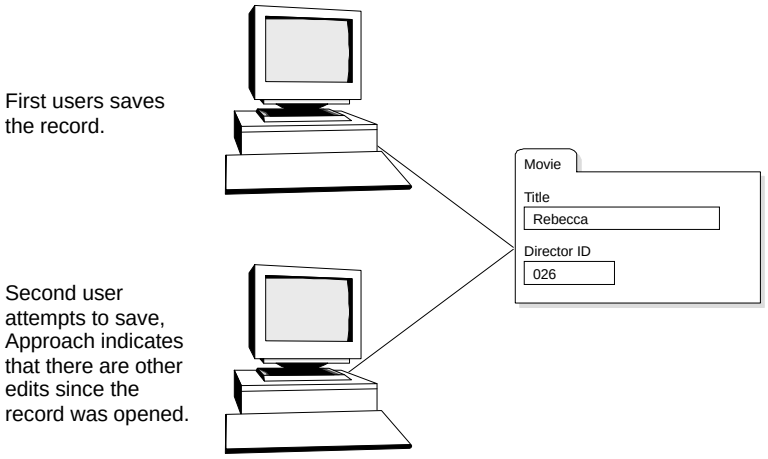
Say that the Employee database is joined to the Manager, Salary, and Region databases and that all four databases have different passwords assigned in the Preferences dialog box. Use TeamSecurity to assign the same password to all four databases at the Approach file level. Once you open an Approach file and enter your password once, you have access to the Employee, Manager, Salary, and Region databases joined in the Approach file without being prompted for additional passwords. In addition, individual passwords for these databases are not circulated. To update passwords, you need only change the Approach file passwords.

The only exception would be server-based databases in Oracle, Notes, DB2, SQL Server, or Sybase where Approach supports the profile-based security of the server. In these cases, Approach prompts the user for the appropriate passwords as needed.

Record locking

It's usually possible for more than one network user to edit a record at the same time. This method of data-sharing, called **optimistic record locking**, is an efficient way to work — and Approach helps you make careful use of it.

If you have optimistic record locking set for your network environment — it's the default setting for Approach — other users will be able to edit a record at the same time you do. When two users edit the same record, the changes are saved in the database for the *first user* to enter the changes. When the second user tries to enter his or her changes, an alert box informs that the record has been modified by another user while the record was open. The second user may accept the new version of the record or save the second set of changes to the record.



Approach runs faster with optimistic record locking.

If you don't want other users to edit a record at the same time you do, you can turn off optimistic record locking. This way, once you've clicked in a record, other network users can view the record but cannot make changes to it until you go to another record.

Database passwords

Some database formats can store a password with the data. If your team looks at a database in applications other than Approach, you probably want to use a database password in addition to TeamSecurity passwords to control access to the data.

To set a password in your dBASE or FoxPro database that affects only access to the data, choose File - User Setup - Approach Preferences and set the password on the Password tab. You can define read / write or read-only privileges, depending on what your database format supports.

Approach TeamSecurity offers you single-password access, even when you have database passwords set. The passwords you specify in TeamSecurity automatically open the databases in the application with the correct passwords. You can override single-password access in the TeamSecurity dialog box, Database tab, if you want to require users to know the database password in order to work with the data.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Passwords, user privileges

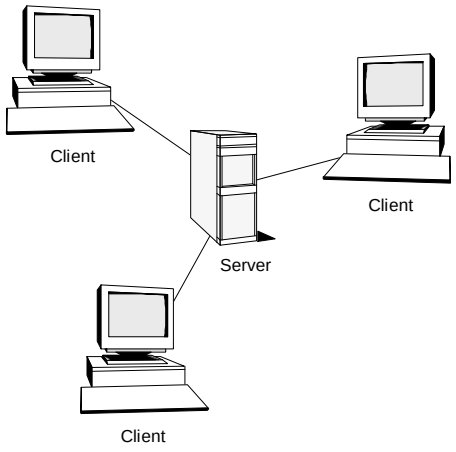
   Passwords, defining

   Record locking
3. Click the index entry you want, then click Display.

