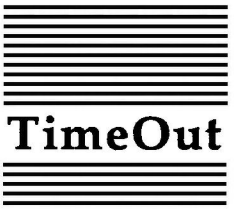
TimeOut ReportWriter

by Dan Verkade



TimeOut ReportWriter™

Relational Report Generator for AppleWorks
by Dan Verkade

Published by
BEAGLE BROS, INC.
6215 Ferris Square, Suite 100
San Diego, CA 92121
619-452-5500 Business Office
619-452-5502 Customer Support
619-558-6151 Pro-Beagle BBS
619-452-6374 Fax

LIMITED WARRANTY ON MEDIA AND REPLACEMENT

If you discover physical defects in the manuals distributed with a Beagle Bros product or in the media on which a software product is distributed, Beagle Bros will replace the media or manuals at no charge to you, provided you return the item to be replaced with proof of purchase to Beagle Bros during the 90-day period after you purchased the software.

All implied warranties on the media and manuals, including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to ninety (90) days from the date of the original retail purchase of this product.

Even though Beagle Bros has tested the software and reviewed the documentation, Beagle Bros makes no warranty or representation, either express or implied, with respect to software, its quality, performance, merchantability, or fitness for a particular purpose. As a result, this software is sold "as is," and you the purchaser are assuming the entire risk as to its quality and performance.

In no event will Beagle Bros be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect in the software or its documentation, even if advised of the possibility of such damages. In particular, Beagle Bros shall have no liability for any programs or data stored in or used with Beagle Bros products, including the costs of recovering such programs or data.

Some states do not allow the exclusion or limitation of implied warranties or liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Contents

Chapter 1

Welcome to ReportWriter

Welcome to TimeOut ReportWriter, the relational report generator for AppleWorks. To gain full use of ReportWriter's many features, it's important that you are familiar with the way that AppleWorks does things. If you aren't clear on the meaning of data base and spreadsheet terms like record, category, row, column or cell, you'll need to refer back to your AppleWorks manual. It contains an excellent tutorial that will prepare you for using ReportWriter.

Additionally, there are many example files on the ReportWriter disk. After working through the tutorial and perusing the reference sections, have a look at the examples.

By the way, whenever a data base, spreadsheet, or word processing file is referred to, it always means an AppleWorks file.

Introduction to ReportWriter

ReportWriter works right inside AppleWorks. To access it, just press ⌘-Escape and select ReportWriter from the TimeOut menu.

ReportWriter is a report design and generation application. With ReportWriter's 240 column editor, you can freely mix text and data anywhere in your reports. Headers and footers, along with title and summary pages can be set up easily.

ReportWriter uses a master data base or spreadsheet file to gather report data from other Desktop files. Information from any type of AppleWorks file can be included.

A wide range of calculations can be performed, both on text and numeric data. In addition, data may be posted into other data base or spreadsheet files. The posting can optionally overwrite, add to or subtract from the existing data.

ReportWriter's ability to pull information from so many different sources requires that you plan ahead. Read the next chapter,

Introduction to Relational Reporting, to gain an understanding of the basic concepts. This will help you with ideas on how to design your files.

A Note to Applied Engineering Users

If you are using Applied Engineering's expanded Desktop software, read the Configuration section on page 155. Answer `Yes` to the question regarding the use of the Desktop expander. If you are not using their Desktop expander, it must be answered `No`. You must do this or you will experience trouble using TimeOut ReportWriter.

About this manual

This manual is divided into four main sections: Chapter 2, Installing TimeOut; Chapter 3, Introduction to Relational Reporting; Chapter 4, ReportWriter Tutorial, and Chapters 5 through 10, which provide a reference for ReportWriter.

If this is your first TimeOut product, then you will need to read Chapter 2 of this manual and follow the instructions for installing TimeOut.

If you already have TimeOut installed on your AppleWorks disk, turn to the section entitled *Copy Applications* in Chapter 2.

After installing TimeOut ReportWriter, go on to Chapter 3 and learn the fundamentals of relational reporting. This will prepare you for the tutorial in Chapter 4. It goes over the highlights of the program and allows you to start using it immediately. The final chapters are for use as a reference to the advanced features of TimeOut ReportWriter.

Chapter 2

Installing TimeOut

Beagle Bros software is copyrighted but not copy-protected. This makes it much easier to use, since you are free to make backup copies. Please support us in our commitment to supply friendly, easy-to-use software by not giving illegal copies to others. Thanks.

Important: ReportWriter is provided on both 5.25-inch and 3.5-inch disks. The TimeOut Installer allows you to back up your disks. Please do so. Then be sure to write-protect and safely store your original disks so you don't accidentally overwrite them. This includes your AppleWorks disk—do not install TimeOut on your master copy of AppleWorks. Use your backups!

The Big Picture

AppleWorks is an integrated application program that includes a word processor, data base and spreadsheet. As you use AppleWorks, it appears to be a single program. But if you have ever listed the files on your AppleWorks disk, you have seen that AppleWorks is actually a collection of separate application files that all work together. TimeOut is a modification made to AppleWorks that allows more applications to be integrated into the program. Powerful applications like TimeOut ReportWriter that work with the other AppleWorks applications.

Important: TimeOut **is not** *an application. TimeOut only makes AppleWorks expandable. ReportWriter* **is** *an application that becomes a part of AppleWorks, thanks to TimeOut. Keep this in mind during the installation process, and it will be very quick and easy.*

The disk that contains the TimeOut applications is called your applications disk. If you copy your application files onto your AppleWorks disk, that becomes your applications disk.

Important: If you are using 5.25-inch disks, your applications will not fit on your AppleWorks disk. There isn't enough space. You will need to copy them to another disk.

TimeOut is compatible with the USA version of AppleWorks v2.0 and later. If you have an earlier version, contact your dealer about getting an update. TimeOut does not work with foreign language versions of AppleWorks.

TimeOut is compatible with most enhancements to AppleWorks, including Super MacroWorks, AutoWorks, Applied Engineering's Desktop expander, Checkmate's Desktop expander, and the Pinpoint accessories.

If you are installing TimeOut along with other AppleWorks enhancements, we recommend that you install TimeOut last. The only exceptions are AutoWorks and the Pinpoint accessories. Install AutoWorks and Pinpoint after installing TimeOut.

You must install TimeOut on a copy of your AppleWorks disk to use TimeOut ReportWriter. To get started, boot your TimeOut ReportWriter disk by placing it in the boot drive and pressing Control-Open-Apple-Reset.

Automatic Installation

There are two ways you can install TimeOut: Manual or Automatic. Automatic Installation is recommended for new TimeOut owners. The Automatic Installation program will set up TimeOut for your system. You don't need to be a hacker to use it!

The Automatic Installation Menu contains three options:

1. Read manual updates. Select this option to see what changes or additions have been made to your instruction manual.

2. Install TimeOut. Select this option and simply follow the prompts on the screen. You will be taken through these steps: backing up your AppleWorks and TimeOut disks, creating an applications disk, installing TimeOut and copying your

applications files. This is everything you need to do to get started with ReportWriter.

Important: Have several blank disks on hand. You will need to use them to make the backup disks and applications disks.

3. Quit. Choose this option if you just booted up the wrong disk!

If you already have TimeOut installed on your copy of AppleWorks, it is not necessary to do the Automatic Installation. Installing TimeOut is required only one time. Just use Manual Installation to copy your new applications to your applications disk.

If you are curious as to just what happens during the installation process, read on. Automatic and Manual installation are the same, except that you are not given any options in Automatic installation. TimeOut is configured for you.

After you have finished the Automatic installation, see Start up AppleWorks on page 16 for how to use TimeOut when you boot up AppleWorks.

Manual Installation

Manual installation gives you the freedom to configure TimeOut to your own special needs. One advantage of Manual installation is that you don't have to install TimeOut again if you have done it previously. You can simply use it to copy your new applications to your applications disk.

The Manual Installation Menu has eight options to choose from. Here is a brief description:

1. Read manual updates. Select this option to see what changes or additions have been made to your instruction manual.

2. Make a backup disk. Use this to make backup copies of your AppleWorks and TimeOut disks.

3. Format a disk. With this option you can prepare disks to hold your TimeOut application files.

4. Catalog a disk. Use this option to see the files you have on your disks.

5. Create a subdirectory. You may want to create a subdirectory for your application files.

6. Install TimeOut. This is the first half of the installation process. You must install TimeOut on AppleWorks in order to use ReportWriter. Remember, TimeOut and ReportWriter are two different things.

7. Copy applications. This completes the installation. In this step, you copy the application files from your master TimeOut disk to another disk. You can use a 5.25-inch disk, a 3.5-inch disk, a RAM disk, a hard disk, or any other ProDOS device.

   Note: This step is optional. If you do not own any other TimeOut applications and will only be using TimeOut ReportWriter, you can use a backup copy of TimeOut ReportWriter as your applications disk.

8. Quit. Select this option when you have completed the installation process.

Installation Options

The following menu options are available in Manual Installation. Let's take a detailed look at each one.

Read Manual Updates

Select `Read manual updates`. You will see a file containing any changes or additions to the TimeOut ReportWriter instruction manual since it was printed.

This file is an AppleWorks file called `Notes`. You can also see it any time in AppleWorks by adding it to the Desktop.

Press Escape when finished.

Make a Backup Disk

Use this option to make backup copies of your AppleWorks and TimeOut disks. You can back up both 5.25 and 3.5 inch disks. This step is optional, but strongly recommended. You should backup both your AppleWorks disk and TimeOut ReportWriter disk. Then, put the master disks in the closet and use the backups for the installation process.

> *Important: Make sure your master disks are write-protected. This insures that you won't accidentally destroy them during the copy process!*

You will see a list of disk drives you can use to make your backup disk. If you have only one disk drive, select the same drive for your master and backup disks. Follow the instructions given on the screen telling you which disk to put in the drive.

If you have two drives, select a different drive for the master and backup disks.

> *Important: You cannot backup one size disk onto another. For example, a 5.25-inch disk won't work to backup a 3.5-inch disk. Both the master and backup disks must be the same size.*

Format a Disk

You may need to format a blank disk to hold your applications. If you are using 5.25-inch disks, your applications will not fit on your AppleWorks disk. There is not enough space. Use this option to create an applications disk.

You will see a choice of disk drives you can use to format a disk. Make sure your disk is not write-protected.

You will be asked to enter a name for the disk. This name can be anything you like, but there are certain rules concerning disk names. The name must start with a letter, and contain only letters, numbers and periods. The maximum length of the name is 15 characters. You will get an error message if the name does not follow these rules.

The name you give the disk will become the default location of your applications when you install TimeOut, since the Installer assumes you will use this disk for applications.

You will be told if there is already information on the disk. Be careful. Any files on the disk will be erased when you format it. You can use the Catalog a disk option to see what files are on a disk before formatting it.

Catalog a Disk

This option works like the `List all files` feature in AppleWorks. Use it to see the files you have on your disks. You can choose to catalog the files in the main directory of a disk, or enter the pathname of a subdirectory.

Just place the disk you want to catalog in the disk drive and select that drive from the menu. You will see the name, size and creation dates for all of the files in that directory.

Create a Subdirectory

Your TimeOut applications can be copied into a subdirectory. If you want to create a new subdirectory for your applications, choose this option before copying the application files.

Enter the complete pathname of the subdirectory. If you wanted to create a subdirectory called `TIMEOUT` on a disk named `/APPLEWORKS`, you would need to enter:

```
/APPLEWORKS/TIMEOUT
```

Important: TimeOut applications do not have to be in subdirectories! If you don't understand what a subdirectory is, don't worry. But because they make organizing your files so much easier, you should take the time to learn what they can do for you. Your AppleWorks manual has a very good section on subdirectories called "ProDOS, prefix for filenames." You should read it.

Install TimeOut

This is the step in which you actually modify AppleWorks. There are several steps to the process. Make sure you are using a backup copy!

Sorting the TimeOut Menu

When you have TimeOut installed in AppleWorks, you select applications from a menu. If you would like the menu items alphabetized, answer `Yes` to sorting. Otherwise, they will appear in the same order as they do in the disk catalog. By answering `No`, you can copy the files to your applications disk in the order you want, and they will appear in the menu that way.

By the way, the Installation program will not copy the files in a special order for you. If you want to do this, you will need to use a different file copy program.

If in doubt, answer `Yes` to this question.

Multiple TimeOut Applications Disks

If you have more applications than will fit on one disk, you can answer `Yes` to multiple applications disks. This is most likely to happen if you are using 5.25-inch disks. You will be able to load your applications from different disks and have TimeOut display them in the same menu.

There is another option available if you have more than one applications disk. You can use the Add applications feature in TimeOut Utilities to create multiple TimeOut menus. Using this feature, each applications disk will have its own menu. The advantage of this TimeOut feature is that you do not have to load all of your applications disks every time you run AppleWorks. See page 174 for details.

> *Important: Don't confuse multiple applications disks with multiple TimeOut menus. The multiple applications disk feature allows 5.25-inch users to put applications from different disks into the same TimeOut menu. The multiple menu feature is required if you have more than 30 TimeOut applications. Also, you can use it to add applications at any time without leaving AppleWorks.*

If all of your applications fit on one disk, or in the same subdirectory, answer `No`.

Location of TimeOut Applications

The next step is to tell TimeOut the location of your applications disk. Remember that TimeOut and your applications are different. In order for TimeOut to communicate with your applications, it needs to know where to look for them. The information you give TimeOut concerning the location of your applications is where you will need to put your applications disk when you use AppleWorks.

Your applications (like ReportWriter), can be located anywhere you like: a hard disk, a RAM disk, a floppy disk, or any other

ProDOS device. You will probably want to put them on your AppleWorks disk.

> *Important: If you are using 5.25-inch disks, your applications will not fit on your AppleWorks disk. There isn't enough space. You will need to copy them to another disk.*

You are given two ways to tell TimeOut the location of your applications, Slot and Drive, or ProDOS pathname. If your application files will be in the main directory of the disk, give TimeOut the Slot and Drive location of the disk drive you will use.

> *Important: For 5.25 inch disk users - if you have one drive only, tell TimeOut your applications are located in Slot 6, Drive 1. If you have two drives, Slot 6, Drive 2 is recommended.*

If you have a hard disk or a 3.5-inch disk, you may want to place your TimeOut applications in the same directory or subdirectory with your AppleWorks STARTUP program. This helps you to avoid disk swapping by combining AppleWorks and TimeOut applications on the same disk.

Location of AppleWorks

The next step is to indicate where your AppleWorks STARTUP program is located. You may specify either Slot and Drive or ProDOS directory. After indicating the location of AppleWorks, put your AppleWorks disk (the STARTUP side if your are using 5.25-inch disks) in the drive you selected and press Return. TimeOut will be installed.

> *Note: This is a one time modification. If you add more TimeOut applications later, you don't need to modify AppleWorks again.*

Copy Applications

If TimeOut ReportWriter is your only TimeOut application, you can use your backup copy of the TimeOut ReportWriter disk as your TimeOut applications disk. You will want to create an applications

disk in the future if you get more TimeOut applications. This will help cut down on the number of disks you need to use AppleWorks.

To copy the ReportWriter files to your TimeOut applications disk, select `Copy applications` from the Main Menu.

You will need to select the location of your applications disk either by Slot and Drive or ProDOS pathname. The default location will be the same one you gave TimeOut to look for your applications. Choose the default if you just finished installing TimeOut.

Place your applications disk in the drive and press Return. Any TimeOut applications already on the disk will be listed on the screen. As each TimeOut application is copied from your ReportWriter disk to the applications disk, you will see its name on the screen.

> *Important: The installation program will not let you copy your applications to a disk which doesn't have enough space to hold them. If you get an error message, choose a different location or put in a different disk, then try again.*

When all the files have been copied, press the Space bar to return to the Main Menu.

Re-installing TimeOut

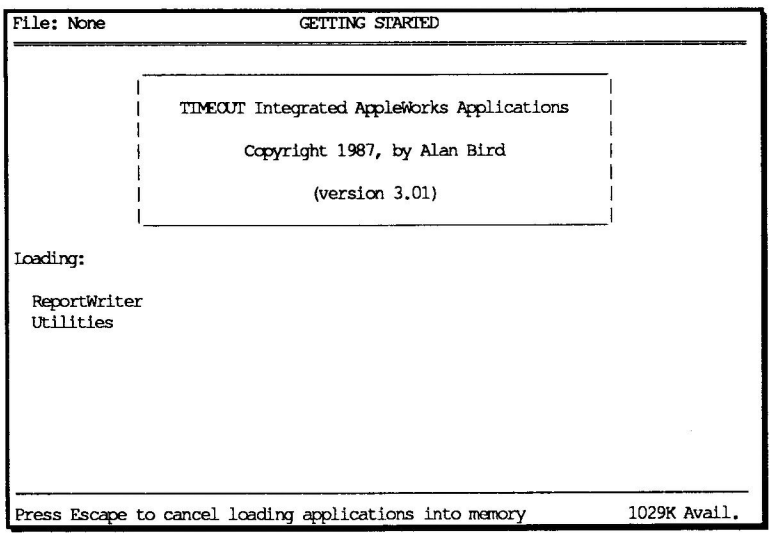
If you need to change the location of your applications disk, or you want to have more than one TimeOut applications disk, you will have to install TimeOut again. Just follow the same steps you went through the first time, making any needed changes.

Be careful, this may not work if you have made any modifications to AppleWorks since you installed TimeOut (such as AutoWorks or Pinpoint enhancements). If you have, then you may need to start the installation over again with a new copy of AppleWorks.

Start up AppleWorks

Now that you have installed TimeOut on your copy of AppleWorks and created a TimeOut applications disk, you are ready to use it. Boot up your AppleWorks disk the same way you usually do.

When you start up AppleWorks with TimeOut installed, you will see the TimeOut title screen before you reach the AppleWorks Main Menu.



The first thing TimeOut will do is search for your applications disk.

> *Important: If TimeOut cannot find your applications, it will ask you to insert your applications disk. Put it in the drive (if you have not already done so) and choose Try again, or Try a different location. If you still get the same message, you either do not have any applications on the disk or your disk has been damaged. Try creating a new applications disk.*

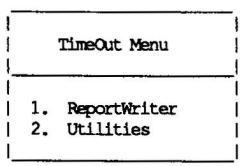
If you do not see a TimeOut title screen, TimeOut has not been installed. Go back and try installing it again on a new backup copy.

As TimeOut finds each TimeOut application, they are listed on the screen. An asterisk (*) before the application name indicates that it is memory-based. If you press Escape while TimeOut loads your applications, the memory-based applications will not load into memory (see pages 173 and 174 for more information on memory-based applications). This doesn't affect your ability to use them, it just makes them disk-based.

If you have specified that you are using multiple TimeOut applications disks, insert each disk and answer `Yes` when asked `Read another TimeOut applications disk?` Answer `No` when the last applications disk has been read. By the way, you do not have to load in all of your applications when you first start up AppleWorks. You can always go to the Utilities option in the TimeOut menu and select Add applications to get the rest.

Accessing TimeOut Applications

You can call up the TimeOut menu from inside AppleWorks by holding down the Open-Apple key and pressing the Escape key. A menu similar to the following will appear (you may have more applications than this if you have other TimeOut products):



Use the Up and Down arrow keys or type a number to highlight an application. Press Return to select it, or Escape if you don't want to choose any items in the menu. If your applications are not memory-based, put your TimeOut applications disk in the drive. You will be

prompted to put it in if you forget. If you are using multiple applications disks, be sure to insert the correct one.

Memory Usage

You will notice with TimeOut installed that you have less Desktop memory for your AppleWorks documents. TimeOut itself takes up some of the memory.

Memory-resident TimeOut applications also take up Desktop memory. If you are short on Desktop memory, reconfigure your applications so they are disk-based. See page 153 for information on how to configure your applications.

However, for maximum speed, make your TimeOut applications memory-based or use them from a RAM disk. The only price you pay is reduced Desktop memory.

Control-Reset Patch

When you install TimeOut on your AppleWorks Startup disk, TimeOut makes a patch to AppleWorks so that Control-Reset will take you to the Main Menu instead of the machine-language monitor. This patch is for emergency use only—in the event that AppleWorks hangs or crashes. We do not recommend using it as a means of getting to the Main Menu!

Chapter 3

Introduction to Relational Reporting

Relational Reporting

ReportWriter is a relational reporter. This chapter is an introduction to just what relational reporting is all about. We can't tell you all there is to know about relational reporting, but this brief presentation contains everything you need to get started with ReportWriter.

Let's start with a simple example involving the reporting of information from just one file. This might be a file that prints a list of customers. The important point is that all of the data you want in the report must be contained in the customer data base file. AppleWorks won't let you go to another file to get related information. You can report from only one file at a time.

Our customer report is created from a file called Names. Here is what a portion of it looks like when printed out:

```
Name        John Smith
Address     123 Main Street
City        Anytown
State       CA
Zip         12345
```

Making this report is rather simple. All we need to do is define what information we want from which fields and AppleWorks will do the rest. The process is very straight forward since all of the information we want to report is in this one file.

Suppose that we need to modify our report to print the entire state name rather than the abbreviation. The boss wants to see "California" instead of "CA".

Our problem is that the data base file is extremely large. We have over 1000 customers in our sales territory. One way of making the change would be to add a new category to the data base called StateName, and then type in the full name of the state for each person in file. This tedious job would require checking the State category and then entering the full state name 1000 times. After

that, we would need to change the report format to accommodate the full name. With AppleWorks, this is the only solution to the problem.

The obvious disadvantage to entering 1000 state names is the large amount of time and effort needed. And with all that repetitive typing, errors are certain to creep in. But another, even bigger problem, would soon become apparent: the file will become extremely large! A lot more room is required to hold your file on the Desktop and save it on disk.

ReportWriter, with its relational reporting capabilities, allows us to look at the situation from a different angle. We know which state every person in the customer data base resides in. That information is already in the State category. So in fact, there is nothing new we need to add to the data base. What would be nice is a way to convert the state abbreviations into full state names.

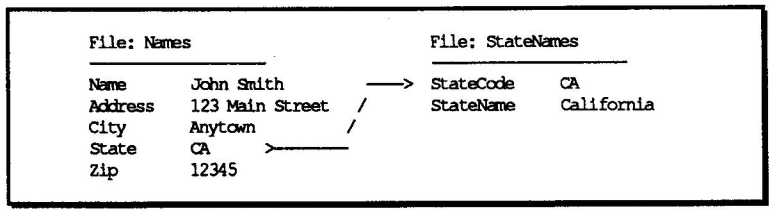
This should be easy. We know the postal code for each state, and the spelling of the full state name referred to by the abbreviation. We could teach a child to do it by using a little table. Down one side are the abbreviations, and to the right of each one we put the full state name. It would look like this:

```
AL  Alabama
AK  Alaska
AZ  Arizona
AR  Arkansas
CA  California
```

Interestingly, this list looks exactly like something we could put in a data base! With relational reporting, we could have ReportWriter use this information in the same report. Just tell ReportWriter to find the matching state abbreviation. Then replace it with the full name from the same record.

This is how ReportWriter works. The new data base file for state names serves as a lookup table for converting abbreviations to full state names.

Here is a graphic look at how it works.



The final print out:

```
Name        John Smith
Address     123 Main Street
City        Anytown
State       California
Zip         12345
```

There are some important points to remember here concerning relational reporting. First, there is nothing unusual about the individual files used by ReportWriter. They are regular AppleWorks data files. And you create these files, even the look-up files, with AppleWorks.

When you create your report format, you give ReportWriter the relationship between the files. ReportWriter then makes a new file of its own to keep track of the relational structure.

One more thing about the correspondence between the state abbreviations and the state name file. All the state abbreviations are unique. Each abbreviation, called a key, appears only once in the file. This makes sense in the case of states, since no abbreviation should be able to refer to two different states. With table lookup, ReportWriter will stop at the first key that matches, and look no further. So make sure your table lookup files do not contain duplicate keys like this:

```
Code      Name
----      ----
AL        Alaska          <-- duplicate StateCode
AL        Alabama         <-- duplicate StateCode
```

```
AR        Arizona
```

In this example, ReportWriter would never print out Alabama because the key which refers to Alaska will always be found first.

Keeping in mind that the keys in a lookup file must be unique, the information in other fields need not be. Here's an example:

```
Code      Name
----      ----
AK        Alaska        <-- duplicate StateName
AS        Alaska        <-- duplicate StateName
AR        Arizona
```

This lookup table is acceptable to ReportWriter, but we would certainly never want to use it for printing state names. However, there are times when this type of table is very useful. We could use it to group our customers into separate sales regions. For example:

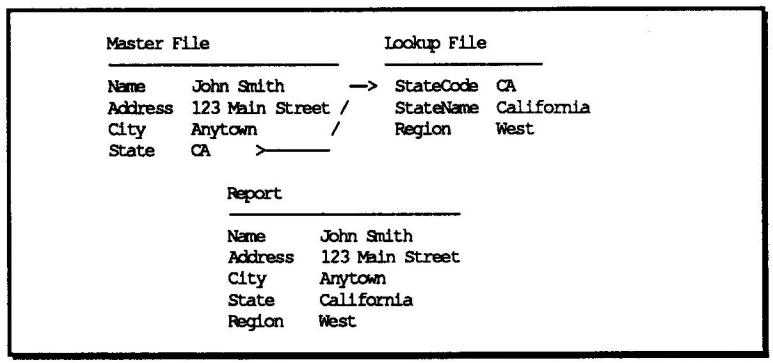
```
Code      Region
----      ------
AK        West
AS        South         <-- duplicate Region
AR        South         <-- duplicate Region
```

In any relational report, there is a master file that looks up information in other files. In the example above, the file Names is the master file. It contains the list of customer names. The State category in the Names file is used to look up the state name in the data base called StateNames.

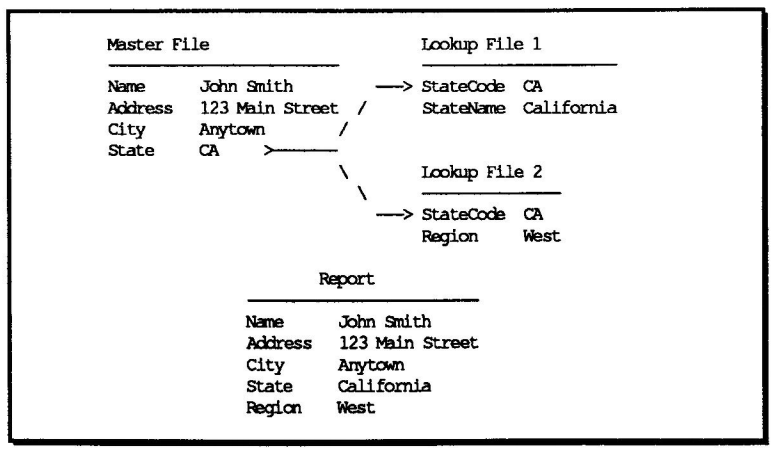
> *Note: There can be only one master file, and the master file is always read first by ReportWriter.*

Two files are involved when table lookup is used: the master file and the lookup file. The field that must be matched is called the key. If the key fits by finding a match in the lookup file, the lookup information can then be obtained.

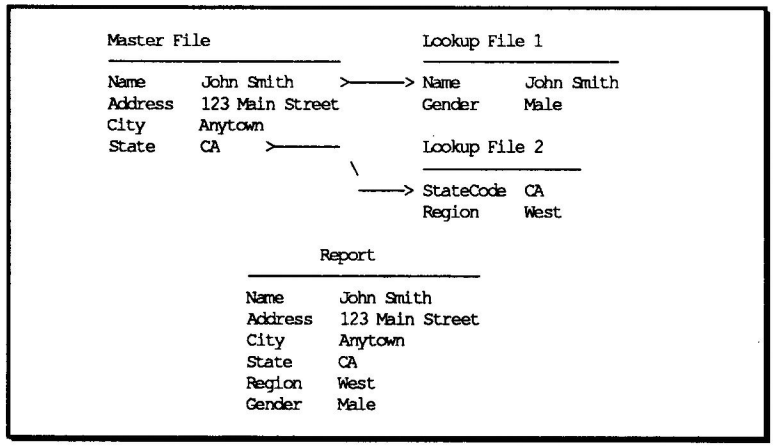
More than one lookup can be done from the same master file. Here's an example of several lookups into the same lookup file using one key:



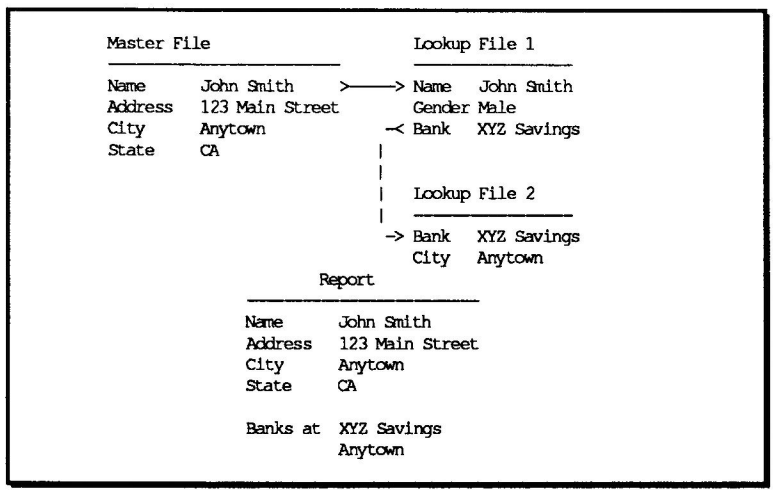
Another way to accomplish the same thing would be to have one key search two different files for a match.



The master file can have several keys that lookup data from different files.



The keys in the master file can search for more keys in the lookup files. These new keys could then search other lookup files for matches. This provides great power and flexibility when designing reports. Here's an example:



In this example, the key in the master file searches through the category Bank in the first lookup file. A match is found, and Bank

is then used as the key to find the address of the bank in a second lookup file.

Combinations of all of these lookup methods can be used. Several master file keys can look into different lookup files which may provide keys into other lookup files. The relationships can become quite complex in a large report with many lookup files. The important thing to remember is that there is still only one master file that starts and controls the lookup process.

Now you know the basics of relational reporting! Let's go on to the tutorial in the next chapter and see how to actually create a report with ReportWriter.

Chapter 4

ReportWriter Tutorial

The only way to get acquainted with ReportWriter is to use it to design a report. We'll do just that in this chapter. Important concepts will be discussed as they come up, so start at the beginning and continue straight through. More information on the various subjects in this chapter can be found in the later reference chapters.

Basic Concepts and Definitions

ReportWriter takes information data from data base, spreadsheet and word processor files and presents it in report format. You tell ReportWriter what data you want to use and where that data should go.

You determine the size and location of fields at the time you define the report format. Each data item ReportWriter retrieves is placed in a field. The data can come from three sources: a data file, a calculation based on data from other fields, or keyboard entry. Your report can contain up to 254 fields.

All of the fields together make up one record. For example, your report may consist of two fields: a name and address. These will be retrieved from an AppleWorks data base file containing the two categories. The first name and address will form the first record. The second name and address ReportWriter finds in the file will form the second record. Note that the second record, and every one after that, will be in the same format as the first record. This is because the same two fields will be used by every record. The number of records a report may contain is limited only by available space on the disk drive.

Three major steps are required to create a report. The report must be defined, generated and printed. Each step is treated here in detail as we create our report.

Defining the Report

Defining the report is the process of telling ReportWriter what data and text items you want in your report and where this information will appear in the report. Once a report is defined, you can save it permanently on disk for future use.

The Editor

Report definition takes place in the ReportWriter editor. Follow this series of steps to get into the ReportWriter:

1. Make sure TimeOut has been installed on your AppleWorks disk.

2. Press ♁-Escape. The TimeOut menu will pop up in the middle of your screen. If it doesn't, go back and install TimeOut again.

3. Select ReportWriter from the TimeOut menu. You will be in the ReportWriter Main Menu.

4. Select Option 1, `Edit a ReportWriter definition.`

5. Select Option 3, `Make a new file.`

6. Type in `Example.1` as the name for your new file. We'll be using it for this tutorial. By the way, ReportWriter file names follow the same conventions as ProDOS, not AppleWorks. Every file must begin with a letter, only letters, number and periods are acceptable, and 15 characters is the maximum length.

You should now see the ReportWriter editor screen. The editor functions similarly to a word processor. However, it is not a word processor. All the features of the AppleWorks word processor are not available. This editor is intended for doing report layouts, which don't require a full word processor.

Use the arrow keys to move the cursor around the screen. When you reach the bottom of the screen, the screen will scroll to accommodate more lines. You can have up to 127 lines to define your report. Notice also that the screen will scroll horizontally when you reach the right margin. Reports up to 240 columns can be designed. This feature will allow you to make the most use of wide carriage printers.

Notice the row and column indicator at the bottom of your screen. It functions just like the row and column indicator in the AppleWorks word processor. The only difference is that you can go beyond column 79.

A fast way to get around the editor is with the Open Apple and arrow keys. Open-Apple-Left-Arrow and Open-Apple-Right-Arrow move the cursor to the far left and right margins. The Open-Apple-1 through Open-Apple-9 keys work like they do in AppleWorks, moving the cursor vertically through the editor.

Open-Apple-E toggles the cursor between insert mode and overstrike mode. The Delete key deletes the character to the left of the cursor. Control-Y and Open-Apple-Y delete everything on the line from the cursor to the right margin. Be careful, because information you can't see beyond the right edge of the screen will be deleted with Open-Apple-Y.

Open-Apple-Comma (,) will move the cursor to column 1. Open-Apple-Period (.) will move the cursor to the right-most column containing data. (Notice that these are the unshifted "<" and ">" keys.)

Take a moment to move the cursor around and type in some text. Get comfortable using it. See what differences you can find between the ReportWriter editor and the AppleWorks word processor.

All done? Now, use the arrow keys to place the cursor in row 1 and column 1. The quickest way to do this is to press Ó-1 and Ó-COMMA. Use Control-Y and the down arrow in succession until the screen is clear. Return the cursor to row 1 and column 1.

Before we go on, here is a brief description of the sections of a ReportWriter report. See page 64 for more information.

Report Sections

A ReportWriter report can contain up to seven different sections or divisions. Each section serves a different purpose.

Title: The first section is the title section, and is used to give the report a name, or title. This section is optional. You are not required to have a title.

Titles only appear once in a report, at the very beginning. You may choose whether your title will appear on the first page of the report itself, or stand alone on a separate title page.

Header: The header section is used to establish specific information about the contents of the report. You are not required to use a header section. Some reports, like a printout of address labels, would not benefit from a header.

The header always appears at the top of every page of a report. It comes just under the title, if a title is used.

Report Body: This portion contains the actual contents of your report. For instance, if your report is a name and address list, all of the names and addresses would go into the report body. This is the only section of a report that is required. You cannot have a report without a report body.

All the information that ReportWriter retrieves from your data files goes into the body of the report. A wide range of calculations are available, which add great power to your reporting capabilities.

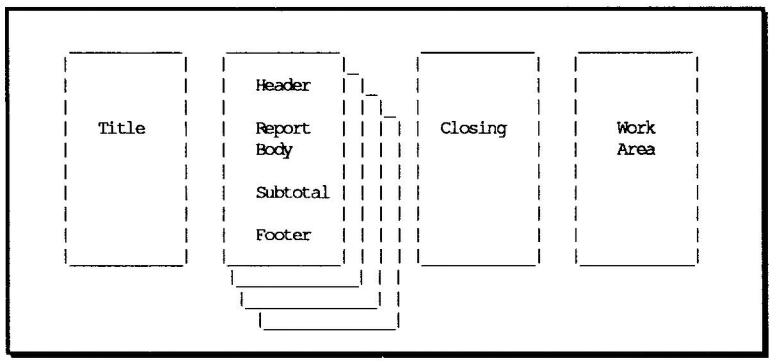
Subtotal: If subtotals are used, they would be defined in this section. This section will always follow the report body section.

Closing: The closing section is the last section of a report to print before the footer. The closing section is optional. You can print the closing on the last page of the report or on a new page.

Footer: Footers, like headers, are not required. Footers print after the subtotals and closing, if used, otherwise they print after the report body. Footers will always be the last section to print.

Work Area: The work area is the last section of a report. Unlike the other sections, it is never printed. The work area is for performing intermediate calculations you do not want to see in your report.

The sections may be visualized as they appear in this figure.



Now that you know about the various sections of a report, let's create one together.

Placing a Title and Header Into a Report

This report summarizes chemistry class work by students at the ABC High School. Let's start with putting in the title.

You should be looking at the ReportWriter editor screen. Follow these steps to put the title in the report:

1. Using the arrow keys, move the cursor to column 27 in row 1. Type in `ABC High School`.

2. Move the cursor to column 29 in row 2. Type in `Chemistry 1A`.

3. Move the cursor to column 29 in row 3. Type in `Class Scores`.

That's all the title information we need. The next step is to tell ReportWriter that these entries are title lines. As discussed above, the title, if used, is always the first section of a report. But remember that titles are optional. So, ReportWriter needs to be told that this is a title.

This is easy to do. Since the sections of a report always appear in the same order, all we need to do is tell ReportWriter where a particular section ends. ReportWriter will then know where to begin the next section. ReportWriter does this with a set of markers to indicate the end of a section. The line the marker is on will be included in that section. If there is no section marker for a particular section, ReportWriter will know that section will not be in the report.

Follow these steps to set the title section marker:

1. Make sure the cursor is still in row three.

2. Press ⌘-O. A menu of options will appear.

3. Select Option 2, `Section positions`. A new menu will appear showing the seven report sections.

4. Highlight `Title` and press Return.

5. You now have the Option of entering the ending line of the title yourself, or of pressing Return to select the line the cursor is on. Since we already have the cursor on the correct line, just press Return to use line three.

6. Notice a '3' appears under the current value heading.

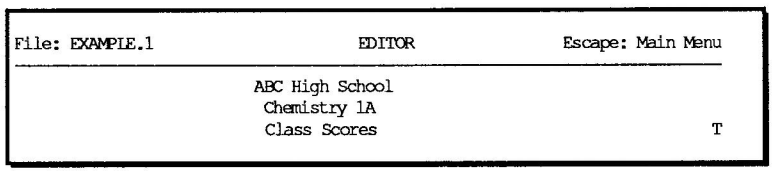
7. Press Escape twice to return to the editor.

Notice the highlighted 'T' in the right margin of the editor screen. This shows you where your Title section ends.

The process is the same for setting the other sections. The first letter of that section is used as the marker. Below is a list of the markers.

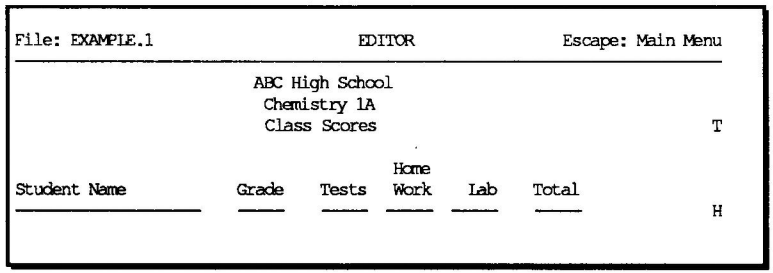
`Title`	T
`Header`	H
`Report Body`	B
`Subtotal`	S
`Closing`	C
`Footer`	F
`Work Area`	W

If you have followed all the steps, the top of your screen should now look like this.



Let's go on to the header. Use the arrow keys to move the cursor and enter the header information in the appropriate locations, so the screen looks like the one shown below. There is nothing special you need to remember. Just type like you would in a word processor.

When you are finished, add the `Header` marker. Do this by pressing ⌘-O to get the Options menu, and choosing Header. Your screen should now look like this:



If you had any trouble entering the header section, you should go back and start the tutorial over again. Entering the header follows the same procedure as entering the title.

Good! The title and header sections of the report are now complete. Now we are ready to tell ReportWriter where to get the file information and how it should look on the page.

Placing Fields Into the Report Body

Telling ReportWriter where to put the data file information is easy. Put the cursor on the screen where you want the data to be placed, and press Control-F. The Control-F command will place an asterisk (*) on the screen indicating that data is to be placed there. This symbol is called a field marker.

Place your data fields on the screen like this:

1. Move the cursor to line 8, column 1. This is where we want the student's name to appear. Now press Control-F. Continue pressing Control-F until there is an asterisk under every dashed line below Student Name.

2. Use the right arrow to move the cursor underneath the heading, `Grade`. Press Control-F five times to place an asterisk under every dash below Grade.

3. Continue using Control-F to place asterisks underneath all of the remaining dashes.

4. When done, press ⌘-O, choose Option 2, `Section positions`, and then select Option 3, `Report Body`, to set a marker at the end of the report body section. Press Escape twice to return to the editor.

5. Place the cursor in row 10 and column 1. Press Control-F to place one asterisk at this position. This will be a work area entry.

6. Press ⌘-O, the choose Option 2, `Section positions`. Choose Option 7, `Work area`, to set a marker at the end of the Work area section. Press Escape twice to return to the editor.

Your screen should now look like this.

```
File: EXAMPLE.1                    EDITOR                    Escape: Main Menu
_______________________________________________________________________________
                                ABC High School
                                 Chemistry 1A
                                 Class Scores                                  T

                                                  Home
Student Name                 Grade     Tests      Work     Lab     Total
____________________         _____     _____     _____    _____    _____       H
********************         *****     *****     *****    *****    *****       B

*                                                                              W
```

The ReportWriter fields have now been placed in the report. After they are defined, ReportWriter will put data into each one of these fields. One character of data will be placed into the field for each field marker (*) found. If the data is too long, only that portion which fits will be placed into the field. For example, notice that the field under Student Name contains 20 field markers. A name longer than 20 characters, such as Elizabeth Warner Verkade, would be truncated to Elizabeth Warner Ver. If this should happen, it is a simple matter to lengthen the field; just add more field markers to the end of the field until it is long enough.

The next step is to tell ReportWriter where to find the data to put in the report. Before we do that, let's save the work we have done

so far just to be safe. Press Ó-S to save the file Example.1 onto the disk.

Field Definitions

Every field in your report requires a definition associated with it. You will need to define each field specifically. This definition tells ReportWriter where the data is coming from. It could be from a file, a calculation, or the keyboard. The field definition also tells ReportWriter how to format the data, whether or not the field should be treated as a subtotal, and the type of data to expect—text, numeric, AppleWorks time, or AppleWorks date.

The first thing to do is add the data files we will use to the Desktop. They are the files called Example.1.DB and Example.1.SS on your ReportWriter disk. Press Escape twice to leave ReportWriter and go back to the AppleWorks Main Menu and get these two files. Take a look at the files. Notice they are standard AppleWorks data base and spreadsheet files.

The first file, Example.1.DB, is a data base file with general information about the students in the class. The first record looks like this.

```
Number:           555-55-0001
LastName:         Anderson
FirstName:        Allan
Address:          123 Cypress Rd.
City:             San Diego
State:            CA
Zip:              92103
Grade:            12
FirstYrAttended:  1988
EmergencyName:    Elaine Anderson
EmergencyNumber:  555-2121
```

Now look at Example.1.SS, a spreadsheet file. Each spreadsheet row is considered a record. Here is the first record:

	Tests				Laboratory				Homework			
Number	#1	#2	#3	Tot	#1	#2	#3	Tot	#1	#2	#3	Tot
555-55-0001	98	96	97	291	85	90	95	270	96	95	98	289

This file contains progress information for the students. Notice that the only common field between the two files is the student number. All other data elements are unique.

ReportWriter will use data from these two files to fill in the report we are defining. Example.1.DB will be the master file. The common element between the two files, the student number, will be used as the key to relate them.

Field Definition Rules

Before we go on, let's take a look at a few rules regarding definitions.

File Retrieval

ReportWriter can retrieve data from any AppleWorks files: data base, spreadsheet, or word processor files. Certain restrictions apply to each type.

ReportWriter considers all of the AppleWorks data files to be a collection of records. You already understand this concept from your knowledge of data base files. A ReportWriter record is like a data base record. So in regards to using the data base, a ReportWriter record is a data base record.

The spreadsheet is different. The spreadsheet does not have records like the data base does. ReportWriter considers one spreadsheet row to be a record. Spreadsheet files, then, are a collection of records in that they are a collection of rows. Row one of a spreadsheet is record number one and row 999 is record number 999.

Each paragraph in a word processor file is considered to be a record by ReportWriter. It counts paragraphs sequentially; the first paragraph is record number one.

Records are further broken down into fields. A field holds an actual entry of data. AppleWorks refers to data base fields as categories. When ReportWriter requires a field from a data base file, it looks into that particular category.

Spreadsheet columns hold field information. A spreadsheet row is a collection of columns, so, a spreadsheet record (row) is a collection of fields (columns). Notice when you view a data base in the multiple record layout it looks similar to a spreadsheet.

Word processor records have no fields. When ReportWriter needs word processor information, it will take the whole record. It makes no effort to break paragraphs into smaller portions.

ReportWriter always retrieves data one field at a time from a record. Unless told otherwise, ReportWriter processes all of the records in a file until the end of the file is reached.