Working on a network

You can store any Approach file and any database file supported by Approach on a network. Users who work on the network can create, open, and save files and work with data in them just as if the files were stored on their own local drives.

Most often, you set up a **server** by placing files on a central device that users have access to through the network. The server is usually a more powerful computer than the local devices, with a large drive and network software to process users' requests. The users will work with the files on their own local or **client** computers.



In general, each Approach user must have his or her own license, even if Approach is run from a server. For details about restrictions on network use, see your Approach license agreement.

As you work with a database on a network, the original database remains in its network location — what you see on the screen is just a copy of those records in your computer's memory. If you have write access to the database, you can make changes to the data and the changes are saved in the original database on the network.

Refresh network data

As you work in a network database, Approach places a copy of the data you see on the screen in your computer's memory.

Approach refreshes the data from a network database when you edit, find, or sort data, when you preview or print, and when you change what you see on the screen (such as move to another record or go to Design). You can also refresh the data yourself, to see the result of your own edits and the edits of other users working on the same network database.

To refresh the network data on your screen, choose Refresh Data from the Browse context menu. If you're working with a found set or with sorted data, Refresh inserts any new records into the found set or the sort order as appropriate.

Working as a single user

In general, you'll probably want to share network databases with other users because this is the most efficient way to work. But there may be times when you want to open a particular database as a single user — for example, if you need to make structural changes to the database or if you have a lot of previewing and printing to do. You can temporarily change Approach's network settings to let you open databases as a single user.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Networks, file-sharing

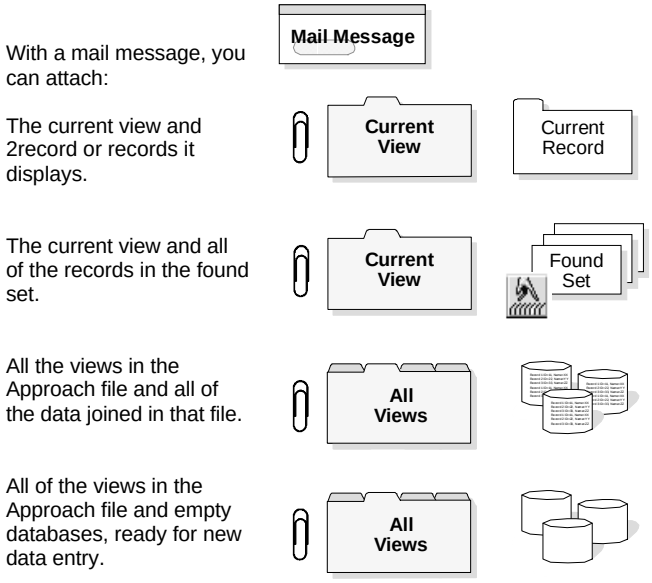
   Single user access to network files
3. Click the index entry you want, then click Display.

Distributing data and Approach views

Whether you are connected to the same databases as your workgroup or working with separate sets of information, you can share whole database applications or pieces that illustrate a particular point. When you're working from large databases, it can be especially helpful to pass along a special section of a database for your workgroup to see. Approach connects easily to your current e-mail system and you can also combine Approach views with other documents by copying a view or views to the Clipboard and pasting them into another application.

TeamMail

If you are connected to a network and have access to a VIM- or MAPI-compliant e-mail package (such as Lotus Notes or cc:Mail), you can include Approach views and data in your e-mail messages. Approach lets you e-mail all or part of the current Approach file. If you attach the current view to a mail message, you can include the current record or the current found set. If you attach the entire Approach file, you can include all data, or just the database file without any data.



Note If you are using Notes, you can e-mail an image of the current view in addition to other combinations of views and data.