Master Files

Every report has one and only one master file. The master file is the AppleWorks data file which controls the reporting. All data retrieval starts with the master file. If this is not clear, go back and read Chapter 2, Introduction To Relational Reporting.

Every time ReportWriter generates a record in a report, it retrieves all of the master file data first, regardless of the location of that data in the report. This way, all of the master file data is available for doing lookups.

Master files may be either data base or spreadsheet files. Word processor files cannot be used for this purpose. The master file must always be on the Desktop, both while defining and generating a report.

Lookup Files

Lookup files are optional, but the full power of ReportWriter cannot be realized without them. ReportWriter retrieves data from a lookup file by matching the data in one field with data in the lookup file. Once the match is found, data from another field within that same record can be retrieved.

Lookup files may be data base, spreadsheet or word processor files. In this tutorial, only data base and spreadsheet files will be considered. See Chapter 8, Advanced ReportWriter Features, for information on using word processor files as lookup files.

Keep in mind that lookups are based on data in a ReportWriter field. The data in the field can come from another file, the keyboard, or the result of a calculation.

Data Sources

Here are the information sources available to ReportWriter:

Text: Text is usually used for labels, and is entered from the keyboard into the ReportWriter editor when the report is designed. Text is information that you want to duplicate exactly for each record, so it's useful for labels. Text entries cannot be used as keys for lookups.

Keyboard: Information can be entered into your report at the time it is generated. In this way, different information may be entered each time the same report is generated. Items like the date, or the name of the person for whom the report is prepared can be changed from the keyboard.

Files: Information can be retrieved from an AppleWorks data file. The master file is always used to retrieve information. Data from lookup files is optional.

Calculations: Information from other fields may be manipulated with ReportWriter's built-in calculation functions. Both numbers and text can be calculated.

Using Field Definitions

We are ready to define the first field in Example.1, the sample ReportWriter file, that we created earlier. So let's get back into ReportWriter.

1. Press ⌘-Escape to call up the TimeOut menu.

2. Select `ReportWriter` and press Return.

3. Press Return again to select Main Menu Option 1.

4. Notice that a new option is available to use the current format. Press Return to accept Example.1 as your selection.

5. You are now back in the editor, and the information we entered previously is present on the screen. The cursor will be in the upper left corner.

6. Press Tab. Notice the cursor jumped to the beginning of the field markers under Student Name. The TAB key will jump to each successive field. Pressing ⌘-TAB will jump back to the previous field.

Notice the indicator in the lower left of your screen. It will give you a summary of the field upon which the cursor is sitting. This indicator tells you the field's name, number, length, and type. We haven't defined anything yet, so it displays `Undefined`.

Master File Definitions

Let's begin with the field definitions in the master file. The master file fields are the most logical starting choice, because they are always filled first when generating a report. With the exception of keyboard entries, lookups will always take their first key from a master field.

1. If the cursor is not already on the first field, place it there now by using the arrow keys or the Tab key. The first field is the

set of field markers underneath Student Name. The indicator in the lower left of your screen should read `Undefined`.

2. Press Ó-N to see to the Define Field screen. By the way, the cursor must be on a field marker for this screen to appear.

3. Highlight Option 2, `Field name` and press Return. Option 1, `Field number`, may be ignored for now.

4. The prompt, `Enter field name:`, will appear at the bottom of the screen on the command line. Notice that a default name appears. Pressing Return will select it, but don't press Return now. We will be using another name.

   The default name will always be a capital F followed by the number of the field. The defaults are for your convenience, however, they are not very descriptive. It is better to use a name that will help you remember the purpose of the field. When the time comes to define a calculation or a lookup, the use of a field name may be necessary. You will find your report definitions go more smoothly if you take the time to use a descriptive name.

   The field name may be up to 16 characters. It must start with a letter of the alphabet and must not contain any spaces. Numbers may be used after the first letter.

   Type in StudentName and press Return. If you are in insert mode, F1 will still appear at the end of StudentName. Press Control-Y to remove the F1. Notice that StudentName now appears next to Field name in the Define Field menu.

5. Press the down arrow to move on to Option 3, `Source`. Press Return to select this option. Another file card will appear displaying the possible choices for the source of the data going into this field.

   The choices for the source of a field are:

```
1. Master file
2. Lookup by key
3. Lookup by record
```

4. Calculation
5. Keyboard

These choices were briefly explained above. If they do not look familiar, you should go back and review.

6. The choice, `Master file`, will be highlighted. Press Return to select it. You will be returned to the Define Field menu.

7. Press the down arrow again to highlight the choice, `File`. We have told ReportWriter we want this field to contain data from the master file, but we haven't specified which file will be used. Press Return.

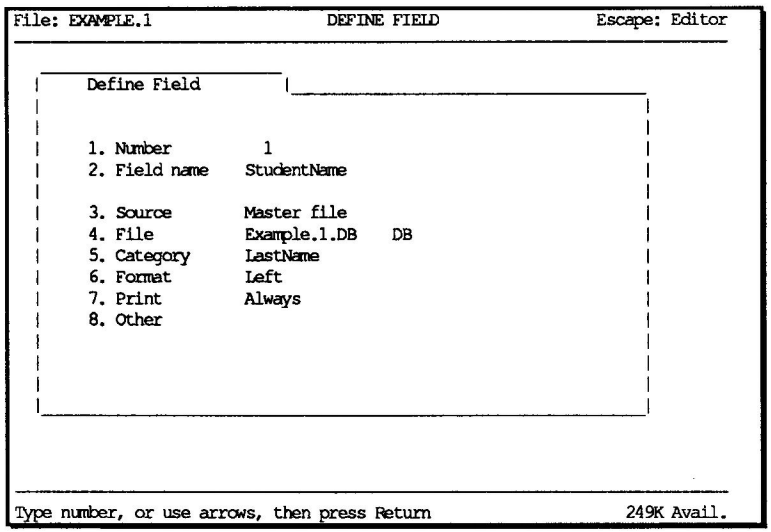
8. A screen will appear displaying all of the data base and spreadsheet files currently on the Desktop. Select the file Example.1.DB. Our first example will use a data base file as a master file. You will be returned to the Define Field menu after selecting this file.

9. Press the down arrow to highlight `Category` and press Return to accept this selection. A screen will appear displaying all of the categories for the data base file Example.1.DB. Select the category `LastName`. Again, you will return to the Define Field menu.

10. Now press the down arrow three times. You are going to skip the next two selections, allowing their default settings to remain in force. The first setting will left-justify the data into the ReportWriter field. The second setting you skipped will allow this field to print every time a valid record is selected. You can find out more about these settings in Chapter 6.

11. The selection `Other` should be highlighted. Press Return to accept it. A menu screen will appear with several other selections. Observe that the cursor is on the selection `Field type: Text`. This is telling you the data in this field will be treated as text. This is important when using calculations. The data in this field will only respond to text functions. There is nothing to change here, only to observe.

12. Press Escape to return to the Define Field screen. It should look like this.



13. Press Escape again to return to the ReportWriter editor.

You've done a lot! ReportWriter now knows everything it needs to about the first field. In summary, you have told ReportWriter:

1. The name of this field, StudentName.
2. The data in this field will come from the master file.
3. The name of the master file is Example.1.DB.
4. The category to use within the file Example.1.DB is LastName.
5. Always print this field.
6. Left justify the data within the field.
7. Define the data as text.

The next field to define is Grade. Place the cursor on the field marker underneath Grade and press Ó-N. Define this field the same way as StudentName with the following changes. If you need help refer to the steps above.

1. The field name will be Grade.

2. After selecting Master file as the source, the cursor will jump past the File option, because the master file has already been named. It was named in step 8, above.

3. Select `Grade` as the Category.

4. Use Option 7, `Format`, in the Define Field menu and define this field as right justified instead of left justified.

We have only to define the field in the work area to complete our definitions of the master file fields. There is no difference between a field in the work area and a field in the report body, other than the field in the work area does not print.

Place the cursor on the single field marker in the work area and press Ó-N. Enter this field definition the same way as StudentName and Grade with the following changes. Refer back if you need help.

1. The field name will be StudentNum.

2. After selecting Master file as the source, the cursor will jump past the File option, because the master file has already been named. It was named in step 8, above.

3. Select `Number` as the category.

4. `Format` is not critical as this field will not print.

This completes the definition of the three master file fields. Let's continue with the lookup file definitions.

Lookup File Definitions

The three fields under the headings Tests, HomeWork, and Lab, will be defined next. They are similar to the fields you just defined except that additional information is required to define the lookup key.

Follow these steps to define a lookup field. Details on selecting menu items will not be repeated here, since you should be getting familiar with that now.

1. Place the cursor on the field marker underneath the heading Tests. Press ⌘-N to display the Define Field menu.

2. As in the master file definitions, ignore the Field number. Select Option 2, `Field name`. The name of this field is Tests.

3. Select Option 3, `Source`. For this field, the source will be `Lookup by key`.

4. Select Option 4, `File`. Choose the file Example.1.SS. Notice the Define Field menu changes. A few new items have been added.

5. Select Option 5, `Column`. After pressing Return, the screen will change to look like the AppleWorks spreadsheet, with the contents of Example.1.SS displayed. This makes it easy find the next item ReportWriter is to look for. Only the cursor movement keys are available at this point. No editing can be done.

   ReportWriter now wants you select a column. This column is the information that will be retrieved for the report. No matching will be done based upon this column. Column F is the total of all three of the tests; this will print into the field under the heading Tests. Place the spreadsheet cursor in column F and press Return. You will return to the Define Field menu.

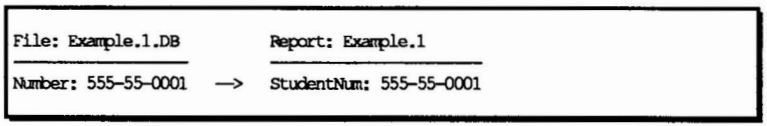
6. Select Option 6, `Lookup based on`. A filecard of all the presently defined ReportWriter field names will be displayed.

The field you choose here will provide the key for ReportWriter to match the lookup field. Choose StudentNum.

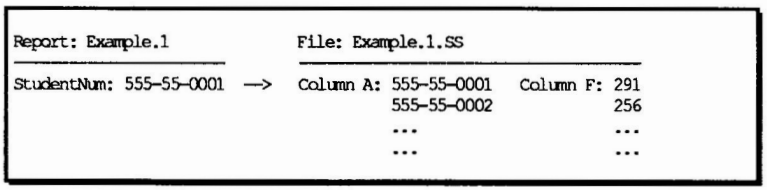
7. Select Option 7, `Lookup column`. Again, the screen will change to look like the AppleWorks spreadsheet. The column being requested here is the column to be searched for a match. Press Return to accept column A.

Let's stop for a moment and look at what we just told ReportWriter to do:

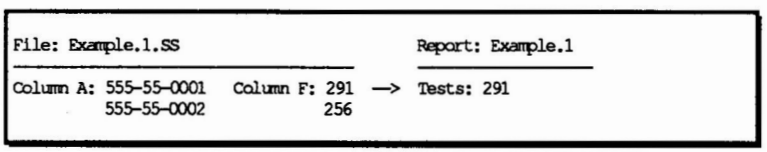
First, we told it to retrieve data from an AppleWorks data base file into StudentNum.



Next, we told ReportWriter to compare the data in StudentNum (selected in Option 6) against column A in Example.1.SS (selected in Option 7).



Then we told ReportWriter that when the match is found, print the data found in column F (selected in Option 5).



Now, to continue...

8. Select Option 8, `From row and To row`. You now need to select a range of rows to be searched. ReportWriter will only search selected rows, and will ignore the rest. This is to prevent needless searching of rows that you know will not contain valid data. This speeds up report generation.

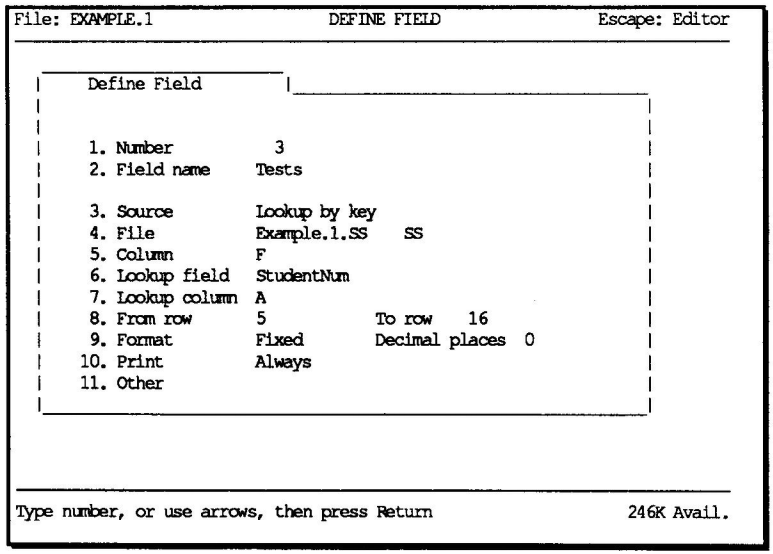
   Place the cursor into the first row to be searched and press Return. In Example.1.SS, this is row five. Then move the cursor down to the last row to be searched, row 16. Press Return to accept the highlighted rows.

9. Select Option 9, `Format`. The test scores are numeric data. Choose selection 1, `Fixed`. This means the decimal point in the printed number will always be set at a predetermined location within the number. ReportWriter will request the number of decimal places. You would like the same precision present in the spreadsheet, so select 0.

10. Skip over Option 10, `Print`. We always want to print this field.

11. Select Option 11, `Other`. Select Option 1, `Field type`. Of the four choices presented, select `Numeric`. This tells ReportWriter to treat this report field as a number rather than as text. This makes it available for numeric calculations and allows it to be formatted with special number formats.

Now that you have completed this first lookup definition, the Define Field screen should look like this.



12. Press Escape to Return to the editor.

You have completed the definition of the first lookup file field. The next two fields, those underneath HomeWork and Lab, still need to be defined. They will be done in the same manner as Tests, so refer to the above steps if you need to. The only changes occur in Option 5. For the field underneath HomeWork, use column K in Option 5. For the field underneath Lab, use column P in Option 5.

Now is a good time to save your work again. Use ⌘-S to do a quick save.

Calculation Definitions

There is one more field left to be defined. It will be a calculated field. This will require information from fields you have already defined.

Follow these steps to place a calculation in the field.

1. Place the cursor on the group of field markers underneath the heading Total. Press ⌘-N to display the Define Field menu.

2. Enter `Total` for the field name.

3. For the source, choose Option 4, `Calculation`.

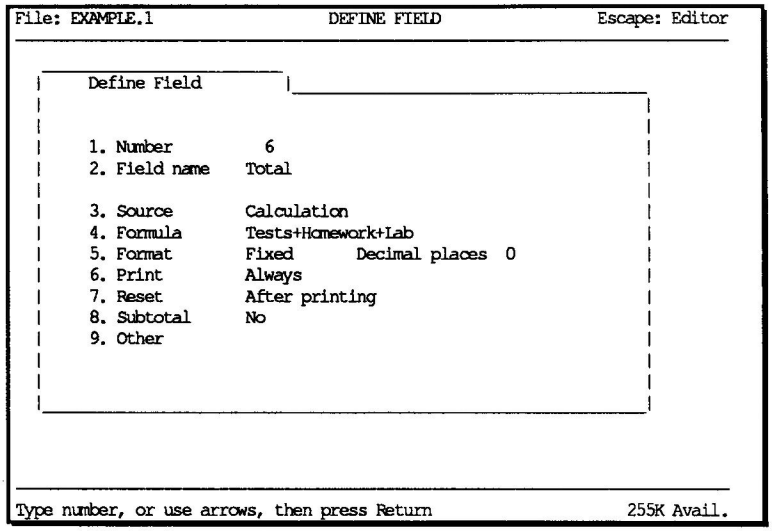
4. Select Option 4, `Formula`. A formula entry screen will appear for you to enter the formula for the calculation. Our formula will be an addition of the values in the three fields, Tests, Homework, and Lab.

5. Type in the following partial formula, Tests+.

6. Now press ⌘-F. A list of all of the field names in this report will appear. Use the arrow keys to highlight the field name Homework. Press Return to accept it. You will see it has been entered into your formula with the cursor at the end, ready to accept the next character. Pressing ⌘-F is useful if you should forget any of the field names in your report, or don't want to type them in.

7. Finish up the formula by typing +Lab. Press Return to accept your new formula.

8. If you typed your formula correctly, the first four entries on the Define Field screen should look like this.



If you receive an error message, type the formula over until it looks like Tests+Homework+Lab as shown in the screen, above.

9. Use the arrow keys to highlight Option 5, `Format`. Choose Fixed with 0 decimal places.

10. Use the arrow keys to highlight Option 9, `Other`, and press Return. Choose Option 1, `Field type`, and select `Numeric`. Press Escape twice to return to the editor.

This completes the definition of the report, Example.1.

Field Definition Report

We could now generate and print the report, confident that there are no mistakes in our definitions. But it's a good idea to view the report on screen first. We can check for errors quickly this way, without having to wait for the printer.

There is another feature that allows you to quickly find errors before you print your report. While in the editor, you can only see

the definition rules for one field at a time. If many fields are dependent upon each other, it may take a lot of time to inspect each field individually. ReportWriter can generate a printed report showing the definition rules of all of your fields. It is very handy for troubleshooting if your ReportWriter report did not come out as you expected.

To print out a field definition report, make sure your printer is turned on and selected, and press Ó-P. Select the proper printer from the list and press Return.

Generating the Report

Now we will actually generate the report. Report generation is the process ReportWriter goes through to create the finished report. It involves looking in the AppleWorks data files and putting the requested information from these files into the fields you defined.

Reports must be generated before they are printed. The data collected during report generation is sent to a file on disk.

Follow these steps to generate the report.

1. Press Ó-G for generate. A screen will appear telling you the pathname of the file the report will be sent to. You are given the option of printing this report to the default pathname or entering a new one.

   The default name of the file to which your report will be sent will always be the name of your ReportWriter format file with the suffix .P appended to it. In this case, we named the format file Example.1, so the report print file has the name Example.1.P.

2. Press Return to select `Generate the report.`

   If the report file already exists, ReportWriter will inform you. You may select `Yes` to overwrite the existing file or `No` to change to another pathname.

After selecting the file ReportWriter is to print to, the screen will clear and a thermometer will appear on the screen along with the words, Generating report. As records are processed, the thermometer will fill, giving you an indication of the progress.

Printing the Report

After the report has been generated, the thermometer will disappear and you will be given the choice of displaying this report on the screen or printing it out on the printer. Use the arrow keys to highlight the choice `Screen` and press Return to accept it.

The first 20 lines of your report will be displayed. These lines will be the same lines that would go to the printer. So, if you had the report title print on a separate page, all of the blank lines required to move the paper to the next page will also be shown on your screen.

If you defined a report larger than 79 characters in width, the display screen can be scrolled horizontally to show any characters that are currently off of the screen. Use Ó-Left and Ó-Right to scroll horizontally.

The screen can also be scrolled vertically. Use Ó-Up and Ó-Down to scroll vertically.

Pressing Ó-1 will show you the first 20 lines of your report. Ó-9 will display the last 20 lines. Ó-2 through Ó-8 allow you to move through the file just like they normally do in AppleWorks.

Use Escape to exit the screen viewing option. You will be returned to the editor. You can view the report again or send it to the printer without having to generate the report again. Follow these steps to print it.

1. Press Escape. The Main Menu will appear.

2. Select Option 3, `Print text (ASCII) files`. You will be given the choice of using the current disk drive or changing to another disk drive. Press Return to select the current disk drive.

3. You will now be given a list of all the text files on the current disk drive. If you have text files on the current disk drive other than those generated by ReportWriter, they will be shown also. Use the up and down arrow keys to highlight the file, Example.1.P. Press Return to accept it.

4. The last step is to choose whether to print the report on your printer or to display it on your screen. Make sure your printer is turned on and selected. Select the proper printer name and press Return to send the report to the printer.

Congratulations! You have defined, generated, reviewed, and printed your first ReportWriter relational report. There are many other features available. Find out all about them in the following chapters.

Chapter 5

Report Layout

This chapter provides details on laying out a report with ReportWriter. It explains how to format your report to look the way you want it.

If you have not already gone through the tutorial in Chapter 3, do so now. It contains necessary background information that will make this reference material much easier to understand.

Getting Started

Press ⌘-Esc from anywhere inside of AppleWorks. The TimeOut menu will display in the middle of your screen. Select ReportWriter.

Main Menu

You see the ReportWriter Main Menu on your screen. Main Menu item 1 lets you select an existing ReportWriter format file or begin a new one.

Editing a Definition

If you have not yet selected a report since booting AppleWorks, the Edit File menu will be displayed. You have three options.

1. `Load a report format from the current disk drive`. The current disk drive will be listed for you. Select that drive if it is the one you want.

   If you pressed Return, a screen will display showing you all the ReportWriter format files on the disk. Highlight one and press Return. The file will load and you will go immediately to the editor.

2. `Change to another disk drive`. Select this option and you will be presented with the names of the various disk drives on your system. Select the one you want and press Return. Now go back to step 1, above.

3. `Create a new file`. Select this option to create a new ReportWriter format file. You will be prompted to enter the name of the file.

   ReportWriter file names follow the rules of ProDOS file names, not AppleWorks rules.

   1. File names must begin with a letter.
   2. Numbers are allowed after the first letter.
   3. Spaces are not allowed; periods are.
   4. File names may be up to 15 characters long.
   5. Lower case will be converted to upper case.

   Press Return to accept your newly entered filename. The file will load and you will go immediately to the editor.

The following options will be displayed when you enter ReportWriter and have already been using a ReportWriter format file in this AppleWorks session.

1. `Use current report format`. The name of the current report format will be displayed for you. This is the report you were working on last. Press Return to accept it.

2. `Get a new format`. Selecting this option will take you to the Edit File menu. The options for that menu are explained above.

Saving a Definition

This option allows you to save the current ReportWriter format file on disk. A menu card will display three options. The filename of

the current ReportWriter format file is shown in the top left of the card. Your options are:

1. `Save the current ReportWriter format file to the current disk drive`. If for any reason it cannot be saved, you will be given an error message telling you the reason. Correct the problem and select this option again. Common problems are having too many files in the main directory of your disk, or not having enough free disk space.

   While your file is being saved, you will see this message:

   ```
   Carefully saving this file.
   You can press Escape to
   cancel the Save.
   ```

   If you decide you really didn't want to save this file, press the Escape key to cancel the save command.

2. `Change to a different disk drive`. This gives you the option of saving the format file to a different disk drive. When you select this option, a screen appears displaying your disk drives.

3. `Throw out the changes`. You may not want to save this file at all. Select this option to throw out the changes you made. You'll see this menu if you try to leave ReportWriter before saving the current file.

Printing Text (ASCII) Files

This option takes you to the ReportWriter text file printer. You can print the file, or review it on-screen with horizontal and vertical scrolling. You can also select a list of files to print at once. It is described in detail in Chapter 7, Generating and Printing a Report.

Other Activities

The first option in the Other Activities menu clears the Desktop memory used by ReportWriter. This Desktop memory is where ReportWriter keeps the current format file. The memory required is small, but if you need it, you can use it by selecting this option. When you need the ReportWriter format file again, just reload it from the disk.

The second option in the Other Activities menu gives you the ability to make a copy of the current file and save it on disk with another name. Use this option to make a report similar to one you already have, but with a few minor changes. Rather than redefine the whole report, use the following steps.

1. Load in the old report you want to change.

2. Use Option 2 in the Other Activities menu, `Rename current report format`.

3. You will be prompted for the new name. Type it in at the bottom of the screen and press Return.

4. You now have two copies of the same report, each with a different name.

5. Use ReportWriter to make the necessary changes.

6. Use ⌘-S, or Option 2 from the Main Menu to save the new report.

Using The Editor

The editor recognizes 240 horizontal columns and 127 vertical rows. As with a word processor or text editor, you can put characters anywhere in the 240 x 127 character work area.

There is always a column for column correspondence between the editor and the printed report. This will only change if you select a

left margin other than zero. In that case, the columns will be offset by the amount of left margin you ask for.

Report rows correspond to printed lines. The number of lines that will print is sometimes hard to predict since you cannot always foresee how many records will be found by ReportWriter. However, each printed record will always require at least one row.

Moving Around in the Editor

You can move the cursor character by character, screen by screen, or jump to the edge of the screen. You can always find the current position of the cursor by looking at the row/column indicator in the bottom right of the screen. The upper left corner of the editor area is column 1, row 1. The bottom right corner is column 240, row 127.

Character by character

Use the arrow keys to move the cursor up, down, left and right. When the cursor reaches the edge, the screen will scroll. You can use Control-R and Control-L to tab left and right. Press Control-T to set the tab length. Any value from 1 to 40 can be used.

Screen by screen

Use the Open Apple and arrow keys together to move the cursor to the edge of the screen. If the cursor is already at the edge, the screen will scroll in the direction of the arrow one more screen - 20 lines vertically or 80 columns horizontally.

Vertical movement

Press ♁-1 through ♁-9 to move the cursor vertically through the file. ♁-1 and ♁-9 move the cursor to the top and bottom of the editor area. ♁-2 through ♁-8 move the cursor a relative amount.

Horizontal movement

Press the ⌘-Comma and ⌘-Period to move the cursor to the far left and right ends of the editor area. Control-R and Control-L tab left and right. Press Control-T to set the tab length. Any value from 1 to 40 can be used.

Placing Information on the Screen

Labels and field markers are the two types of information that can be placed on the screen. Labels will print exactly as you type them. Field markers indicate the areas where information from files, calculations, or keyboard entries will appear. As far as text entry is concerned, these two types of information can be treated alike.

Field Markers

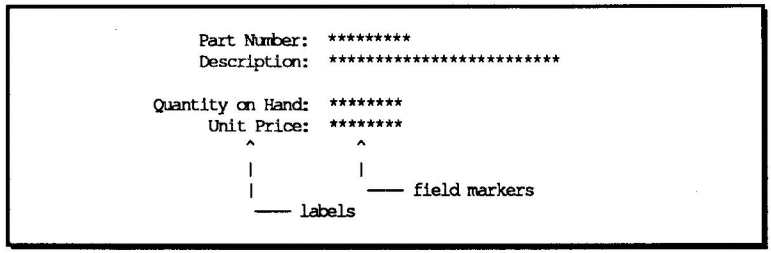
Press Control-F to place a field marker on the screen. An asterisk will appear. The character used for field markers can be changed to any character you want. Users with systems supporting mouse text may want to use a diamond or other character which ordinarily would have no other special meaning. See Chapter 10 for configuration information.

A field may be one character to 127 characters long. The length of the field is determined by the number of field markers defining that field.

Be sure to use Control-F to enter a field marker. Typing an asterisk from the keyboard will place an asterisk on the screen, but ReportWriter will treat it as a label, not a field marker.

Labels

Press any character key to place label information on the screen. Labels are used to describe the information in the fields. Here's an example of an inventory report:



The labels on the left tell you what the numbers mean when the report is generated

Character entry

If characters typed in go beyond the right margin, the screen will automatically scroll character by character as you type in more information.

Press Return to move down one line and to the left margin. Notice that if you pass the 79th column, the left margin will no longer be 1, but will change as the screen is scrolled. Use ⌘-Comma to return to Column 1. The ReportWriter editor does not use word wrap, so you will need to press Return each time you want to start a new line.

You can enter text anywhere in the editor except for places where fields have already been defined.

> *Note: The editor works in an area extending 240 columns. Anything pushed off the right edge of the screen while the cursor is in insert mode is still in the report. You just cannot see it. If the end of your line reaches column 240, the editor will ring the bell and prevent any more characters from being inserted. They will not slide off the edge of the editor and get lost.*

Inserting and Deleting Characters

Press the Delete key to erase information to the left of the cursor. It will be deleted character by character. When the cursor is at the

left edge of the screen, the screen will scroll until column 1 is reached. Be careful though, because if you do this, you cannot see the character being deleted. When in doubt, use ⌘-Left to scroll the screen one page, then ⌘-Right to move the cursor back to the right edge. Then you will be able to see the characters being deleted.

Press ⌘-Y to delete information from the cursor to the right edge of the editor. Note that everything will be erased all the way to the 240th column, even information you can't see. So, be careful with this command. If a field marker is on the row when you press ⌘-Y, you will receive a warning message before it is deleted.

Use ⌘-E to toggle between the overstrike and insert modes. When in overstrike mode, the cursor will be a solid block. When in insert mode the cursor will be the underline character.

Inserting and Deleting Rows

Press ⌘-I to insert a new row. The row the cursor is on and all rows below it will move down one. This will leave a new empty row where cursor is. The new row is available for labels and field markers.

Press ⌘-D to delete one row. The row the cursor is on will be the one deleted. The other lines will all move up one row. If a field marker is in the row to be deleted you will receive a warning message before this row is deleted.

Moving Field Markers

To move a field marker, place the cursor on the leftmost character and press ⌘-M for Move. The command line will instruct you to move the cursor to the beginning of the new position for this field marker. Press Return to end the move. The field marker will now disappear from its old position and reappear in the new one.

The field marker will not move if it would overlap any part of another field marker in its new position.

Saving from the Editor

Press Ó-S to do a quick save. ReportWriter will save your report format to the filename in the upper left of your screen. The current pathname will be used.

Other Commands

There are other key commands that will only function properly when fields have been defined. Their functions will be discussed in more detail later. Take a quick glance at them now. If you press them accidentally, at least you'll know what happened.

Open-Apple-G: Generate the report.

Open-Apple-N: Define new field (or redefine existing field).

Open-Apple-P: Print a summary of the report specifications.

Open-Apple-Z: Zoom in/out on field markers and field names.

Open-Apple-? Display editor commands.

Constructing a Report

To construct a report, you need to understand the various report sections and how to define them.

Sections of a Report

Reports may contain up to seven sections. They are: Title, Header, Body, Subtotal, Footer, Closing, and Work area. Of these seven,

only the body is required. If sections other than the body are used, they must follow in the order listed above. Their use is described here.

Title

The title section is used to give the report a title. This section is optional; you are not required to give the report a title.

A report title, just like a book title, is intended to give a small description of what the reader will find in the report. It may be any length you want. Here are some examples of titles:

```
XYZ Corporation
Inventory Pricing
  Last Quarter
```

and,

```
North Shore AppleWorks User Group
            Directory
```

Titles only appear once in a report, at the very beginning.

You may choose whether your title will appear on the first page of the report itself, or whether it will stand alone on a page all by itself. This is done by pressing ⌘-O from within the editor. Choose Option 3, `Title definition`. You may choose:

1. To place the title onto the top of the first report page. The title will always be the first thing printed.

2. To place the title onto a page all by itself. After selecting this option, the command line will prompt you for a number between 1 and 127. This number determines how many lines down the page the title will begin.

3. To place the title onto a page all by itself, but centered vertically on the paper. ReportWriter will calculate the centering for you. This is vertical centering only. The left margin will be set the way it is set in the editor. If you want it

to print centered horizontally, make sure you center it that way in the editor.

Calculated fields are available for use in the title. The most useful are the date and time functions. You may also enter data directly from the keyboard into your title. You may not retrieve any file information for use in a title.

Header

The header section is used to establish specific information about the contents of the report. You are not required to use a header section. Some reports, like a list of mailing labels, would not benefit from a header.

Headers always appear at the top of a report. They will appear below the title if one is used. ReportWriter will print the header at the top of every page in the report.

Calculated functions are available for use inside of a header. Automatic page numbering is one. You may also enter data directly from the keyboard into a header, however, you may not retrieve any file data into a header.

Report Body

The body contains the actual contents of your report. For instance, if your report was a name and address list, all of the names and addresses would go into the body of the report. This section is required. You cannot have a report without a report body.

Most anything can be put into the body of a report. File retrievals go into the report body, and all of ReportWriter's calculation functions are available in the body.

For more details, see page 76, Report Body Layout Considerations.

Subtotal

The subtotal section, if used, will always print after the report body, and only if a subtotal is necessary at that point. This section is optional.

The subtotal section is used for summarizing information that appears in the report body at predictable intervals. See page 114 for a detailed explanation of totals and subtotals.

Footer

Footers always print after the report body, before the end of each page. They are the last section to print. Footers are not required. If footers are used, they print on every page.

Footers are useful for summarizing information contained in each page. If you were printing invoices, footers could be used for adding a thank you message.

Calculated functions are available for doing summaries in the footer. The range functions are among the most useful. You may also enter data directly from the keyboard into a footer, but you may not retrieve any file data in a footer.

Closing

The closing section is the last section in a report before the footer. The closing section is not required. You have the choice of printing the closing on the last page of the report or on a separate page. Press Ó-O from within the editor. Choose Option 4, `Closing definition`. You may select:

1. To place the closing onto the bottom of the last report page. It will print there if space is available at the bottom of the page. Otherwise, it will print on a new page.

2. To place the closing on a page all by itself; you specify how far down. When you select this option, you will be asked for a number between 1 and 127. ReportWriter will count down this many lines before printing the closing.

3. To place the closing onto a page all by itself, centered vertically on the paper. ReportWriter will calculate the centering for you. This is vertical centering only. The closing will be printed horizontally the way it is set in the editor. Use

the editor commands to change the horizontal positioning of the closing.

Several calculated functions are available for summarizing information throughout the report. You may also enter information from the keyboard directly into the closing. You may not retrieve any file data for use in a closing.

Work Area

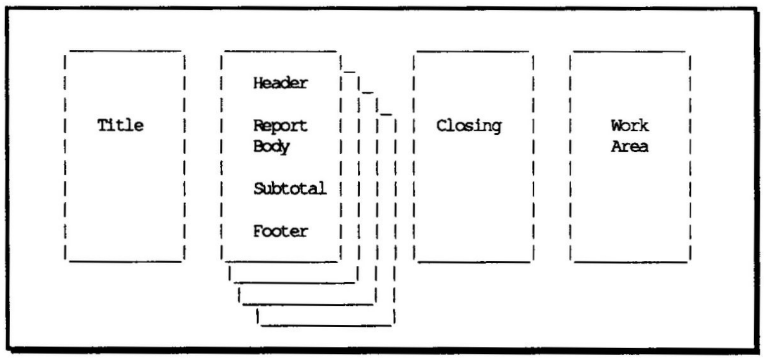
The work area never prints. It is used for performing intermediate calculations that you do not want printed in your report. It could also be used for writing notes to yourself concerning the report. The work area is not required.

For example, say you have a data base file where you have a person's title, first name and last name. You want to print them together as one field inside of the report. You accomplish this by putting the three separate fields into the work area. Then use a ReportWriter function to join them together inside the report. These entries:

```
Title       Mrs.
FirstName   Betsy
LastName    Verkade
```

are printed in the report as `Mrs. Betsy Verkade`. This is done through the use of a calculated field in the body of the report.

Here are the seven sections of a ReportWriter report:



Defining Section Positions

You need to tell ReportWriter where the section positions are located in a report. These are the rules regarding section positions:

1. There must be a report body section. All of the others are optional.

2. Each section can be any number of rows long.

3. Sections must be used in a certain order.

Since the sections must be in order, ReportWriter only needs to know the last line of a particular section. The line the section marker is on is included in that section.

Here's how to define section positions:

1. Place the cursor on the last line of the section.

2. Press ⌘-O, Options, and select Option 2, `Section positions`.

3. Select the section type and press Return.

4. Press Return again to select the position of the cursor as the last line of the section.

5. The row number of the current cursor position will appear in the column, current line, for the section being defined.

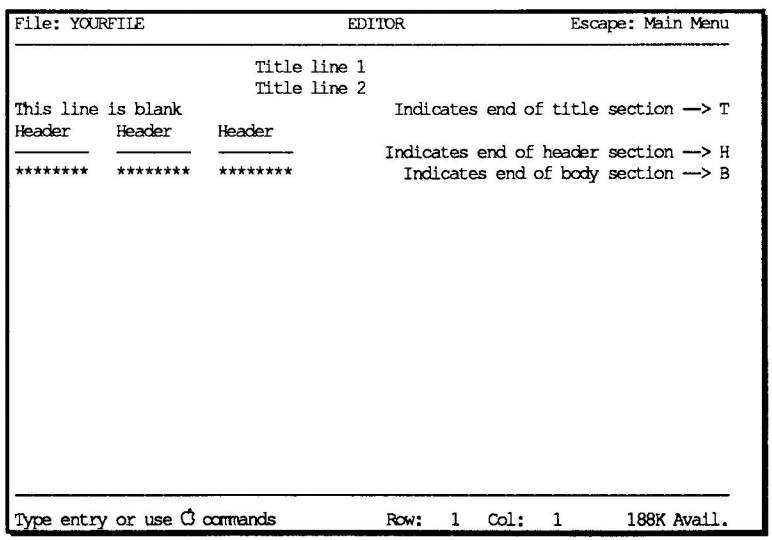
   Instead of pressing Return to accept the current cursor position as the section position, you can type in the row number from the keyboard. This way you can define several sections at once.

6. Return to the editor by pressing Escape twice.

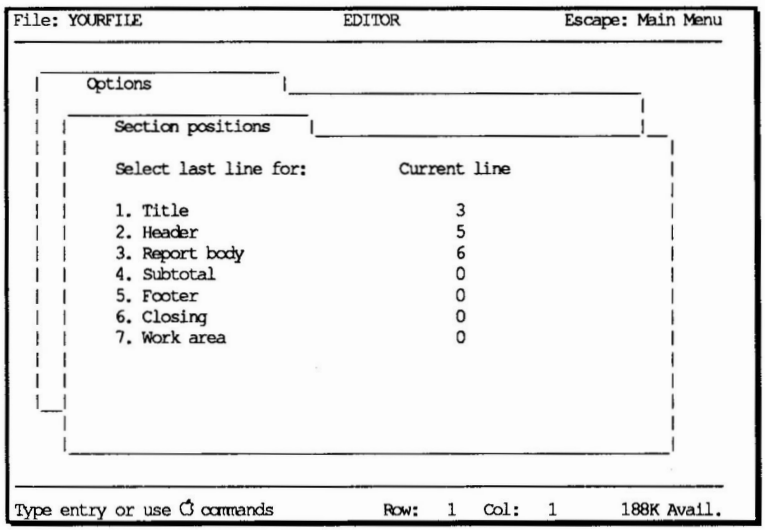
7. Notice the section position indicator is now present in the far right screen column. It is a highlighted letter indicating the section position. Here is what the letters stand for:

Title	T
Header	H
Report Body	B
Subtotal	S
Closing	C
Footer	F
Work Area	W

This sample section shows several section markers and their placement:



The section position menu for the screen looks like this:



Notice a zero (0) value means you have not defined the placement of that particular section.

Printer Options

The printer options allow you to set the top, bottom, left, and right margins. You also set the number of vertical lines to be printed on each page, and control whether records are split between two pages.

When you define a new report, ReportWriter will set the printer values to certain defaults. If the default settings are fine, you do not need to change them, although they may need to be changed in certain instances. For example, the top and bottom margins should probably be set to zero for mailing labels.

These are the default printer values:

```
Platen width            8.0 inches
Left margin             0.0 inches
Right margin            0.0 inches
Characters per inch      10 characters

Page length            11.0 inches
Top margin              1.0 inches
Bottom margin           1.0 inches
Lines per inch            6 lines

Split records                No
New page each record         No
```

Platen Width

Platen width is the distance the print head travels across the paper. Standard paper width is 8.5 inches, and the standard platen width is 8.0 inches.

Left Margin

The left margin is the distance from the left edge of the paper to the first horizontal print position in your report. You cannot see the effect of the left margin setting until the report is printed.

Right Margin

This is the distance from the last possible print position in your report to the right edge of the paper. If you designed your report so that it would print all the way to the right edge of the paper, you will have to set the right margin to zero. Otherwise, characters will be lost when the report is printed.

Characters per inch

This setting indicates the number of characters your printer will fit into one inch. This setting is used to determine print width.

Page Length

Page length is the vertical length of your paper.

Top Margin

The top margin is the distance from the top of the paper down to the first row of printing.

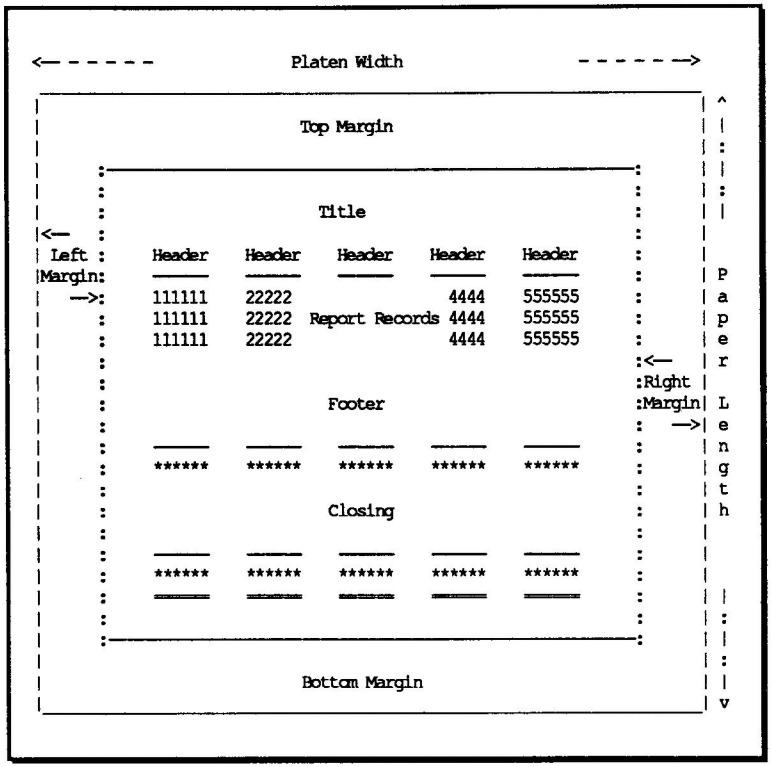
Bottom Margin

This is the distance from the last printed line to the bottom of the paper. By increasing the size of either the top or bottom margin, you will decrease the number of records that will fit on one page.

Lines per Inch

The lines per inch setting determines the number of lines your printer will place into one vertical inch. The standard values are 6 and 8 lines per inch.

Here is an illustration of the effect of the margin settings.



Setting Margin Values

To set the values of any one of the margins, follow these steps:

1. While in the editor, press Ó-O. The Options screen will appear.

2. Press Return to select Option 1, `Printer options`.

3. Use the up and down arrows to select which margin you want to change. Press Return to accept it.

4. You will be prompted at the bottom of the screen for the new value. Type it in and press Return.

5. You can check the summary at the bottom of the Printer option screen to see that it was entered correctly.

6. Press Escape twice to return to the editor.

Split Records

One record may extend over more than one line. For example:

```
Name      : John Smith
Address   : 123 Acacia Lane
City      : Perris
```

If you answer `No` to the split records question, these three lines will always print together. ReportWriter will start a new page rather than split them. If you answer `Yes`, they will be split if necessary should the page fill up. The default setting is `No`.

To change the Split records option, follow these steps:

1. While in the editor, press Ó-O. The Options screen will appear.

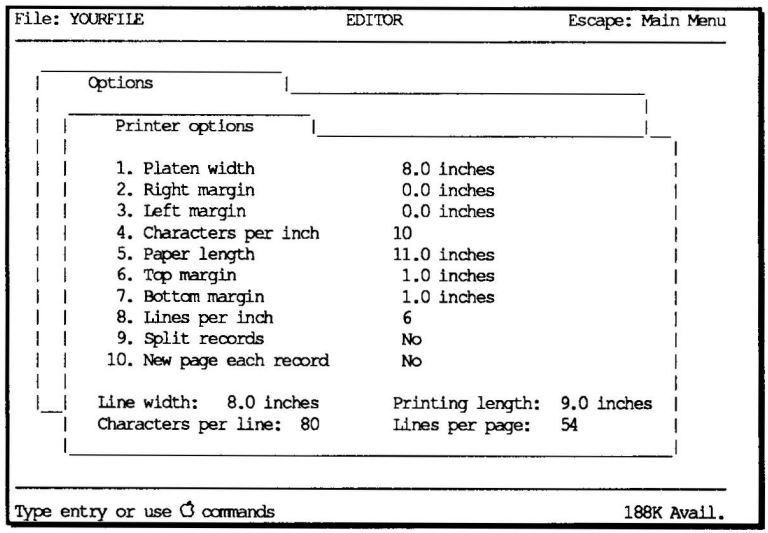
2. Use the arrow keys to highlight Option 9, `Split records`, and press Return.

3. Answer the prompt at the bottom of the screen, `Change the value?` Select `Yes` to change it or `No` to leave it alone.

New Page Each Record

Answering `Yes` will cause each record in the report to print on a separate page.

Here is a sample Printer option menu:



Report Body Layout Considerations

This section offers a few hints about laying out the report body. It will help give you a feel for the flexibility of ReportWriter reports. You should go through the ReportWriter tutorial if you have not already done so. The tutorial will help make the following discussion more understandable.