You can choose to mail the entire database application, but you have other options, too:

- To send a Windows metafile (.WMF) image of the current Approach file view, select “Include a snapshot of the current view.”
- To send the current Approach file with either all views or the current view only, select “Attached Approach file with.”
- Use the No Databases option when the person you’re sending the Approach file to has access to the database files on the same network as you.

TeamMail also allows you to specify a route for the mail to follow from e-mail address to e-mail address. After each person on the routing list receives the mail, the mailer prompts for the message to be sent to the next person on the route. The originator can track the progress of the mail through the route, including changing the route order.

TeamMail offers these routing options:

- Send a message to the document’s originator when the document is forwarded.
- Send a message to anyone on your mailing list (whom you choose by clicking the mail icon) when the document is forwarded.
- Include the routed document with any tracking messages.
- Send a return mail receipt when the routed document is open.

Copying views as OLE objects

Approach lets you take a snapshot of a view or set of views and move them into another Windows application. Choose Edit - Copy View to open a dialog box for choosing which views to copy. Approach prompts you for the format you would like to use for the transfer.

You can paste the view or views from the Clipboard in any of the following forms:

- An object that you can embed
- A Windows metafile (.WMF) picture that you can paste as a graphic
- Tab-delimited text (for example, to paste into a spreadsheet)
- Rich Text Format (RTF) text with formatting

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Mail, sending

   OLE, Approach as server application
3. Click the index entry you want, then click Display.

Chapter 11
Exchanging Data with Other Applications

With Approach, you don't have to convert your files into some special Approach format in order to use them. And, you don't have to convert them back into their original format to update the data source or distribute the new reports and records you created. The answer to most of your questions about exchanging data is this: use File - Open inside Approach to read and write data in its existing format.

If you want to create a batch file with file names stored in a field or if you have a customer who insists upon using an application different from the SQL server that your company uses or, if you find that you need to convert the data to another format or into another application, Approach has several tools to help you accomplish these tasks.

Working together with Lotus applications

The easiest and fastest data exchange happens with other Lotus applications. This section suggests some of the ways you can use other Lotus applications to enhance Approach's functionality, and ways Approach can add to theirs.

Working together with Lotus Notes

Approach can extend Notes from a document management and replication tool to a reporting and analysis tool as well.

Using Approach with Notes data

When you use Approach with Notes data, you have access to powerful data entry, reporting, and analysis tools.

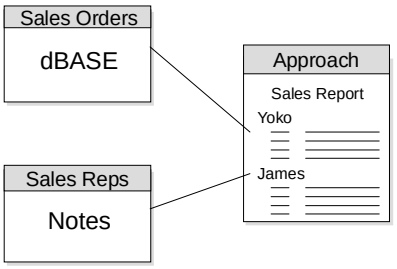
- You can develop Approach forms containing drop-down boxes, radio buttons, repeating panels, default value formulas, and data validation to view or enter data into Notes documents.
- You can use Approach's PowerClick reporting tools and Report Assistants to create advanced grouped reports with summary calculations from data supplied by Notes forms or views.
- You can create Approach mailing labels and form letters using Notes data.

Open the Notes database in Approach, and then use Approach to build reports, forms, worksheets, charts, form letters, or mailing labels.

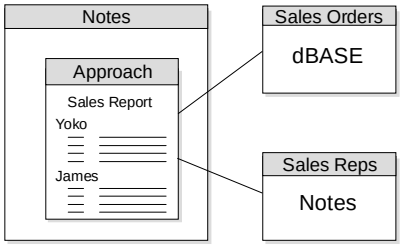
Using Approach to integrate Notes with other data sources

Approach can connect Notes databases to any other data source for comparison and analysis. You can easily link Notes data with data from other sources by joining databases, by embedding Approach applications in Notes documents, or by importing or exporting Notes data.

- Joining databases lets you create a relational link between a Notes form or view and any other database table. For example, you can link a database that contains the names of sales representatives to a second database that contains sales order information. You can then create an Approach form or report that shows the sales orders for each sales rep.