The layout of your report will be greatly influenced by the data you want to report from. Make sure you are familiar the structure of your files. For considerations on file structure see the introductory chapter on relational reporting.

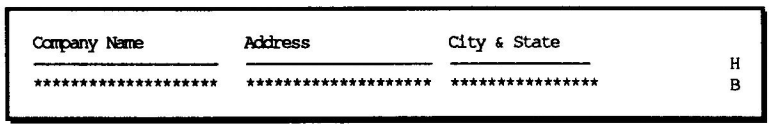
Most importantly, you need to have a clear goal in mind for the type of report you want to create. A little planning in advance will make the entire layout process go much more smoothly.

ReportWriter allows for very flexible report layouts. ReportWriter makes no distinction between a labels style report and a tables style report, as AppleWorks does. It simply reads your field definitions and acts accordingly. The important point is that labels or tables can be constructed in the same manner.

As an example, consider the following data:

Record 1 of 3	Record 2 of 3	Record 3 of 3
Big Blue's Computing	Dan's Data Reporting	Wave Of The Future
1 WhiteShirt Circle	6502 Assembler Route	30 SE Macintosh Way
Boca Raton FL	Perris CA	Cupertino CA

Let's look at three different ways we could organize this data in a report. First, we could show it as tables style data, with a header added for clarity. We would lay out the report in ReportWriter like this:



When printed, the actual report would look like this:

Company Name	Address	City & State
Big Blue's Computing	1 WhiteShirt Circle	Boca Raton FL
Dan's Data Reporting	6502 Assembler Route	Perris CA
Wave Of The Future	30 SE Macintosh Way	Cupertino CA

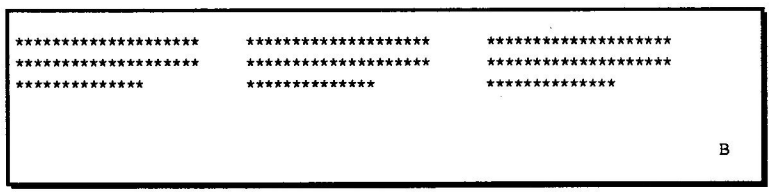
Another way to lay out the report is in a labels style. The ReportWriter screen would look like this:

The actual report would look like this when printed:

```
Company Name: Big Blue's Computing
Address     : 1 WhiteShirt Circle
City & State: Boca Raton  FL

Company Name: Dan's Data Reporting
Address     : 6502 Assembler Route
City & State: Perris  CA

Company Name: Wave Of The Future
Address     : 30 SE Macintosh Way
City & State: Cupertino  CA
```

By the way, notice that the section marker B is on the line below `City & State`. This causes the blank line between each of the records.

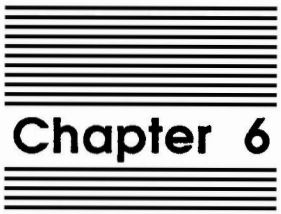
A third possibility is a report layout suitable for mailing labels. Lay out your report this way to get mailing labels three across the page:



On printing, the mailing label report will look like this:

```
Big Blue's Computing|Dan's Data Reporting|Wave Of The Future
1 WhiteShirt Circle |6502 Assembler Route|30 SE Macintosh Way
Boca Raton  FL      |Perris  CA          |Cupertino  CA
```

Notice that section marker B is three lines below the last field. If mailing labels are six lines long, these 3 blank lines will correctly position the second set of mailing labels in the printer. You can add as many blank lines as you need in this manner.



Chapter 6

Defining Fields

Defining a field gives ReportWriter instructions on where and how to obtain the information it needs to put data into your report. The data comes from one of three places: an AppleWorks data file, the keyboard, or from a ReportWriter calculation. Each field has a separate definition.

To begin the process of defining a field, place the cursor anywhere on the field and press ⌘-N. A menu will appear with several options.

Define Field Options

If you have not yet defined this field, only three options will be displayed. They are Field number, Field name, and Source. These three are common to all field definitions. If the field has already been defined, these three options and several more are available. Additionally, there are two more options common to every field definition: Format and Print. These will appear on the Define Field menu after the source of the data has been selected.

Field Number

Field numbers are assigned sequentially as you define the fields. When ReportWriter generates your report, it follows a very particular order of doing things. If there are any keyboard entries, it asks for all of these first. Next, it retrieves all necessary data from the master file. After keyboard entries and master file retrievals, ReportWriter goes in field number order doing file lookups and calculations. You have to be careful that a lookup or calculation does not require information from a field that has not been processed yet.

As an example, you may design a report consisting of data retrievals from two files and one calculation. Suppose in the following report, that Quantity comes from a master file and Price

comes from a lookup file. Extension is a calculation based on Quantity multiplied by Price.

```
Quantity: ******   Price: ******   Extension: ******
```

Quantity was defined first, then Price, and last Extension. When this report is generated, Quantity will be filled in first, because it is retrieved from a master file. Price will be filled in next, because having been defined second and being a lookup, field number order is followed. Extension will be filled in last, because it is a calculation and was the last field to be defined.

Now, you add another field, Discount, and change Extension to be Quantity multiplied by Price multiplied by Discount. Discount is another lookup. The new report looks like this:

```
Quantity: ******   Price: ******   Discount: ******   Extension: ******
```

Because Quantity, Price, and Extension have already been defined, they will have been assigned the first three field numbers. The new Discount field will be assigned number four. Because ReportWriter fills in lookups and calculations in field number order, Extension will be calculated before Discount is filled in. Discount will contain a zero value at the time Extension is calculated, so Extension will be zero. This not the answer we want.

We can correct this situation by changing the field number of Discount to three. These are the steps:

1. Place the cursor on the Option 1, `Field number`, and press Return.

2. Enter the correct field number at the prompt at the bottom of the screen.

3. Press Return to accept it.

The field number of Extension will automatically be advanced to number four. Had there been greater field numbers, they would also have been increased by one.

The rules for predicting the advancement of the fields are:

1. If a greater numbered field is given a lesser value, the fields in between the greater value and the lesser value, including the lesser value, will be advanced by 1. For example, if the original fields are numbered 1 through 5 and Field4 is changed to Field2, this is what will happen:

Originally	After change
Field #1	Field #1
2	3
3	4
4	2
5	5

2. If a lesser numbered field receives a greater value, the fields in between the lesser value and the greater value, including the greater value, will be decreased by one. For example, if the original fields are numbered 1 through 5 and Field2 is changed to Field4, it will look like this:

Originally	After change
Field #1	Field #1
2	4
3	2
4	3
5	5

Field name

This is the name you give to a field. You can reference a field by name when defining lookups or calculations.

If you choose not to name it, it will be given a default name of 'F' and the field number. If the field number was three, the default name would be F3.

It is a good idea to use descriptive names. This will help you remember later what these fields are for. The name Quantity is much more descriptive than F3.

When referencing a field from inside another field, case is ignored. That is, F3 and f3 are the same.

All field names must be unique. For example, you cannot have two fields named Quantity. Because case is ignored, you cannot have a field named Quantity and a field named quantity. ReportWriter will inform you if you use a duplicate name.

Field names are limited to 16 characters and must begin with a letter. Spaces are not allowed.

To assign or change a field name, follow these steps:

1. Use the arrow keys to highlight Option 2, `Field name`. Press Return to accept it.

2. Notice the name to the right of the prompt at the bottom of the screen. Press Return if you want to accept this name, or

3. Type in a new field name. You are limited to 16 characters. Press Return to accept your new name. It will now be displayed on the Define Field menu.

After a field has received a name, that name may be viewed while in the editor by pressing ⌘-Z. All of the field markers of defined fields will change to display as much of their field name as will fit. Press ⌘-Z again to return to field markers.

Data Sources

To define a report, all of the files you want to use must be on the Desktop before you enter ReportWriter. File information cannot be

read from the disk while the report is being defined (although with AppleWorks v3.0, it can be on disk during report generation). This means you can create reports with data from up to 11 files. However, you may still be limited by the amount of memory in your Apple. If you do not have enough Desktop memory to hold all the files at once, here is a trick you can use to get around the problem:

While in AppleWorks,

1. Load a data file onto the Desktop.

2. For data base files, use ⌘-D to delete all records except the first one.

3. For spreadsheet files, use ⌘-D to delete all rows below the first row of reportable data.

4. Load the next file on the Desktop and continue the process.

This trick works because ReportWriter does not need all the records in the data file, just the categories used by the field definitions.

By the way, **don't re-save the files.** *You will lose all your data!*

Options 1 through 3 involve retrieving data from files. Information stored in AppleWorks data base or spreadsheet files is put into your report.

Option 4 lets you retrieve data from other fields and manipulate it. You can, for example, add the data in Field1 to the data in Field2, then divide by two. You would enter: (Field1 + Field2) / 2. There are many functions available for calculations using numbers, text, dates, and time.

Option 5 allows you to type information directly into a field from the keyboard. This is useful for entering the name of the person for whom the report is prepared, or any other information that might change from report to report.

Each source selection will be discussed separately later in this chapter. For now, just remember that it is easy to select a source:

1. Use the arrow keys to highlight the source selection you want.

2. Press Return to accept it.

If you have already defined this field for one type of source and change to another type, ReportWriter will warn you.

Print Options

Print is an option that appears on every Define Field menu. There are four options that control when printing is done:

Always

`Always` will cause the field to print every time it's retrieved.

Never

The field will never print when this option is selected.

When Not Equal to Zero

This option will cause the field to print whenever it is not equal to zero. When the field does evaluate to zero, ReportWriter will leave the field blank, rather than printing a zero.

When the Field Name Changes

Here is an example of printing only when the name changes. In the city listing on the left, the State prints every time, because Always was used as the print option. On the right, it only prints when a new State is retrieved. This makes for a more attractive report.

State	City
California	Big Bear
California	Perris
California	San Diego
Colorado	Aspen
Colorado	Denver

State	City
California	Big Bear
	Perris
	San Diego
Colorado	Aspen
	Denver

Selecting `When the field name changes` is very simple.

1. Select `Print` from the Define Field menu. Its number will vary depending on what source you chose.

2. Select `When the field name changes`. All of the currently defined fields will be displayed. Use the arrow keys to highlight the field you want. Return to accept it. Notice that your print selection is displayed in the Define Field menu.

Number Format

There are several format types. These determine how the data will be displayed.

Numbers may be displayed in five different formats. Each format is shown below with how the number 1258.7756 would be displayed in that format:

Format	Decimal places	Result
Fixed	3 decimal places	1258.776
Dollars	2 decimal places	$1,258.78
Commas	2 decimal places	1,258.78
Percent	1 decimal place	125877.6%
Appropriate	No choice	1258.7756

Notice the entry for Fixed with three decimal places. The third position to the right of the decimal was rounded up to 6. This occurs for the display only. The number is still kept internally as 1258.7756. If it is required for calculations, its internal precision will be used.

There are three format choices for text fields. They are,

Left: Aligns the text in the left-most column.
Right: Aligns the text in the right-most column.
Center: Centers the text within the length of the field.

To set the format and number of decimal places:

1. Select Format from the Define Field menu. Its option number will vary depending on what source type was chosen.

2. Select the proper format from the list provided. The upper five options are for numeric fields. The lower three options are for text fields.

3. In those format types where you can set the number of decimal places to be displayed, type in a number between zero and seven and press Return.

Other Options

There are two selections on the Other menu. The first lets you define the field type. The second allows posting into other data base or spreadsheet files.

Field Type

Each field must be given a type. It is possible to get valid information even though a field is defined as the wrong type. However, you cannot do calculations using the wrong type. The field types are:

Text: Displays text data. If text calculations are used, the fields containing the data must be of the type text.

Numeric: For displaying numeric data (numbers). If numeric calculations are used, the fields containing the data must be numeric in type.

AppleWorks Date: Used to display AppleWorks date fields. These come from AppleWorks data base fields which have the word DATE in the category name. They can also come from your calculations.

AppleWorks Time: For displaying AppleWorks time fields. These come from the data retrieved from AppleWorks data base files.

They can be identified by the word TIME in the category name. They can also come from your calculations.

If calculated fields don't generate the correct answers, it is a good idea to check the field type of the calculated field. This could be the source of the problem. Also, check the field type of all of the fields referenced by your calculation. Inconsistencies in field type will lead to incorrect results.

Data Sources

Now the details of the different sources will be explained.

The source is where ReportWriter obtains information for each field. The five possible sources are:

1. Master file
2. Lookup by key
3. Lookup by record
4. Calculation
5. Keyboard entry

Master File

All reports must have a master file as their initial source of data. The master file is the one that controls or drives the report. All other files follow the master file. Every file lookup can be traced back to the master file.

The master file must be on the AppleWorks Desktop while the report is being defined and generated. Having selected Master file as the source, several more selections will appear. To define the master file:

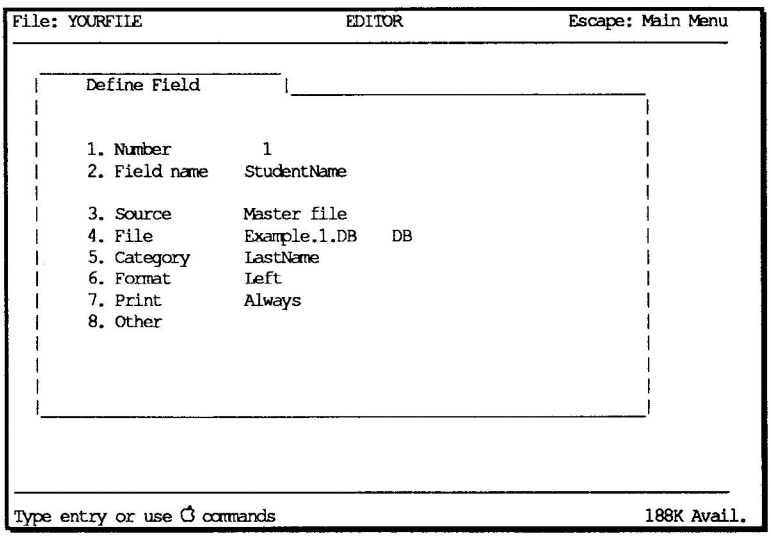
1. Select Option 4, `File`. A list of all of the data base and spreadsheet files on the Desktop is displayed. A two letter abbreviation follows each entry, identifying it as a data base file (DB) or a spreadsheet file (SS).

2. Select the file you want to be the master file. Press Return to accept it. You will return to the Define Field menu.

If you selected a data base file as the master file, follow these steps:

1. Select Option 5, `Category`. A list will be displayed of all of the category names in the master file. Select the category from which you want information to be retrieved for this field.

2. Look at your file and category selections displayed in the Define Field menu. They should look similar to this:



If you selected a spreadsheet as the master file, follow these steps:

1. Select Option 5, `Column`. The screen will change to display an AppleWorks spreadsheet.

2. All of the cursor movement keys are available for you to move through the spreadsheet. Place the cursor in the column you want to use for the data retrieval and press Return. It does not matter what row the cursor is in; only the column is important.

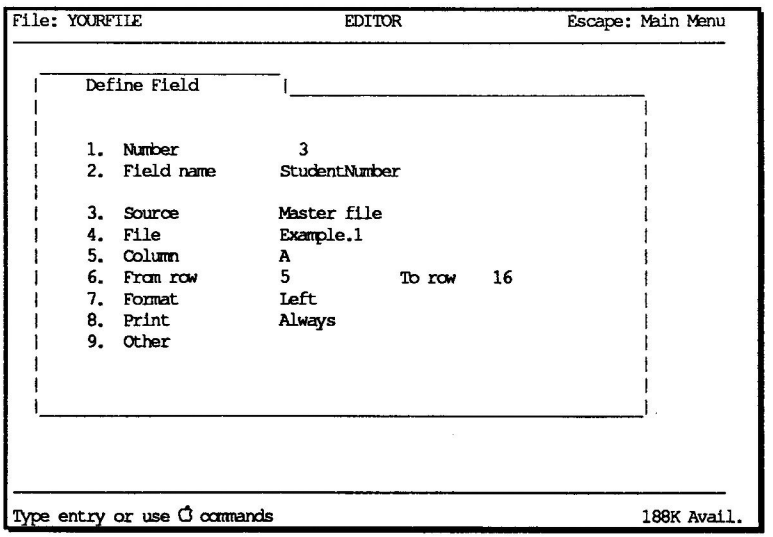
3. From the Define Field menu, choose Option 6, `From row / To row`. Again, the screen will display an AppleWorks spreadsheet.

   Now, you tell ReportWriter what starting row to use for reporting and where to end. ReportWriter will report from these rows and all rows in between. This allows you to report only valid data, since there may be headings in the spreadsheet that are not usable in your particular report.

4. Use the arrow keys to place the cursor on the first row you want to report from. Press Return to anchor it. Notice now the whole row is highlighted.

5. Use the up and down arrow keys to extend the highlighted block to include the last row you want to report from. Press Return again to accept your row selections.

6. Notice the file, column, and row selections displayed in the Define Field menu. They should look similar to this:



Once you have chosen an AppleWorks file as the master file, the File choice will be skipped in future field definitions. Since there can be only one master file in a report, this same master file will always be used. If you select it again and attempt to change to a new master file, ReportWriter will warn you before allowing you to make the change. You can change it, but all of the field definitions using the old master file will no longer be valid.

Lookup Files

Lookup files give great power to your reporting capabilities. Using information from other fields, you can select information out of a lookup file. To get information from another file, we need something to tell us where to search in the lookup file. Master files simply report from record to record. Lookup files require a device to point to a specific entry.

There are two methods available of doing lookups from files: lookups by key and lookups by record. Each one has its own uses, and neither one is inherently better than the other.

Lookup by Key

By definition, relational data files have a common field. The lookup file is searched on one field until a particular element is found. Once this element is found, data is retrieved from another field in the same record to be placed into the report. As an example, you may have a file of part numbers and part prices. Knowing the part number for which you want the price, you search through the file until you find a match for the part number in question. Then you look in the price field to find the price. The part number was the key into the part price file.

ReportWriter uses information from a ReportWriter field as the key into a lookup file. This key field is selected from a list of all of the defined fields in ReportWriter.

Both data base and spreadsheet files may be used as lookup files. Paragraphs may be retrieved from word processor files as well, but in a slightly different manner. Obtaining word processor information is discussed later in Chapter 8, Advanced ReportWriter Features.

Data base Lookup by Key

To look up information from a data base file, four items are necessary. You need to know:

1. The name of the file from which the data will be retrieved.

2. The name of the category from which the data will be retrieved.

3. The name of the category which contains the search key.

4. The name of the ReportWriter field containing the data to match the search key.

To define a field for lookup from a data base file, follow these steps:

1. From the Define Field menu, for Option 3, `Source`, choose `Lookup by key`.

2. Select Option 4, `File`. A list of all of the usable files currently on the Desktop will be displayed. Highlight the data base file you want to use for lookups and press Return.

3. Use Option 5, `Category`, to choose the category from which you want data retrieved and placed into the report. A list of all of the categories in the chosen file will be displayed. Highlight the one you want and press Return.

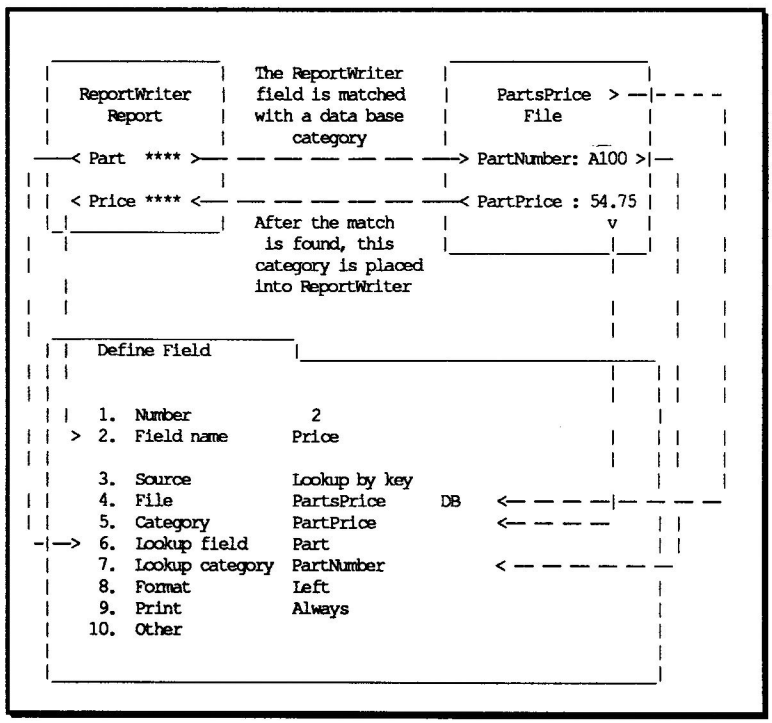
   Note: Option 5 contains the data to be printed, not the data to be searched.

4. Use Option 6, `Lookup field`, to select the ReportWriter field that will contain the data to be searched. Use the up and

down arrow keys to scroll through the list until the correct field name is found. Press Return to accept it.

5. Select Option 7, `Lookup category`, to select the category from the data base file chosen in Option 4 that contains the list of items to be searched. Use the arrow keys to select the category and press Return.

When an item found in the `Lookup category` (Option 7) matches the data in the `Lookup field` (Option 6), the information from `Category` (Option 5) will print in the report.



If no match is found, a default string will be printed in the report. You can select the Not Found text you want to use. See Chapter 10 for information on configuring the Not Found message.

Spreadsheet Lookup by Key

To look up information from a spreadsheet file, five items are necessary. You need to know:

1. The name of the file from which the data will be retrieved.
2. The column from which the data will be retrieved.
3. The column which contains the search key.
4. The name of the ReportWriter field containing the data to match with the search key.
5. Which spreadsheet rows you want to search. You may not want to search them all, since they might not all contain valid data.

To define a field for lookup from a spreadsheet file, follow these steps:

1. From the Define Field menu, set Option 3, `Source`, to `Lookup by key`.
2. Select Option 4, `File`. A list of all of the usable files currently on the Desktop will be displayed. Highlight the spreadsheet file you want to use for lookups and press Return.
3. Use Option 5, `Column`, to choose the field from which you want the data retrieved to be placed into the report. The screen will display the AppleWorks spreadsheet file you chose in Option 4. All of the cursor and screen movement keys in AppleWorks to move through the spreadsheet are available. Highlight the column containing the data to be retrieved by ReportWriter and press Return. The column's letter designation will be displayed on the Define Field menu for your reference.

   Note: This column contains the data to be printed, not the data to be searched.