- Notes/FX™, an OLE enhancement, allows you to embed an Approach application in a Notes form and exchange data between the Notes form and the Approach application. For example, you can create an Approach application that queries a different Notes, dBASE, or SQL database that contains sales information, and then displays the resulting information in a sales report.



- Approach's SmartImport features make it easy to move data between any two databases. For example, you can quickly enter a data set into Notes, or move Notes data to another database, whether it is a DB2, Oracle, SQL Server, dBASE, Paradox or even another Notes database.
- The Approach Save As command gives you another way to integrate Notes with other data sources by allowing you to create a new form in an existing Notes database and fill it from the data you are working with.

Using Notes to distribute Approach applications

By including Approach applications in a Notes document, you can use the file-sharing and replication capabilities of Notes to distribute those applications throughout your organization. You can also use Approach's own mail features, in conjunction with a VIM- or MAPI-compliant mail system, to send Approach views or applications.

When you mail from Approach, you have great flexibility in deciding what information to send. Approach lets you send either a snapshot of the current view, the entire Approach file, or both. If you send the entire Approach file, you can attach all databases that it refers to, you can send blank databases (with field names, but without data), or you can send the blank Approach file so the recipient can use it to enter data.

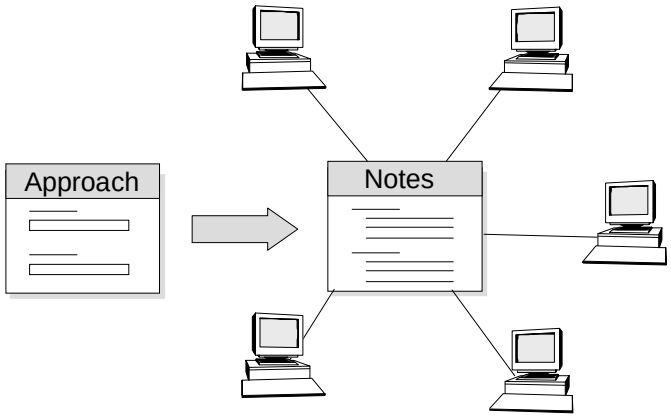
For more information about distributing Approach applications using Notes, see Chapter 10.

Notes operation

Open a Lotus Notes view or form from a Notes database stored on your local drive, on a server, or directly from your Notes workspace. The data from the view or form displays as an Approach view.

You can also replicate a Notes database to create a new copy of an existing database on your local hard disk. Replicating a Notes database with a server updates both your replica and the server's replica with changes made to either one.

By replicating a Notes database to your hard drive, you can add new information and make any necessary changes to the database without being hooked up to a network. This would be useful if you needed to take your laptop to a remote field site and update your database but did not have access to a network. You could then replicate the database back to the Notes database on the server with the new changes included.



For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

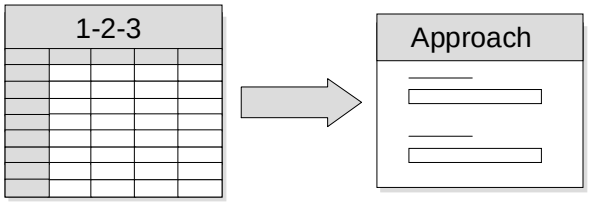
   Lotus Notes, opening in Approach

   Notes databases, replicating

   Notes/FX, enabling variable fields
3. Click the index entry you want, then click Display.

Working together with Lotus 1-2-3

1-2-3 provides a familiar interface for entering data. Approach allows you to continue using 1-2-3 for tasks you are comfortable with and extends the power of a relational database to what you record in 1-2-3.



You can open a “live” named range from a Lotus 1-2-3 spreadsheet in Approach and view or edit the range in an Approach file.

Note Lotus 1-2-3 must be running and the spreadsheet containing the range must be open.

You can create an Approach view by choosing Tools - Database - Report, Dynamic Crosstab, or Mailing Label from the 1-2-3 menu. 1-2-3 starts the appropriate Assistant to create the view you want.

The Approach views appear as icons embedded in the 1-2-3 worksheet.

You can modify data in your Approach view. When you refresh the view these changes appear in your 1-2-3 database table. To create an Approach view in Lotus 1-2-3, you must have 1-2-3 Release 5 or later.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type this phrase:

   1-2-3, opening spreadsheets as databases
3. Click the index entry you want, then click Display.

Working together with Lotus Word Pro

Use Word Pro to enhance the text formatting capabilities of Approach. For example, if you would like to use text formatting in a memo field, replace the memo field with a PicturePlus field set to use Word Pro as the OLE server.

You can also use Approach to analyze and organize data and insert the resulting view in a Word Pro document. Use Edit - Copy View to copy the current view or all views to the Windows Clipboard. When you paste the views into Word Pro, use Edit - Paste Special and choose the format that you want the information imported in. If you choose RTF, Word Pro keeps the text formatting the same as in the Approach view.

Working together with Lotus Freelance Graphics

Freelance Graphics® provides a long list of SmartMaster sets for presentations. You can use any of these professional images in Approach views. To do so, export a Freelance file as a Windows metafile and paste it in the background of an Approach view, or choose Create - Object and select the Freelance presentation file.

You can also use Approach to analyze and organize data and insert the resulting view in a Freelance presentation. Use Edit - Copy View to copy the current view or all views to the Windows Clipboard. When you paste the views into Freelance, use Edit - Paste Special and choose the format that you want the information imported in. If you choose RTF, Freelance keeps the text formatting the same as in the Approach view.

Opening database files

One of the most powerful ways Approach can help you exchange data from one source to another is by allowing you to open almost any database and join that database with any other database. In most situations, use File - Open to reach data files rather than importing the data.

PowerKey data access

Directly access, update, manipulate and report on all of your data sources regardless of the file format. With PowerKey data access, you can have native database speed and functionality in Approach. PowerKeys support dBASE, Lotus Notes, DB2, Paradox, and FoxPro formats. Approach reads and writes dBASE, Paradox, and FoxPro files directly, so there's no need for the native application.

SQL tables

Approach can access SQL data sources with a particularly flexible and fast connection. Using an assistant, you can retrieve only the records you need from the SQL server. You save processing time by not opening the entire database and retrieving all of the records. You can name these queries so that they are easy to reuse in your next Approach session.

The SQL Assistant helps you build a SELECT statement and then sends the statement to your SQL server. You don't need to know SQL syntax or language to use the assistant. Instead, you select the databases and fields to use and create a find like you would in Approach's Find Assistant. Approach takes your input and constructs the SELECT statement.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   PowerKey

   SQL overview
3. Click the index entry you want, then click Display.

Importing data

In Browse, you can import data into an existing database file. In Design, you can transfer the views from one Approach file to another.

- Importing data allows you to add to or update the records in your database without changing the appearance of any of the views in your Approach file.
- Importing views lets you add the views from another Approach file without affecting your data.

When you import data, Approach can update existing records and add imported records to the existing database, matching fields according to the relationships you define (this is called field mapping). If fields in the imported database have the same names as fields in the Approach database file, Approach automatically maps them. If the names don't match, you can indicate how the fields correspond to each other.

You can't import data into a calculated field. The values in a calculated field must come from the Approach formula for the field. However, you can export the value in a calculated field when you want to create a new database or transfer data between applications.

When you import views from one Approach file to another, you also map the relationships between the fields referenced in the imported Approach file and those used in the current Approach file.

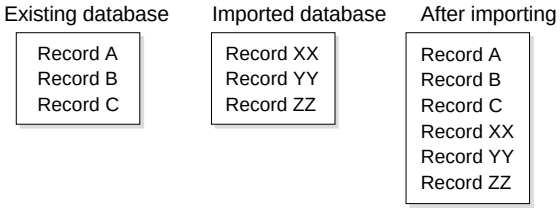
When you import into a database, Approach can

- Update existing records with the data that you're importing
- Add the data from the import file in new records at the end of the current database file
- Do a combination of the two: update existing records and import new ones

Because you're adding data to a database file, you must be in Browse. If you're working with a found set rather than the entire database, Approach updates only the found set.