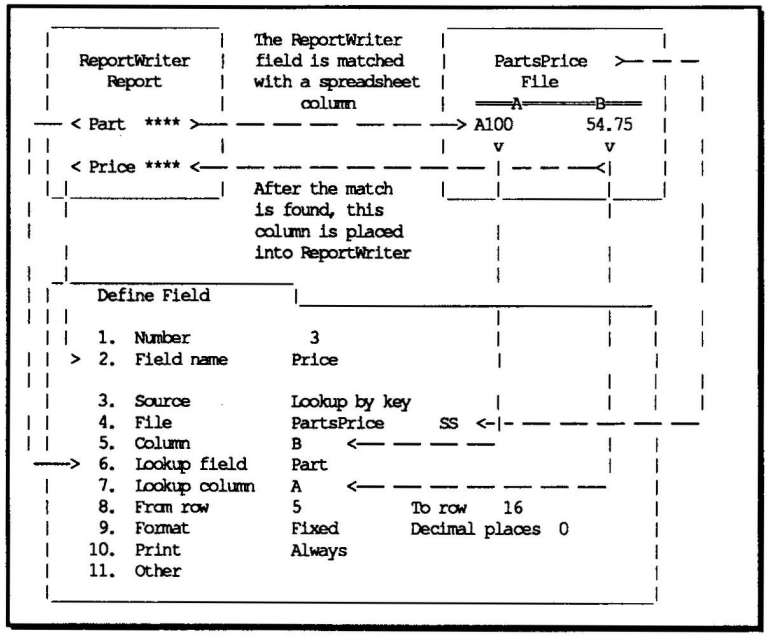
4. Use Option 6, `Lookup field`, to choose the ReportWriter field that will contain the data to be searched. Highlight the correct field name and press Return to accept it.

5. Select Option 7, `Lookup column`, to select the column from the spreadsheet file containing the list of items to be searched. The screen will display the AppleWorks spreadsheet file you chose in Option 4. All of the cursor and screen movement keys in AppleWorks are available. Highlight the column containing the data to be searched for a match and press Return. The column's designation letters will be displayed on the Define Field menu for your reference.

6. Select Option 8, `From row / To row`, to select the block of rows you want to be searched. The screen will display the AppleWorks spreadsheet file you chose in Option 4. Highlight the first row containing the data to be searched and press Return. The up and down arrows may now be used to select the last row of data to be searched. Press Return to accept the block. The row number designations will be displayed on the Define Field menu for your reference.

When an item found in the `Lookup column` (Option 7) matches the data in the `Lookup field` (Option 6), information from the `Column` (Option 5) will print into the report.

If no match is found, a default string will be printed into the report. You can select the Not Found text you want to use. See Chapter 10 for information on configuration.



If no match is found, a default string will be printed in the report. You can select the Not Found text you want to use. See Chapter 10 for information on configuration.

Lookup by record

Lookups by record establish a one to one correspondence between the record number of the master file and the record number of the lookup file. So, when record 1 of the master file has been read, all lookups by record will use record 1 of their respective file. When record 2 of the master file has been read, all lookups by record will use record 2 of their respective file. This will continue until all master file records have been read.

Lookups by record always use the record number of the master file as their base. It is not possible to specify the record number of another lookup file.

Since these lookups are based on record numbers, no key is necessary. The important point is that a consistent file structure be maintained by files used in lookups by record number.

This structure might be useful in instances where 30 data base categories (the maximum allowable with AppleWorks) are not enough. You can then create a second file, a lookup file, where each record of this lookup file is treated as a continuation of the records in the first file (the master file). When reporting from these two files using ReportWriter, the proper alignment between them will always be kept on the basis of their record number.

Maintaining proper alignment means that if you add a record in between records in the master file, a similar record must be added in the same place in the lookup file. Similarly, if you delete a record in the master file, the corresponding record in the lookup file must also be deleted. If you sort either file, the other file must also be sorted the same way.

Because of problems associated with keeping a consistent file structure, it may be more advantageous in the above situation to link files by a unique key. That solves the problem of having to restructure lookup files when records are added, deleted, or sorted. The primary advantage of doing lookups by record is that keys are not required.

Lookup by record can be used for consolidating spreadsheets. If you have several spreadsheets of similar structure, select one as a master and the others as lookups by record. If your spreadsheet files were expense analyses, you could have one spreadsheet file per department. It would be easy to report from all of them even if there were no common elements. Keys would not be necessary.

Data base Lookup by Record

To perform a lookup in a data base file using record numbers, follow these steps:

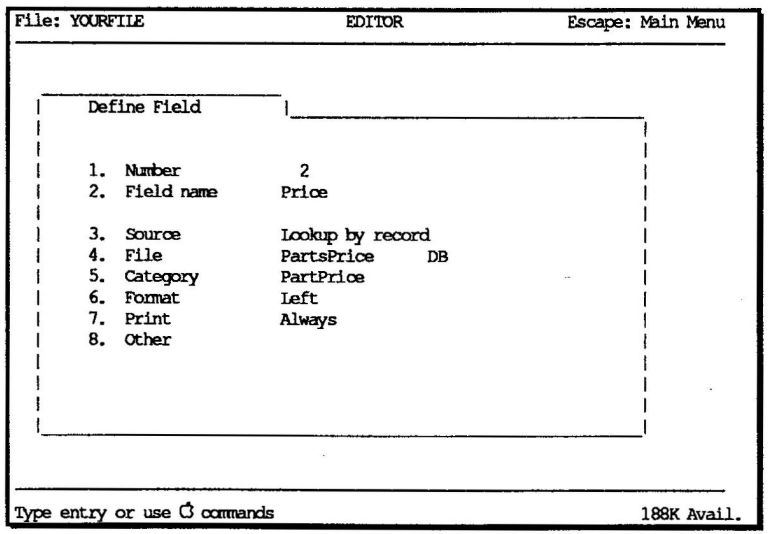
1. Select Option 3, `Source`, from the Define Field menu and choose `Lookup by record` as the source. Press Return to accept.

2. Select Option 4, `File`. A list of all of the usable files currently on the Desktop will be displayed. Highlight the file you want to use for data base lookups and press Return.

3. Select Option 5, `Category`. A list of all of the categories in this file will be displayed. This is the category that will be printed into the report. Highlight one and press Return.

This is all that needs to be done to do data base lookup by record. Lookups will be done from this file according to the current master file record number.

Your Define Field Menu will look like this:



Spreadsheet Lookup by Record

To perform a lookup in a spreadsheet file using record numbers, follow these steps:

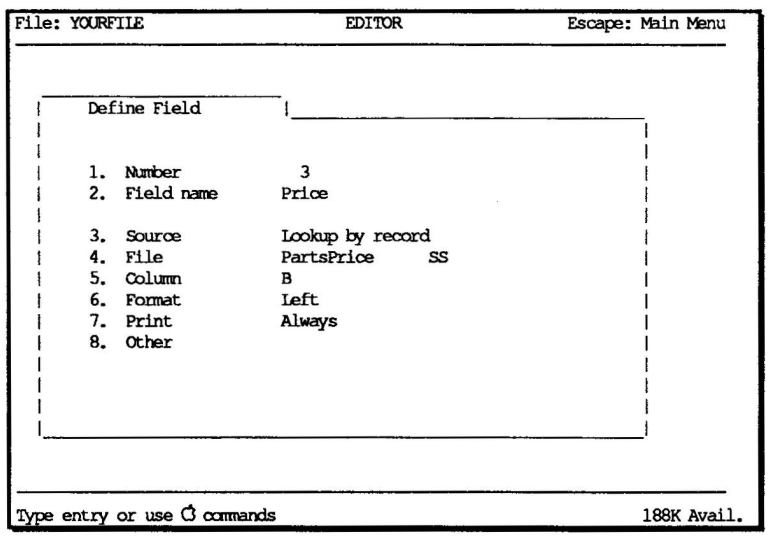
1. Select Option 3, `Source`, from the Define Field menu and highlight `Lookup by record`. Press Return to accept.

2. Select Option 4, `File`. A list of all of the usable files currently on the Desktop will be displayed. Choose the file you want to use for spreadsheet lookups.

3. Select Option 5, `Column`. The screen will display the AppleWorks spreadsheet file you chose in Option 4. Find the column containing the data to be retrieved and printed by ReportWriter. Highlight the proper column and press Return to accept it.

This is all that needs to be done to select a spreadsheet lookup by record. Lookups will be done from this file according to the current master file record number.

Your Define Field Menu will look like this:



Calculations

Calculations are another source of data for ReportWriter reports. Calculations use data from other ReportWriter fields and manipulate it according to the formula you enter. All of the standard mathematical operations are available, as well as many functions which operate on numbers, text, dates, or time.

Defining a calculation for a field involves typing in a formula. To enter a formula, follow these steps:

1. Select Option 3, `Source`, from the Define Field menu. Press Return to accept it.

2. Select Option 4, `Calculation`. Press Return and you will jump back to the Define Field menu.

3. Select Option 5, `Formula`. Press Return and a formula entry card will appear.

4. Type in your formula.

The Formula Entry Card

There are several special features of the formula entry card that make entering formulas a simple matter.

1. After typing in 50 characters the cursor automatically jumps to the second line. There is no word wrap; the text simply splits at 50 characters and the formula continues on the next line. You can insert or delete anywhere in the formula, and Control-Y will delete from the cursor all the way to the end of the formula.

2. When a formula splits into more than one line, the up and down arrows allow you to move between them. There must be a character immediately below the cursor for the down arrow to function. This prevents the cursor from going beyond the end of the formula.

3. ⌘-Left Arrow and ⌘-Right Arrow will move the cursor to the beginning or end of the current line.

4. ⌘-Up Arrow will move the cursor to the start of the formula.

5. ⌘-Down Arrow will move the cursor to the end of the formula.

6. ⌘-F lists the currently defined ReportWriter fields. Highlight a field name and press Return to insert it into your formula.

7. ⌘-L will list all of the functions. Highlight a function and press Return to insert it into your formula.

8. ⌘-U while entering a formula, restores it to how it was.

Entering Formulas

Formulas can manipulate numbers, text, or data from other ReportWriter fields.

Fields can contain either numbers or text. To enter a field, simply use its name. For example,

```
Field1 + Field2
```

If Field1 contained 5 and Field2 contained 6, this formula would evaluate to 11. If Field1 contained 5 and Field2 contained the text "Dan Smith", it would evaluate to 5, since text is treated as zero.

As an example of text manipulation, there is a function called @CONCAT which is used to concatenate text. Concatenate means to join the text items together in a continuous string. As an example,

```
@CONCAT(Field1,Field2)
```

If Field1 contained "Dan" and Field2 contained "Smith", this formula would evaluate to "DanSmith".

Literal text is anything in quotation marks (" "). ReportWriter will also accept text enclosed in apostrophes (' ') and colons (: :). For example,

```
"Dan Smith"
'Dan Smith'
:Dan Smith:
```

are all literal text.

If you want to use an apostrophe within literal text, enclose the text with quotation marks or colons, like this:

```
"Smith's House"
:Smith's House:
```

`'Smith's House'` would not work because ReportWriter would think the apostrophe in `Smith's` was an end of text marker.

As an example of a function using literal text, consider the @CONCAT example from above, with a few changes.

```
@CONCAT(Field1," ",Field2)
```

If Field1 contained `"Dan"` and Field2 contained `"Smith"` they will be placed together with a space in between them, to form `"Dan Smith"`. Also,

```
@CONCAT(:Mr. :,Field1," ",Field2)
```

would evaluate to "Mr. Dan Smith".

Operators

Standard mathematical operators are available. They work with numbers only. They are:

```
+   addition
-   subtraction
*   multiplication
/   division
```

Parentheses are used to order operations. Any operations inside parentheses will be performed first.

Any operations not enclosed by parentheses will be evaluated from left to right. There is no hierarchy of operations. So,

```
2 + 3 * 5
```

will evaluate to 25. The 2 will be added to the 3 for an intermediate result of 5 which will be multiplied by 5 to get 25. If you want to change this order, two options are available. First, switch the order of the formula, like this:

```
3 * 5 + 2
```

Or use parentheses, like this:

```
2 + (3 * 5)
```

Either way, the result will be 17.

Functions

Here are a couple of general rules about functions.

1. Functions always begin with the "@" symbol. The "@" tells ReportWriter a function is desired.

2. Functions must always begin with an open parenthesis immediately after the function name, and must end with a close parenthesis. So, functions always have the same form:

```
@FUNCTION(operation goes here)
```

For a list of all of the functions and their uses, see Chapter 9, Function Reference.

Reset

ReportWriter has five functions that are used to summarize blocks or records.

The Function Reference refers to them as range functions. Range simply means they operate over a block of records. These five functions allow you to obtain the sum of a range, the count of items in the range, the average of the range, and the maximum or minimum value of a range.

You can decide when these range functions are to be reset to zero. In some instances you will want them to be reset to zero every time they print. This is useful for obtaining totals and subtotals in a range.

There may be times when you require running subtotals. That is, you need the total as it stands after a range is run, then you need that amount plus the amount of the new range. In that case you will want to reset the range function to zero when a certain field changes. The Reset option allows you to decide when a range function is reset to zero.

This option is only valid when used with range functions. Non-range functions, by their nature, do not require being reset to zero.

To change the reset option,

1. Select Option 7, `Reset`, from the Define Field menu. Press Return and the Reset menu card will display.

2. If you want the field to reset to zero after every printing, Highlight Option 1, `After printing`, and press Return to accept it.

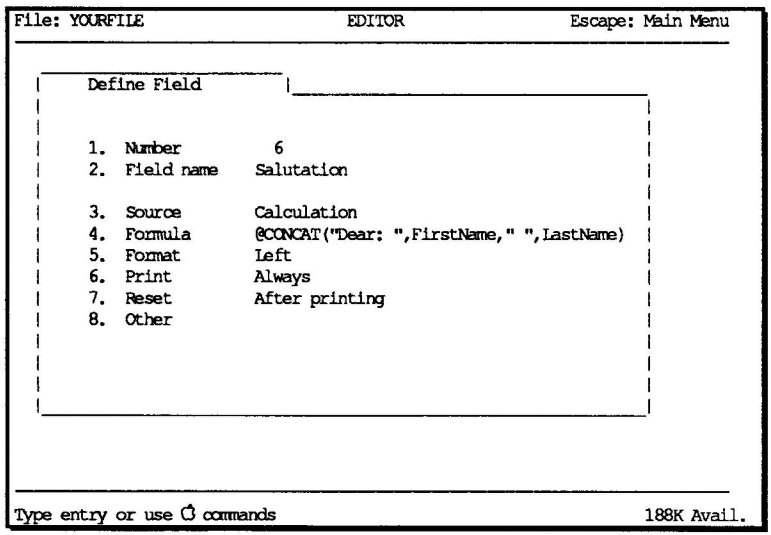
3. If you want to reset only when a certain field changes, select Option 2, `When field name changes`, from the Reset Menu.

4. The Select Fields menu card will display. This is a list of all of the currently defined fields. Select the field used to control resetting from this list and press Return.

5. If you want to never reset, select the `Never` option. This is useful when every instance of this field will be a running subtotal.

Notice that your reset selection is displayed in the Define Field menu.

A typical Define Field menu for calculations looks similar to this.



For more information regarding totals and subtotals, see Chapter 8, Advanced ReportWriter Features.

Keyboard Entry

The last source of data in a report is direct keyboard entry. Through the Define Field menu you tell ReportWriter it needs to get data directly from the keyboard. ReportWriter will ask for this information as the report is being generated. ReportWriter will wait while you enter the information.

Keyboard data can go into any section of the report. For the title, header, footer, and closing sections, the data need be entered only once.

If you choose to use keyboard entry in the report body, you will need to enter the keyboard data for every record in the report.

To define a keyboard entry, follow these steps:

1. Highlight Option 3, `Source`, from the Define Field menu and press Return.

2. Select Option 5, `Keyboard`, from the Source menu. Press Return to accept it.

Report Layout Summary

All of your field definitions may be printed out. You will receive a summary of some general information and then a description of each field. This makes auditing a report layout much simpler.

1. Press ⌘-P while in the editor.

2. Make sure your printer is switched on and on-line. Select the proper printer from the list and press Return.

You may press Escape at any time while the Report Layout Summary is printing to stop the printout.

Chapter 7

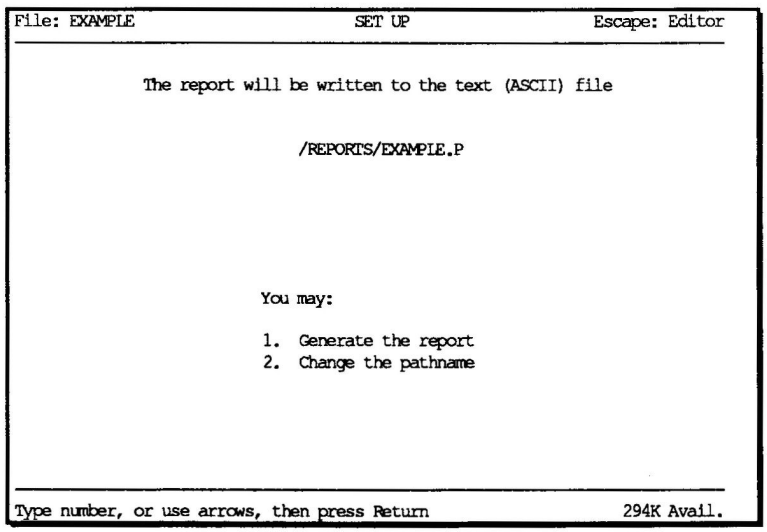
Generating and Printing a Report

Report Generation

After the report has been laid out and all the fields have been defined, you can generate the report. Generating the report is the process of retrieving the data from the AppleWorks files, doing the necessary calculations, and sending the formatted report to a file on disk. Reports may not be generated directly to the printer.

To generate the report, press ⌘-G. The screen will clear and the message SET UP will appear at the top of the screen. ReportWriter goes through some internal set up procedures and scans the report format for inconsistencies and errors that would make the report impossible to generate. If an error is found a message explaining the problem will appear at the bottom of the screen. Should this occur, press the Space bar to return to the editor and correct the problem. Press ⌘-G again to restart the generation process.

If no errors are found the following screen will appear:



The message at the top of the screen tells you which file the report will be saved in. The default name of the file is always the report format file name with a ".P" appended to it. The default pathname can be configured. See Chapter 10 for details on configuration.

If you want to change the file name or pathname, select Option 2, `Change` the pathname. Type in the pathname and press Return. You can also press ⌘-Return to set the pathname to the disk in the current AppleWorks disk drive.

Select Option 1 to continue generating the report. If the file name you entered already exits, you will be warned. You have the choice of overwriting it or selecting another file name. If you press ⌘-Return while `Generate the report` is highlighted, the report will be generated with no questions asked.

When the report actually begins to generate, a thermometer will appear on the screen. This thermometer indicates the report's progress. When the thermometer is full, the report is completed.

If you defined any fields that require keyboard input, you will be prompted, while the report is generating, to type in the information. The field name will be displayed as a reminder of what information is required. You will be given the choice of whether or not you want to type in different information when this field is processed again. Answer `No` if the same data can be used again for the next record.

Report Generation Rules

1. The master file must be on the Desktop.
2. Any word processor files used for lookup must be on the Desktop.
3. Any posting files must be on the Desktop.
4. Data base or spreadsheet lookup files must be on the Desktop. AppleWorks v3.0 allows you to have the files on disk as well, but putting them on the Desktop will greatly speed up the reporting process. Keep them in memory if you can.

Printing a Report

After your report is generated you will be able to print it.

You do not have to print the report now. Since the report is stored on disk, you will be able to print it later. Just press Escape to return to the editor if you do not want to print the report now.

You have your choice of viewing the report on the screen or sending it to the printer. If you want to view the report on the screen, select the last choice in the options list, `Screen`. The option number will vary depending on how many printers you have defined in AppleWorks. You may have to wait several seconds as the report is loaded from the disk.

Text File Viewer

Your report will now appear on the screen. The disk it came from is shown in the upper left corner, and the file name is at the top center. The text file viewer allows you to scroll through your report, both vertically and horizontally.

There is no cursor, because there are no editing facilities in the viewer. If you want to make changes, you must make them in the editor and generate the report again. If your report does not extend beyond column 77, you could load it into the AppleWorks word processor for editing.

You may see a caret (^) in the left margin in between two lines of text. This signifies that two or more blank lines come in between the printed lines. This is to make the viewing process easier. If you want to view the actual spaces between printed lines, change this option in the Configuration section. See Chapter 10 for details on configuration.

To scroll through the report, use the same keys that control the cursor in the editor. They are listed on page 164.

Press Escape to leave the text file viewer.

Printing to the Printer

Select the printer from the options shown. These are all of the printers you have defined in AppleWorks. After selecting the printer, you can choose how many copies of the report you want to print. Press Return to accept the default of one, and the report will start to print. When the printing is finished, you will return to the editor.

To pause while printing, press the Space bar. Press it again to resume printing. If you want to cancel printing completely, press Escape. You will return to the editor.

Printing Multiple Files

ReportWriter text files do not have to be printed immediately. You may want to wait and print several at a time. To print several files at once, you need to select Option 3, `Print text (ASCII) files`, from the ReportWriter main menu. Press Escape to get to the main menu from the editor.

You will need to select the disk drive that contains the text files. If they are on the current drive, select Option 1, `The current disk`. If necessary, select Option 2, `A different disk`.

Once the disk is selected, a menu of all of the text files on that disk will be displayed. Choose any one of them by pressing Return. To choose more than one, highlight the files and press the Right Arrow, just like you normally do in AppleWorks to load several files at a time. After you have chosen all of the files you want to

print, press Return. A screen will be displayed showing a choice of printers. Select a printer, or choose the screen.

By the way, the files you select need not have been generated by ReportWriter. Any text file can be displayed or printed.

After selecting the appropriate printer, you will be prompted to select the print size and lines per inch. When printing from a list of text files, ReportWriter has no way of knowing the size and print parameters of the report. You will have to manually select them, so it's a good idea to know these ahead of time.

Next, you'll be asked whether to pause after each report has printed. If you choose `No`, printing will continue until all of the files are printed. If you choose `Yes`, the printing will pause until you restart it. This allows you to reset the print parameters for the next file.

Note: While printing from a list of files, you can only print each file one time. There is no prompt for multiple copies.

Chapter 8

Advanced ReportWriter Features

This chapter focuses on several other features not found in the previous chapters. Among these features are subtotals, posting, and using word processor files in a ReportWriter report.

Totals and Subtotals

Totals and subtotals are obtained with the @SUM function. @SUM is very easy to use. At the formula entry card, type in

```
@SUM(FieldName)
```

where FieldName is the name of the field you would like to total.

If you are totaling a field of quantities, and the field name is Quantity, the formula would be,

```
@SUM(Quantity)
```

Every time the field Quantity was processed, that value would be added to the previous value. The result is a running total.

@SUM will accumulate values until it is reset to zero. Use the Reset option that appears on the Define Field menu for calculated fields to restore it to zero.

You must also tell ReportWriter when to print the totals and subtotals. For example, print every record, or every time the field changes. You tell ReportWriter when to print with the Print option that appears on the Define Field menu. The @SUM command always prints in the footer or closing section.

Subtotals are defined in the subtotal section, the footer, or the closing of a report. You can use @SUM in the body section, but the line spacing will be unpredictable.

Here are some examples using use the @SUM function to do subtotaling. The @AVG, @COUNT, @RMIN, and @RMAX, while

providing different values, follow the same formatting, printing, and resetting rules as the @SUM.

As an example, consider a small data base file containing products, parts, and quantities. Each product is made of several different parts. The first several entries in the file look like this:

```
Product       Part      Quantity
================================
P1            A100      5
P1            A200      10
P1            A300      5
P2            A100      4
P2            B100      8
```

Your report layout will look like this:

```
Product     Part      Quantity
_______     _______   ________  H
*******     *******     *****   B
                        *****   S   --> @SUM(Quantity)
```

Product, Part and Quantity are master file retrievals. The second field under the Quantity header is a calculation, @SUM(Quantity). This calculation was specified to always print and always reset. Remember too, that Quantity and @SUM(Quantity) must be specified as numeric fields. Note that the @SUM command is not in the body of the report.

Here's how it prints out:

```
Product      Part       Quantity
-------      -------    --------
P1           A100              5
                               5
P1           A200             10
                              10
P1           A300              5
                               5
P2           A100              4
                               4
P2           B100              8
                               8
```

Notice the total of @SUM(Quantity) printed every time with the Quantity most recently retrieved. That happened because we told the calculation to always print and always reset. Each time the @SUM(Quantity) printed, it reset itself back to zero.

Let's change the report and instruct @SUM(Quantity) to never reset. Generating and printing the new report would give this result:

```
Product      Part       Quantity
-------      -------    --------
P1           A100              5
                               5
P1           A200             10
                              15
P1           A300              5
                              20
P2           A100              4
                              24
P2           B100              8
                              32
```

This way, after each Quantity prints, you have a running subtotal, and the report is now much more useful.

Now we'll change the report to show subtotals only when all of the parts in each category have printed. We've changed the Print option from Always to When the field name changes, and selected

Product as the field name to base the changes on. Generating and printing the report with these changes would give this result:

```
Product      Part         Quantity
-------      -------      --------
P1           A100                5
P1           A200               10
P1           A300                5
                                20
P2           A100                4
P2           B100                8
                                32
```

Now the subtotal prints only when the Product field changes. The subtotal is still a running subtotal of all of the quantities.

One more change we'll make is to start the subtotal from zero when Product changes. This way we'll have a subtotal for each product, rather than a running subtotal of all of the products. We will instruct ReportWriter to reset the @SUM(Quantity) formula each time Product changes. Generating and printing the new report would give this result:

```
Product      Part         Quantity
-------      -------      --------
P1           A100                5
P1           A200               10
P1           A300                5
                                20
P2           A100                4
P2           B100                8
                                12
```

To underscore the Quantity column before the subtotal prints, set up another calculated field just above the @SUM(Quantity). This will be a text field. Use @TEXT("----") as the formula and format it as right justified. Set the Print option to `When the field name changes`. Use Product as the field name. The report layout will now look like this:

```
Product      Part        Quantity
-------      -------     --------  H
*******      *******        *****  B
                            *****      --> @TEXT("-----")
                            *****  S   --> @SUM(Quantity)
```

Generating and printing this report will give the following result.

```
Product      Part        Quantity
-------      -------     --------
P1           A100               5
P1           A200              10
P1           A300               5
                            -----
                               20
P2           A100               4
P2           B100               8
                            -----
                               12
```

Similarly, if you want a blank line below the subtotal, set up another calculated field with the @TEXT command. Place it below the @SUM(Quantity) calculation. Use the same options as the dashed line from above. The report layout will look like this:

```
Product      Part        Quantity
-------      -------     --------  H
*******      *******        *****  B
                            *****      --> @TEXT("-----")
                            *****      --> @SUM(Quantity)
                            *****  S   --> @TEXT(" ")
```

And it will print like this:

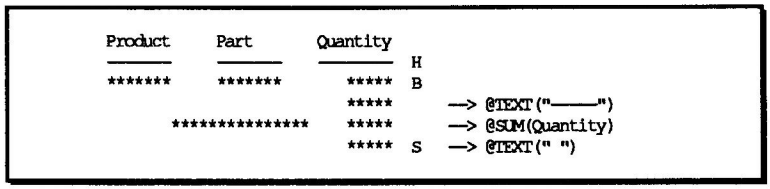
```
Product      Part         Quantity
-------      -------      --------
P1           A100                5
P1           A200               10
P1           A300                5
                               -----
                                  20

P2           A100                4
P2           B100                8
                               -----
                                  12
```

You may put labels into the subtotal section. They will only print when a subtotal prints on that line. Here's how it looks in the editor:

```
Product      Part         Quantity
-------      -------      --------  H
*******      *******       *****    B
                           *****        --> @TEXT("-------")
             Subtotal...   *****        --> @SUM(Quantity)
                           *****    S   --> @TEXT(" ")
```

The subtotal and its label will always print together. But be careful, because if you have two or more subtotal calculations on the same line, both labels will print no matter which subtotal changes. You can make sure that a particular label only prints with a particular subtotal. Do this by using a calculated field that contains the label. Set the Print option on the label field to the same value as the Print option on the @SUM field. That way they will both print whenever either one prints.

Another advantage to using calculation fields for labeling subtotals is that you can use other field data in the label. As an example:



The field to the left of the @SUM contains the formula:

```
@CONCAT("Subtotal for ",Product)
```

where Product is the name of a field. This is how the printout looks:

```
Product      Part        Quantity
-------      -------     --------
P1           A100              5
P1           A200             10
P1           A300              5
                              -----
        Subtotal for P1       20

P2           A100              4
P2           B100              8
                              -----
        Subtotal for P2       12
```

To get a subtotal or total on each page, place the @SUM function in the footer. It will always print in the footer, no matter how the print option is set. You can also use the reset function After printing. Should you choose Never as the Reset option, you will have running subtotals in the footer. With @SUM in the footer, you cannot reset it when a field name changes.

To get a total for the whole report, place the @SUM function in the closing section. It will always print, regardless of the Print option. Since the report is finished by the time the closing prints, Reset has no effect.

Using Word Processor Files

Paragraphs from AppleWorks word processor files may be retrieved and printed in your report. This is done with the @AWP function.

> *Note: To use @AWP, your word processor file must be on the Desktop. Unlike data base and spreadsheet files, ReportWriter cannot generate reports with word processor files in the disk drive. They must be in memory.*

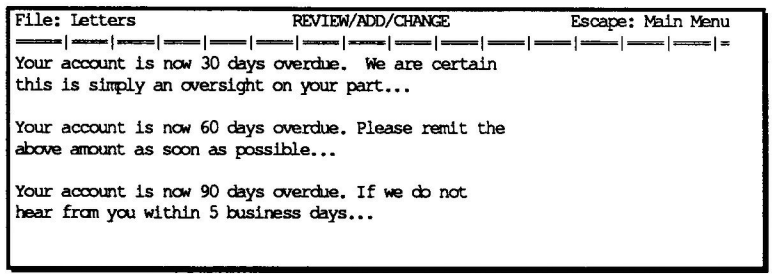
The @AWP function has this form:

```
@AWP(Filename, paragraph number)
```

You must give the function the name of your word processor file. It can be a literal name, like "PastDueLetters" or it can be provided from a ReportWriter field.

You must also give the function a paragraph number. A paragraph is any text that begins and ends with a Return. Blank lines do not count as paragraphs. The paragraph number may be passed to the @AWP function as a number, but much greater flexibility may be obtained by using a field. This makes it possible to print a different paragraph when other data changes.

To help illustrate counting paragraphs, look at the three paragraphs in the following word processor file. Notice that each paragraph is separated by a blank line.



Let's define a field with this calculation:

```
@AWP("Letters",Field1)
```

If Field1 contained 1, the 30 day overdue notice would be printed. If Field1 contained 3, the 90 day notice would be printed.

When using @AWP, all of the paragraph will be placed in your report, regardless of the length of the field assigned to paragraph. Paragraphs always print in their entirety.

Also, ReportWriter makes no effort to rearrange the paragraph to fit within your ReportWriter margin settings. If there is not enough room, the ends of each line will be cut off. You can view the report before printing to make sure the paragraphs print properly.

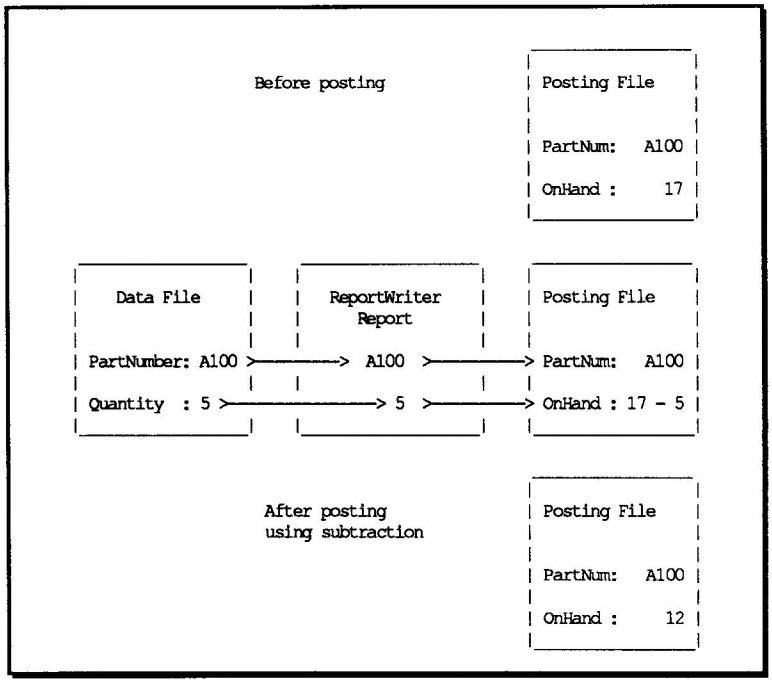
There is an example of using @AWP in the sample file StudentLetters on the TimeOut ReportWriter disk. Take a look at it for more information on the @AWP function. Also, see page 144 in the Function Reference.

Posting

Posting allows you to take information from a ReportWriter field and place it into a data base or spreadsheet file.

Posting is similar to the concept of lookup files. With lookups, AppleWorks data files are the source of the data. This data is retrieved by ReportWriter from the data file. In the case of posting, results generated by ReportWriter are placed back into a data file. The power of posting is its ability to manipulate the data already in the file being posted to.

Say you have a file that contains inventory. You can generate a sales report that automatically posts the sales data in the inventory file, subtracting the units sold from the inventory on hand. It works like this:



Note: The files being posted into must be on the Desktop. You cannot post into files on the disk drive. After the report is completed you will need to save the posted files back on disk.

You may post to a file by matching a key, or by record number. When posting by key, you specify a ReportWriter field to be used as a matching key. The posting file is searched on the category or column you specify. If a match is found, the data from the field containing the posting information is placed into the category. If the match is not found, you have the option of creating a new record for the posted data, or not posting this record.

You may also post by record number. Information from the current record of the master file is placed into the corresponding record of the posting file. If a matching record is not found in the posting file, a new one may be created.

Setting up a Posting Definition

Here are the steps for setting up a posting definition:

1. From the Define Field menu, highlight the last option, `Other`. Press Return to accept it. The Other menu will appear.

2. Notice Option 2, `Post to a file`. If the word `Yes` appears to the right of it, a posting definition has already been set up. If you see the word `No`, a posting definition has not been created yet. Select Option 2, `Post to a file`. Press Return to accept it.

3. At the bottom of the screen you will see the prompt, `Change the value?` If a posting definition has been set up, answer `No` to this prompt. To enter a new posting definition, answer `Yes`.

4. The Post to a file menu will now be displayed. Highlight Option 1, `File`, and press Return.

5. A list of all of the usable files on the Desktop is displayed. Each will be followed by an abbreviation, DB means data base, and SS means spreadsheet. Select the file to post into and press Return.

6. If the posting file you chose was a data base file, Option 2 will read `To category`. If you chose a spreadsheet file, Option 2 will read `To column`. Select Option 2 in either case.

   If a data base file was chosen, a list of all of the categories in the file will be displayed. Highlight the category you want to post into and press Return.

   In the case of a spreadsheet file, the spreadsheet will appear on the screen. Highlight the column to post the data into and press Return. The column's letter coordinate will be displayed on the Post to a file menu for future reference.

7. Now select Option 3, `Post by`, and press Return. Answer whether you want to post by key or by record number. Highlight your choice and press Return.

If you chose to post by record, you will skip the next two steps. They only pertain to posting by key.

8. Choose a ReportWriter field to match a field in your posting file. A list of all of the defined fields will appear. Select the correct field and press Return.

   When posting by key, you need to search through a field in the posting file until the data from the ReportWriter field chosen above is matched.

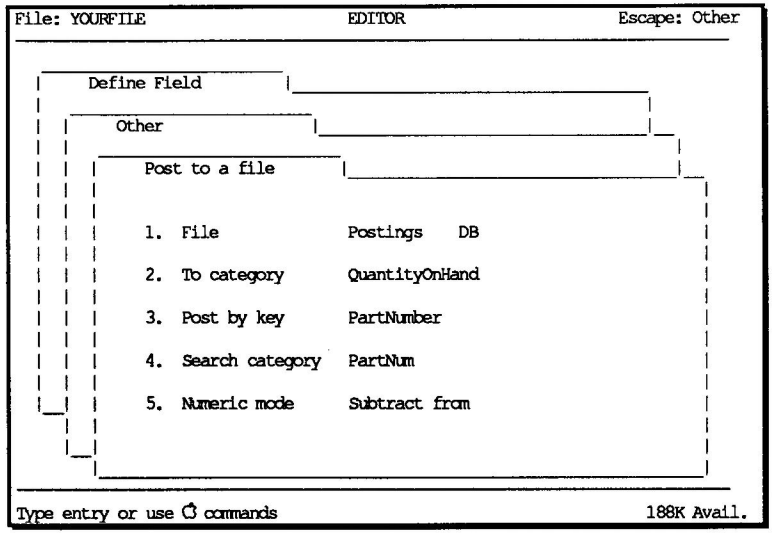
9. Select Option 3. If you chose to post to a data base file, Option 3 will read `Search category`. For spreadsheet files, it will read `Search column`.

   If you are posting to a data base file, a list of all of the categories in the file will be displayed. Highlight the category to match the ReportWriter field chosen in step 8, above, and press Return. The category name you chose will display on the Post to file menu.

   If you are posting to a spreadsheet file, the screen will display the AppleWorks spreadsheet file you chose. Highlight the column you want to match with the ReportWriter field chosen in step 8, above, and press Return. That column's letter coordinate will be displayed on the Post to a file menu.

10. If the current field is numeric, one more option will be displayed called Numeric mode. It will be either Option 4 or 5. Select it and press Return. You will be prompted to choose from `Overwrite`, `Add to`, or `Subtract from`. Select one of these modes and press Return.

Here is a sample Post to file menu with all the definitions completed:



When posting from a text field, any data in the file being posted to will be replaced by the new data. There is no option to add or subtract text data.

If the posting field is numeric, you have your choice of completely replacing the data in the posting file, adding to it, or subtracting from it. When the report is generated, you could subtract orders taken from quantities on hand in an inventory file.

> *Note: You can post into files which are also being used by ReportWriter for data retrieval. But be careful. If you post to a file being used for data retrieval, do not change lookup keys that ReportWriter will need later in the generation process. Should this happen, you may not get the results you want.*

To save the posted files back to disk, just use the AppleWorks save command. If you forget, AppleWorks will warn you that changes were made to these files when you quit AppleWorks.

> *Some words of caution concerning posting: Always post to backup copies of your data files, especially the first time you generate your report. Mistakes in your calculations could destroy your data. Also, review the files used for posting before*

re-saving them back to the disk. Make sure they are consistent with what you expected. Only when you are certain the data is correct should you save the posting files back to disk.

Record Selection Rules

ReportWriter allows you to select which records you want printed in your report. The concept is very similar to the Open-Apple-R record selection rules in the AppleWorks data base. During report generation, the current record will be checked against your selection criteria. If the record passes, it will be printed. Otherwise, it will be ignored.

The method of selecting records is a little different in ReportWriter. Record selection rules are made with calculated fields in the work area section by a special function called @RULES (see Chapter 9, Function Reference, for the syntax).

The Print, Reset, Format, and Field type options have no meaning when used with the @RULES function. @RULES does not return a result; it allows or disallows the record to be reported.

The @RULES function works very simply. If the comparison evaluates as true, the record prints. If the comparison evaluates as false, the record does not print. As an example, the following function is placed in a calculated field in the work area:

```
@RULES(FirstName="Dan")
```

Only records where the field FirstName contained "Dan" would print.

Logical operators are available as well. Look at this example:

```
@RULES((FirstName="Dan") ? (FirstName="Karl"))
```

The "?" is the logical OR operator. Only records where the field named FirstName contained either "Dan" or "Karl" would print. When using the logical operators "?" (OR) or "&" (AND), the

expressions on both sides of the operator must be enclosed in parentheses.

Mathematical operators may be used inside of the @RULES function. For example:

```
@RULES(ProductA + ProductB > 500)
```

Only records where the amount in ProductA added to the amount in ProductB is greater than 500 would be printed.

Other functions may be used inside of the @RULES function (this is called nesting). As an example, the AppleWorks data base has a record selection rule called begins with. There is no similar rule in ReportWriter, but, it can be emulated by the following nested function:

```
@RULES(@LEFT(Name,1) = "D")
```

All of the records where Name began with the letter D would print.

Although you can nest other functions inside the @RULES function, you may not nest the @RULES function inside of any other function.

If more than one @RULES statement is present in the work area, the results of each one will be logically ORed. The result is that if any one of the @RULES statements is true, the record will print.

There are no "<=" (less than or equal to sign) or ">=" (greater than or equal to sign) operators in ReportWriter. To emulate them, each possibility needs to be tested. As an example, instead of IF Field1 <= 100 to select the record, you would use:

```
@RULES((Field1 < 100) ? (Field1 = 100))
```

Or, you could use two @RULES statements,

```
@RULES(Field1 < 100)
@RULES(Field1 = 100)
```

Both of these methods will have the same result, since only one @RULES function need evaluate as true.

Sorting

ReportWriter does not have sorting capabilities. Any sorting you need to do can be done easily in AppleWorks. Sorting can greatly increase the power of a ReportWriter report, so you should consider the effect sorting your data files will have on report generation.

The following example illustrates the sorting of a data base file, however, the sorting process for spreadsheet files is exactly the same. So, what applies to the data base is also true for the spreadsheet.

Suppose you had a list of names, cities, and states, along with the amount of money you owed to each person. The list (a short one, we hope!) might look like this in the AppleWorks data base:

Name	City	State	Amount
Dan	Long Beach	CA	100.25
Betsy	La Jolla	CA	55.35
Karl	Redlands	CA	22.75
Heidi	Redlands	CA	98.65
James	Fairbanks	AK	158.85
Linda	Anchorage	AK	129.45
Maria	Fairbanks	AK	211.25
Robin	Yuma	AZ	175.75
John	Phoenix	AZ	136.15
Sara	Tucson	AZ	205.05

You want to use ReportWriter to report how much money you owe in each state. You want the states listed in alphabetical order in your report. Also, you want the city names in each state alphabetized, and the eventual recipients of your money alphabetized in each city.

To do this, the first step is to correctly sort the data base. We need to do several sorts, starting with the minor category first and

working progressively up toward the major category. For our purposes, the major category is State, since we said we wanted to report by state. So, we sort by State last. Next, we want each City within the state, so city is sorted next to last. Finally, we want Names sorted within each city. This makes Name the minor category, so we must sort by Name first.

Let's start the sorting process. After sorting by name, the list will look like this:

Name	City	State	Amount
Betsy	La Jolla	CA	55.35
Dan	Long Beach	CA	100.25
Heidi	Redlands	CA	98.65
James	Fairbanks	AK	158.85
John	Phoenix	AZ	136.15
Karl	Redlands	CA	22.75
Linda	Anchorage	AK	129.45
Maria	Fairbanks	AK	211.25
Robin	Yuma	AZ	175.75
Sara	Tucson	AZ	205.05

Next, we sort by City, and the list now looks like this:

Name	City	State	Amount
Linda	Anchorage	AK	129.45
James	Fairbanks	AK	158.85
Maria	Fairbanks	AK	211.25
Betsy	La Jolla	CA	55.35
Dan	Long Beach	CA	100.25
John	Phoenix	AZ	136.15
Heidi	Redlands	CA	98.65
Karl	Redlands	CA	22.75
Sara	Tucson	AZ	205.05
Robin	Yuma	AZ	175.75

Now, we do the final sort by State:

Name	City	State	Amount
Linda	Anchorage	AK	129.45
James	Fairbanks	AK	158.85
Maria	Fairbanks	AK	211.25
John	Phoenix	AZ	136.15
Sara	Tucson	AZ	205.05
Robin	Yuma	AZ	175.75
Betsy	La Jolla	CA	55.35
Dan	Long Beach	CA	100.25
Heidi	Redlands	CA	98.65
Karl	Redlands	CA	22.75

We are ready to generate the report with subtotals by State. We will print the field State only when it changes, eliminating the redundant State name. The finished report prints out like this:

State	City	Name	Amount
AK	Anchorage	Linda	129.45
	Fairbanks	James	158.85
	Fairbanks	Maria	211.25
			499.55
AZ	Phoenix	John	136.15
	Tucson	Sara	205.05
	Yuma	Robin	175.75
			516.95
CA	La Jolla	Betsy	55.35
	Long Beach	Dan	100.25
	Redlands	Heidi	98.65
	Redlands	Karl	22.75
			277.00

The important point to remember is that a report such as this could not be made without correct sort order.

Other Activities

The Other Activities option is the last option in the Main Menu. Selecting it will display the Other activities menu.

Clearing Desktop memory

Once a ReportWriter format file is in memory, you can return to ReportWriter from AppleWorks without having to reload it. ReportWriter keeps the format file in AppleWorks Desktop memory.

You can remove the format file from memory with the `Clear Desktop memory` option. You might need to do this to increase the Desktop space. Selecting this option returns the memory back to AppleWorks. If you have changed the format file since loading it, you will be given the chance to save it.