Adding records by importing data

Adding records places all of the records in the imported file at the end of the existing database (unless you have a custom default sort order). For example, if the existing database starts with 30 records and you import 20 records, the existing database will contain 50 records after importing.

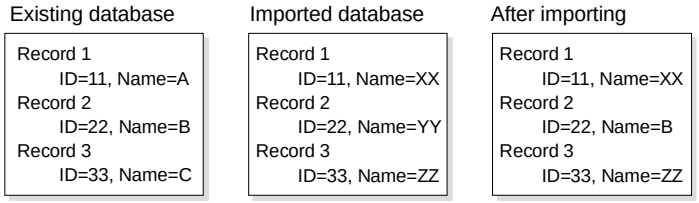


Updating records with imported data

As an alternative to adding the records in the imported database to the existing database, Approach lets you use selected data in the imported database to update records in the existing database. A third option combines the first two, allowing you to update records that have matching data and add new records for data that doesn't match.

When you update records by importing data, Approach checks the data in match fields that you specify, looking for any records in the existing database that contain a value that matches a record in the imported database. When Approach finds a match, it uses imported data to update only the fields you specify in the matching records.

This powerful feature lets you update only the records you want, using only the fields you specify. For example, you can update the customer names only in the records where the customer IDs match. In the illustration below, Approach looks for ID numbers and then updates just the name field when the ID numbers match.

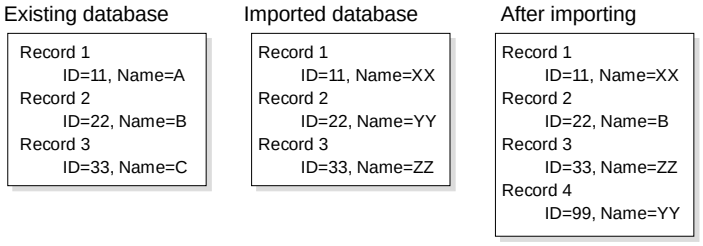


Notice that the ID in the imported Record 2 doesn't match any IDs in the existing database, so Record 2 is not updated. However, the IDs for Records 1 and 3 do match, so Approach has updated the Name fields.

Adding and updating by importing data

The third import alternative combines the actions of the first two. Approach looks for records that have matching values and updates them as appropriate. Any records in the imported database that don't match the existing database are added at the end of the existing database.

In this example, the IDs in Records 1 and 3 match, so Approach updates the existing records with the imported data. Record 2 in the imported database doesn't match any records in the existing database, so Approach adds it to the end of the existing database as a new record: Record 4.



For more information

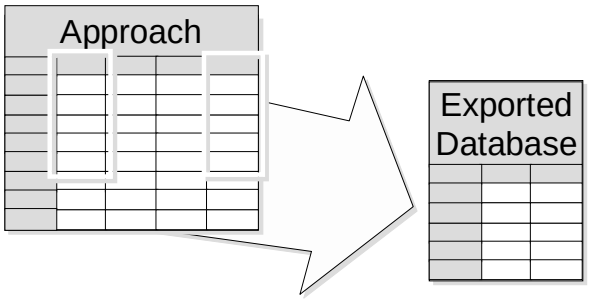
1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Data, importing

   Mapping, fields
3. Click the index entry you want, then click Display.

Exporting data

When you export an Approach database file, you take selected data and save it in a format that can be used by other applications. You can export all the records in a database or use Find to select a subset to export. You can also export all of the fields in a record or just some of them.

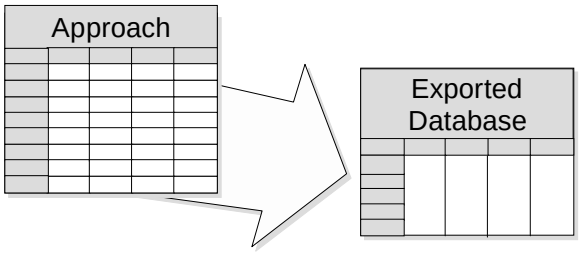


A calculated or variable field is part of an Approach file. Approach converts it to a database field in the export file during export.

Exporting creates a new database file that can include all types of fields except calculated fields that perform a summary function. You can export other calculated fields, but their values are converted to a set text, numeric, date, or time value before exporting. If you export a variable field, Approach creates a database field with the same value for each record.

PicturePlus fields can be exported, but only another Approach database file can read them.

If you want to reuse an existing Approach file, complete with calculated and PicturePlus fields, you don't need to export it. Just choose File - Save As and use the "New data" option to save a copy of the complete Approach file with a blank database. Your calculated, variable, and PicturePlus fields remain part of the Approach file. Then you can enter or import data into the new file.



For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   Data, exporting

   Mapping, fields
3. Click the index entry you want, then click Display.

Copying and pasting data

Insert Approach views into graphics, presentation, or word processing applications using the Clipboard. Approach can copy the current view or all of the views in the Approach file. Choose from the current record, the found set, or all of the records in the databases to copy.

In the other Windows application, paste the contents of the Clipboard as a bitmap, Windows metafile, text, or RTF. Choose Edit - Paste Special and select a format.

Using OLE objects

Approach supports Object Linking and Embedding (OLE) as a communication channel to dynamically share data between two applications. OLE objects can be placed in an Approach file in two ways:

- Create an active link between the two applications.
- Embed the object in Approach.

You can also use OLE to link or embed an Approach object in another application.

Embedded objects

What is an embedded object?

An OLE embedded object is a piece of data stored in a file in one application (the client) that you create and edit using another application (the server).

With an embedded object, you can use the features of the server application to manipulate data in the client application. For example, you can embed a Lotus Word Pro Document object in an Approach file. You use Word Pro to create and edit the data of the embedded object, but that data is stored in either the Approach file or a database associated with the file.

What does an embedded object look like?

In Approach, you can make an embedded object part of the records of a database or part of the layout of a view. To make the embedded object

- part of the records of a database, define a PicturePlus field to contain the object and add the field to a view. Then in Browse, double-click the field to work with the embedded object.
- part of the layout of a view, in Design, use Create - Object to create the object and add it to the view. Then in Design, select the object to work with it.

What can you do with an OLE embedded object?

After you create an embedded object, you can move the object, copy it, or delete it just as you would any field or drawn object.

Just as with a link, you can double-click an embedded object to activate the server application so that you can edit the object. You can use all the features of the server application to change the object's data or appearance. For example, you can use Lotus Word Pro to format text in a Word Pro Document object so that it appears in two-column format when embedded in Approach.

When should you use OLE embedded objects?

Use OLE embedded objects when

- You need to use information in one application that you can only create or format in another application.
- You don't need to share the information.

For example, if you want to place two-column text on a page of an Approach form, and you don't need to use the data in any other application except Approach, you can embed a Word Pro Document object in a PicturePlus field or as part of the layout of the form.

Example: Why embed an object in a PicturePlus field?

Suppose you have a database in which you keep the specifications of all your products. You decide it would be helpful if you also showed a picture of the product as part of its record.

You have all your products photographed, and then you have these photographs converted into electronic images, in a format that supports OLE as a server and that is supported by Approach. It's a simple matter now to define a PicturePlus field, enable it for the OLE object supported by the bitmap software, and then add the new field to a view of the database.

Next, in Browse, you go to the PicturePlus field and double-click it to start the server application. Choose Create - Object and select Create from file. Then specify the file that contains the image you want to add to this record.

Example: Why embed an object as part of the layout of a view?

Suppose you want the background of an Approach form to be a professionally designed piece of artwork, but you don't have the resources to create such a background yourself. You can use any of the SmartMaster backgrounds available in Freelance Graphics as the background for a form simply by embedding it as an OLE object on the form.

Approach as an OLE server

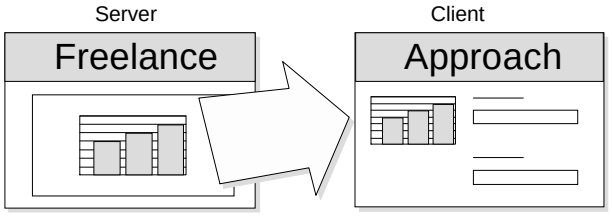
When you embed an Approach object into a file in another application, the Approach object is stored in the other application's file, but you use Approach to create and edit the object from inside the other application.

To create an Approach object based on an Approach file that already exists, in Approach go to Browse and choose Edit - Copy View. Then use Edit - Paste Special in the other application, selecting the appropriate Approach object Clipboard format to embed the object in the other application's file.

Links

What is a link?

A link is a connection between data in one application (the server) and another application (the client). With an automatic link, the data in the client automatically changes when you change the original data in the server.



What does a link look like?

In Approach, you can make a link part of the records of a database or part of the layout of a view. To make the link

- part of the records of a database, define a PicturePlus field to contain the link and add the field to a view. Then in Browse, double-click the field to work with the link.
- part of the layout of a view, in Design, use Create - Object to create the link and add the link to the view. Then in Design, select the link to work with it.

What can you do with a link?

After you create a link, you can do anything with it that you can do with other objects in Approach. For example, you can move the link, copy it, or delete it just as you would a field or drawn object.

There are also operations that you can perform only with links:

- Double-click a link to activate the server application so that you can change the original data for the link.
- Using Edit - Manage Links, you can display and change information about a link. For example, you can edit a link so that it refers to a different piece of data in the server application or change a link from automatic to manual.

When should you use links?

Use links when *all* of the following are true:

- You need to share data between applications.
- You expect the shared data to change.
- You need to update the shared data when the original data changes.

For example, if you keep sales and promotional information for your products in Lotus Word Pro documents and you want to make this information part of the records in your products database, you can create a link in a PicturePlus field to the Word Pro documents. In this example, Approach is the client and Word Pro is the server.

When not to use links

Do not use links when **any one** of the following is true:

- You need to use the data in only one application.

  Instead, create an OLE embedded object.
- You do not expect the data to change.

  Instead, use the Clipboard to move a static snapshot of the data to Approach.
- You do not need to update the shared data when the original data changes.

  Again, use the Clipboard to move the data into Approach.

For example, if you use Freelance Graphics to create your company logo, and you want to use the logo on Approach forms and in Word Pro documents, you would not use links, since the logo is not likely to change. Instead, you could simply copy the logo in Freelance Graphics and paste it into Approach and Word Pro.

For more information

1. Choose Help - Help Topics and click the Index tab.
2. Type one of these phrases:

   PicturePlus fields, setting OLE options

   OLE, embedded objects

   OLE, links
3. Click the index entry you want, then click Display.

Index

How to use this index

This index refers you to information in this book and in Online Help.

To find information on a topic

1. Start Approach.
2. Choose Help - Help Topics.
3. Click the Index tab.
4. Type the entry as it appears in the index. The alphabetical list of online index entries scrolls as you type.
5. Select the word or phrase you want to know about in the lower list box.
6. Click Display.
7. In some cases, a Topics Found dialog box appears. Click the topic you want to know about, then click Display.

   Help displays information on the index entry.

A

B

*** From the Approach menu, choose Help - Help Topics, click the Index tab, and type the index entry.**

*** From the Approach menu, choose Help - Help Topics, click the Index tab, and type the index entry.**

E

F

*** From the Approach menu, choose Help - Help Topics, click the Index tab, and type the index entry.**

G

H

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*** From the Approach menu, choose Help - Help Topics, click the Index tab, and type the index entry.**

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