Rename Current Report Format

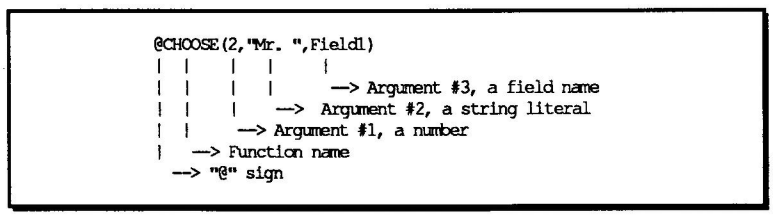
This allows you to give a new name to the format file loaded in ReportWriter. When you save it to disk, it will be saved with the new name. This option is useful for making two identical reports, but with slight differences. This saves you from having to write two almost identical reports from scratch. This option has the same effect as the Open-Apple-N command in AppleWorks.

Chapter 9

Function Reference

ReportWriter Functions

ReportWriter provides many functions for manipulating data. Functions are used within a formula and are always preceded by an "@". The function name is always followed by an open parenthesis. After the open parenthesis there is always at least one parameter, called an argument. It can be a number, text, or a field name. If more than one argument is used, they must be separated by commas. The type of argument you use depends on the function. The arguments are always followed by a close parenthesis. Here is an example:



Functions may be nested. That means functions may be used inside of other functions. There is no limit to the depth of function nesting, other than 127 characters is the most you can have in a formula. An example of nested functions looks like this.

```
@CHOOSE(Field1,"One","Two",@LEFT(@UPPER(Field3),4),"Four")
```

There are four classes of functions: those that work with numbers, those that work with text, those that can work with either numbers or text, and those that work with dates. These functions are classified as numeric, text, special and date. Whether a function returns a number or text is very important. If you give a function text when it expects a number, the result is unpredictable. If your report data seems incorrect, check to see that your functions are receiving the right type of data.

Numeric Range Functions

The first five functions described here work over ranges of numbers. They summarize statistical information for your report.

The following examples of range functions all use the same data set, a very small report containing three records. There is only one field, named Field1. It looks like this:

```
Field1
------
     4
     5
     6
```

Refer back to this original data set to observe the changes made by the functions.

@Avg (NumericField)

Returns the average value of a range. It adds all of the values in the range and divides by the count of values in the range. In our example,

```
@Avg(Field1)
```

would return 5 in the above report. That is, (4+5+6)/3 = 5.

@Count (Field)

Returns the number of records reported for this field. In our example,

```
@Count(Field1)
```

would return 3 in the above report, since a total of 3 items were reported.

@RMAX (NumericField)

Returns the largest (maximum) number reported in a numeric field. In our example,

```
@RMAX(Field1)
```

would return 6 in the above report, since 6 is the largest number.

@RMIN (NumericField)

Returns the smallest (minimum) number reported in a numeric field. In our example,

```
@RMIN(Field1)
```

would return 4 in the above report, since 4 is the smallest number.

@SUM (NumericField)

Returns the sum of all of the numbers reported in a field. In our example,

```
@SUM(Field1)
```

would return 15 in the above report, that is 4+5+6.

Numeric Non-Range Functions

The following functions all return numbers as results, and require numbers as their argument(s). They do not work in ranges.

@ABS (Num)

Returns the absolute value of the argument. As an example,

```
@ABS(Field1)
```

would return 20, whether Field1 contained 20 or -20.

@INT (Num)

Returns the integer part of the argument. As an example,

```
@INT(Field1)
```

would return 8 whether Field1 contained 8, 8.4, or 8.9.

@INV (Num)

Returns Num with the opposite sign. As an example,

```
@INV(Field1)
```

would return -2 if Field1 contained a 2, or 2 if Field1 contained a -2.

@FRAC (Num)

Returns the fractional part of the argument. As an example,

```
@FRAC(Field1)
```

would return .75 if Field1 contained 2.75.

@MAX (Num1,Num2)

Returns Num1 or Num2, whichever is greater. As an example,

```
@MAX(Field1,5)
```

would return 10 if Field1 contained 10. It would return 5 if Field1 contained 2.

@MIN (Num1,Num2)

Returns Num1 or Num2, whichever is lesser. As an example,

```
@MIN(Field1,5)
```

would return 5 if Field1 contained 10. It would return 2 if Field1 contained 2.

@PAGENO (1)

Returns the number of the page ReportWriter is currently generating. The argument can be any number. It has no meaning, but is required. As an example,

```
@PAGENO(1)
```

would return 3 if ReportWriter were generating the third page.

@SQRT (Num)

Returns the square root of the argument. As an example,

```
@SQRT(Field1)
```

would return 4 if Field1 contained 16.

Rounding Functions

The next functions all concern rounding numbers. Rounding is different from setting the number of decimal places in the format definition. If the number 5.4573 were displayed with a format of Fixed with 2 decimal places, 5.46 would display. However, other calculations based on this field would use 5.4573. The internal precision did not change. It was only displayed with a lesser precision.

> *Note: Rounding changes the internal precision. If 5.4573 is rounded to 5.46 and then displayed as Fixed with 4 decimal places, it would be displayed as 5.4600. The actual value would no longer be 5.4573.*

@RND (Num1,Num2)

Returns Num1 rounded to Num2 number of decimal places. It rounds according to the 4/5 rule: from 0 to 4, @RND will round down, and from 5 to 9, @RND will round up. As an example,

```
@RND(Field1,2)
```

would return 5.45 if Field1 contained 5.4543. It would return 5.46 if Field1 contained 5.4553. Notice that with the second argument set to 2, the third digit past the decimal point is used as the basis for rounding the digit to its left.

@RNDDOWN (Num1,Num2)

Returns Num1 rounded down to Num2 number of decimal places. As an example,

```
@RNDDOWN(Field1,2)
```

would return 5.45 whether Field1 contained 5.4543 or 5.4553.

@RNDUP (Num1,Num2)

Returns Num1 rounded up to Num2 number of decimal places. As an example,

```
@RNDUP(Field1,2)
```

would return 5.46 whether Field1 contained 5.4503 or 5.4573.

Text Functions

These functions manipulate or test text. Most return text results, but a few also return numeric results.

@CAPFRST (Text)

Returns the text with the first letter of every word capitalized. This function determines a new word by the presence of a space. As an example,

```
@CAPFRST (Field1)
```

would return "Heidi Verkade" if Field1 contained "heidi verkade".

@CONCAT(Text1,Text2,Textn)

Returns all of the arguments concatenated. The arguments must be text and must be separated by commas. As an example,

```
@CONCAT("Mr. ",Field1," ",Field2)
```

would return "Mr. Karl Verkade" if Field1 contained "Karl" and Field2 contained "Verkade".

@FIND (Text1,Text2)

Returns true (non-zero) if an occurrence of Text1 can be found in Text2. The value indicates which character in Text2 equals the first character of Text1. Returns false (zero) if Text1 cannot be found in Text2. @FIND is case sensitive, that is, "for" is different from "FOR". Use the @UPPER function if case is not important. This function returns a number, not text. As an example,

```
@FIND("for",Field1)
```

would return 5 if Field1 contained the text "California", since "f" is the fifth character in the string. Zero would be returned if Field1 contained the text "Nevada".

@LEFT(Text,Num)

Returns the text Num characters from the beginning of Text. As an example,

```
@LEFT(Field1,3)
```

would return "ABC" if Field1 contained "ABCDEFG".

@LEN(Text)

Returns the number of characters in a text string as a numeric value. For example,

```
@LEN(Field1)
```

will return 12 if Field1 contains "ReportWriter".

@LOWER(Text)

Returns Text with all letters converted to lower case. For example,

```
@LOWER(Field1)
```

would return "abcd" if Field1 contained "ABCd".

@MIDDLE(Text,Num1,Num2)

Returns Num2 characters of text starting Num1 characters from the beginning of text. As an example,

```
@MIDDLE(Field1,2,5)
```

would return "BCDEF" if Field1 contained "ABCDEFG".

@NUM2TXT (Num1,Num2)

Returns text from a numeric field. Num1 is the number to convert to text, and Num2 is number of decimal places. If Num2 = 0, the appropriate amount of decimal places will be used.

This is useful when numbers must be treated as text. For instance, when a number must be concatenated into a string of text. As an example,

```
@NUM2TXT(Field1,2)
```

would return the text 2.00 if Field1 contained the number 2.

Here is another example of @NUM2TXT. You want to print the line, "Your account is 28 days past due", and the value 28 comes from a numeric field such as a date calculation. Use the formula,

```
@CONCAT("Your account is ",@NUM2TXT(Field1,0),
" days past due")
```

where Field1 contains the number 28.

@RIGHT(Text,Num)

Returns the text of the last Num characters of Text. As an example,

```
@RIGHT(Field1,4)
```

would return "DEFG" if Field1 contained "ABCDEFG".

@TEXT (Text)

Returns text. This is useful for labeling information from inside a formula, such as labeling subtotals. As an example,

```
@TEXT(Field1)
```

would return "ABCD" if Field1 contained "ABCD".

@UPPER(Text)

Returns text with all letters converted to upper case. As an example,

```
@UPPER(Field1)
```

would return "ABCD" if Field1 contained "AbCd".

@VAL(Text)

Converts a number in text form to a numeric value. For example,

```
@VAL(Field1)
```

would return the value of 2 if Field1 contained the text "2".

Special Functions

These functions may work with text or numbers and return either text or numbers. Some do not follow all of the usual rules for functions. See each function below for details.

@AWP (Filename, paragraph number)

Returns a paragraph from the word processor file Filename. It is useful for placing boilerplate text into your report.

Filename must be on the Desktop. Paragraphs are defined as all of the lines between two carriage returns. Blank lines are not included, so you may use them freely for clarity in separating paragraphs. Paragraphs are counted sequentially from the beginning of the file. As an example,

```
@AWP(Field1,3)
```

would return Anita if Field1 contained the file name Names which included the following contents:

```
File: Names
=====|====|====|====
Lisa
Liz
Anita
Nancy
Misty
Andrea
Barbara
```

The names in the file are separated by carriage returns, so they are considered separate paragraphs by ReportWriter.

Note: This is truly a special function, as it breaks the following two function rules:

First, you cannot nest this function. Other functions may be nested inside of it, but it cannot be nested in another function. So, this is allowable:

```
@AWP(@CHOOSE(Field1,"File1","File2"),Field3)
```

The function @CHOOSE was nested inside of @AWP. This is legal.

This is not allowable:

```
@CONCAT(@AWP("File1",2)," Stop.")
```

You cannot nest @AWP inside of another function.

The other rule @AWP breaks is that the text it returns is not confined to the length of the field that called it. That is, for all other functions, 25 characters is the maximum that can be returned if the length of the field is 25. @AWP will ignore the field length and report whatever it finds.

Note: @AWP will not change the margins of the word processor text. If the word processor text is longer than the report width, it will be truncated. Make sure the paragraphs fit your report. It will report as many lines as it finds, as well.

@CHOOSE(Num,Item1,Item2,Itemn)

Returns the item Num positions from the beginning of the list. The list starts with Item1. If Num were 3, the third item in the list would be returned. The items may be either text or numbers, but they all must be the same type. You may not mix text and numbers in the list.

As an example using a numeric list, consider shipping rates in five zones. The zones are numbered 1 through 5. This example will pick the correct rate for the zone.

```
@CHOOSE(Field1,2.50,5.00,6.00,7.50,10.00)
```

This would return 5.00 if Field1 contained 2 and 10.00 if Field1 contained 5. The list of arguments can also be field names, as long as these fields contain numbers.

As an example of using a text list, consider the names of the months of the year.

```
@CHOOSE(Field1,"January","February","March",
"April","May","June")
```

This would return "January" if Field1 contained 1 and "April" if Field1 contained 4. The list of arguments can also be field names, as long as these fields contain text.

@IF (Expression,Item1,Item2)

Returns Item1 if expression is true, and Item2 if Expression is false. Item1 and Item2 may be numbers or text, but they must be the same type. Expression must be an expression that can be evaluated as either true or false.

The following logical operators are available for building expressions:

```
>    Is greater than
<    Is less than
=    Is equal to
&    Logical AND
?    Logical OR
```

AND means that both conditions must be true for the expression to be true. OR means either condition may be true for the expression to be true.

When using "&" (logical AND) or "?" (logical OR), the expressions on either side must be in parentheses. For example,

```
@IF((Field1>100) & (Field2>50),100,0).
```

Several examples of using the @IF function are useful here.

The formula,

```
@IF(Field1>Field2,"Greater","Lesser")
```

would return "Greater" if Field1 contained 5 and Field2 contained 4. It would return "Lesser" if Field1 contained 4 and Field2 contained 5.

The formula,

```
@IF((Field1="CA") & (Field2=5),1,0)
```

would return 1 if Field1 contained "CA" and Field2 contained 5.

Other functions may be used inside of @IF for even greater power.

```
@IF(@LEFT(Field1,2)="CA",Field2,0)
```

Would return the contents of Field2 if the first two characters of Field1 were "CA", otherwise it would return 0.

```
@IF(@FIND("CA",Field1)=0,Field2,Field3)
```

Would return the contents of Field2 if the characters "CA" were not found in Field1, otherwise Field3 would be returned.

@MATCH(Item,Item1,Item2,Itemn)

Returns the position of Item in the list. The list begins with Item1. This function always returns a number. The Items may be numbers or text, but must all be of the same type. As an example,

```
@MATCH(Field1,"one","two","three","four")
```

would return 2 if Field1 contained "two". It would return 4 if Field1 contained "four".

@RULES(Expression)

Prints the record if @RULES is true. Skips the record if @RULES is false. This statement performs the same function as the record selection rules in the AppleWorks data base. If no @RULES function is found, all records will print. Remember, this function operates on the whole record.

Expression is evaluated in the same way as it is evaluated in the @IF function. The same logical operators are used. Other functions may be nested within the @RULES function. As an example,

```
@RULES(Field1="Smith")
```

would print only those records where Field1 was equal to "Smith", and

```
@RULES(@FIND("Smith",Field1)=1)
```

would print only those records where Field1 contained "Smith".

Date Functions

These functions all work with dates and time. Refer to each explanation below to find out what type of data they return.

@DAT2JUL(date in AppleWorks date format)

Returns the Julian representation of an AppleWorks date. A Julian date is shown as a single number, so this function allows you to perform arithmetic operations on dates. Use @JUL2DAT to convert back to AppleWorks date. March 1, 1920 corresponds to Julian date 1. Dates prior to this are not allowed. As an example,

```
@DAT2JUL(Field1)
```

would return 25234 if Field1 contained the date "Apr 1 89". While the Julian dates in themselves are fairly useless, when used for

additions or subtractions they become very powerful. As an example,

```
@DAT2JUL(Field2) - @DATE2JUL(Field1)
```

would return 44 if Field2 contained the date of "May 15 89" and Field1 contained the date of "Apr 1 89". The number 44 is the number of days between these two dates.

@DAT2TXT (date in AppleWorks date format,num)

Returns the text representation of an AppleWorks date. The num argument determines which of the four date formats is used:

Num = 1 returns mm/dd/yy
Num = 2 returns mmm dd, yyyy
Num = 3 returns dd/mm/yy
Num = 4 returns dd mmm, yyyy

As an example,

```
@DAT2TXT(Field1,Num1)
```

would return 5/15/89 if Field1 contained "May 15 89" and Num1 contained a 1. It would return "May 15, 1989" if Field1 contained "May 15 89" and Num2 contained a 2.

@DATE (Num)

Returns today's date as a text string. If your system has no clock, then the AppleWorks boot date will be used. There are four formats:

Num = 1 returns mm/dd/yy
Num = 2 returns mmm dd, yyyy
Num = 3 returns dd/mm/yy
Num = 4 returns dd mmm, yyyy

As an example, if today's date were March 21, 1989,

```
@DATE(3)
```

would return 21/3/89. See @DAT2TXT above for more examples.

@DATEDAY (date in AppleWorks date format)

Returns the day as a number from an AppleWorks date. As an example,

```
@DATEDAY(Field1)
```

would return 12 for the date "Apr 12 89".

@DATEMO (date in AppleWorks date format)

Returns the month as a number from an AppleWorks date. As an example,

```
@DATEMO(Field1)
```

would return 4 for the date "Apr 12 89".

@DATEYR (date in AppleWorks date format)

Returns the year as a number from an AppleWorks date. Only the last two digits of the year are returned. As an example,

```
@DATEYR(Field1)
```

would return 89 for the date "Apr 12 89".

@JUL2DAT (Num)

Returns the AppleWorks date format of a Julian date. Also see @DAT2JUL and @DAT2TXT. As an example,

```
@JUL2DAT(Field1)
```

would return the AppleWorks date format for May 15, 1989 if Field1 contained 25278.

@JUL2YR (Num)

Returns the year from a Julian date. This enables you to get the proper year beyond the year 1999. As an example,

```
@JUL2YR (Field1)
```

would return 2010 as a number if Field1 contained 32904.

@MAKETIM (Num1,Num2)

Returns the AppleWorks time format of Num1 and Num2. As an example,

```
@MAKETIM(Field1,Field2)
```

would return 14:35 in the AppleWorks time format if Field1 contained 14 and Field2 contained 35.

@TIME (Num)

Returns the current time as a text string. There are two formats. If Num=1, @TIME returns the time in 12 hour format. If Num=2, @TIME returns the time in 24 hour format. As an example,

```
@TIME(num)
```

would return "2:35 pm" if Num=1. It would return "14:35" if Num=2.

@TODAYJ(Num)

Returns the current date as a number in the Julian calendar. The argument has no meaning, but is required. As an example,

```
@TODAYJ(1)
```

would return the number 25248 if the current date were April 15, 1989.

@TXT2DAT (Text)

Return a date in AppleWorks date format from a date in a text string. The text date must have the format mm/dd/yy. As an example,

```
@TXT2DAT (Field1)
```

would return "May 15 89" (in AppleWorks date format) if Field1 contained 5/15/89 or 05/15/89.

Chapter 10

Configuration

Configuration Options

Several features of ReportWriter can be customized with the TimeOut Utilities Configure option. To change the options, follow these steps:

1. If you are in ReportWriter, press Escape until you get back to AppleWorks. Make sure to save any work before leaving ReportWriter.
2. Press ♂-Escape. The TimeOut menu will appear. Highlight `Utilities` and press Return.
3. The Utilities menu will be displayed. Press Return to accept the first option, `Configuration`.
4. A menu of the TimeOut applications will be displayed. Highlight `ReportWriter` and press Return.

You will see this screen:

```
File: None                      CONFIGURE                  Escape: Utilities
=============================================================================
          ReportWriter Configuration Menu


          1.  Print file location        [AppleWorks data disk          ]

          2.  Using the AE expanded Desktop                [No ]

          3.  Character used as Field Marker               [253]

          4.  Print this if field is not found             [NotFound]

          5.  Create new records while posting             [Yes]

          6.  Ignore blank lines while viewing text        [Yes]

          7.  Page length when printing from text files    [ 66]

          8.  Warning if format changed and OA-Q pressed   [Yes]

-----------------------------------------------------------------------------
Type number, or use arrows, then press Return                    130K Avail.
```

To change any one of these options, use the arrow keys to highlight the option and press Return. Follow the directions for each option. You may leave the Configuration menu at any time by pressing Escape.

Print File Location

ReportWriter always generates the finished report to a file on disk. This option tells ReportWriter the disk drive you want to use. This option sets the default location, but you can still specify a different path name when the report is generated. You can choose from:

1. A ProDOS path name. Enter the pathname and press Return. You can use subdirectories with this option.

2. A slot and drive. Specify a slot and drive. This option puts the report in that disk's root directory.

3. The AppleWorks data disk. This is the current disk used by AppleWorks, the one you see in the top left corner when no file is on the screen.

4. The TimeOut applications disk. This is the drive or ProDOS pathname where your TimeOut applications reside. You chose this location when you installed TimeOut.

Using the AE Expanded Desktop

If you are using a copy of AppleWorks that has been enhanced with Applied Engineering's AppleWorks Expander, answer `Yes` to this question.

If the Applied Engineering Expander is not installed, answer `No`.

> *Note: Using an expanded memory card is no problem; it's the expander patches ReportWriter needs to know about. Be careful! If this question is answered incorrectly, ReportWriter will crash, and you are sure to lose any data that was on the*

AppleWorks Desktop. If you are experiencing crashes now, try changing this option.

Character Used as Field Marker

ReportWriter uses an asterisk (*) to indicate a field in the report layout. You can change this to be any character you want. You can even use mouse text.

> *Note: If you are running AppleWorks on an un-enhanced IIe, your Apple will not display mouse text correctly.*

Select this option and enter the number of the character you want to use in your display. This can be any number from 32 to 159. Characters 128 to 159 will appear as mouse text on the screen.

Print This If Field Is Not Found

The contents of this option is printed when ReportWriter attempts to do a file retrieval and can't find any data. The default, `NotFound`, can be replaced by any other characters you want. Enter the new text and press Return to make the change.

Create New Records While Posting

This option has effect only during posting. You can tell ReportWriter to create a new record in the posting file when there is no record available to post to. This can occur when posting by key and no match is found, or when posting by record you exceed the last record in the posting file.

If you want to create new records during posting, answer `Yes` to this option. Otherwise, answer `No`, and posting will be ignored when no record is found.

Ignore Blank Lines while Viewing Text

While viewing ReportWriter text or other text files on the screen, usage of large blocks of blank lines can render the report hard to read. If you used a title on a separate page, for example, you would view all of the blank lines from the title's end to the bottom of the page. To prevent this, answer `Yes` to this question. When more than one successive blank line is found, a caret (^) will be printed in the blank line to remind you more lines will print on the page.

If you want to view the report exactly as it will print, answer `No`.

Page Length When Printing from Text Files

You can select the length (in rows) of your printer paper. This value will be used for making page breaks for the layout reference or when printing text files.

Warning If Format Changed And ⌘--Q Pressed

You can leave ReportWriter at any time by pressing Open-Apple Q. Before the AppleWorks desktop index appears, you will be warned if you have made changes to the current ReportWriter format. This will give you a chance to save it if you want to. You can choose to skip this warning message.

Appendix A

Glossary

ReportWriter Terms

Category: A category from the AppleWorks data base, treated as a field for data retrieval.

Closing: The optional summary section of a ReportWriter report.

Column: A column from the AppleWorks spreadsheet, treated as a field for data retrieval.

Data File: An AppleWorks data base, spreadsheet, or word processor file.

Editor: The 240 column editor used by ReportWriter for report layout.

Field: In the context of AppleWorks, refers to a data base category or spreadsheet column. In the context of ReportWriter, refers to an area in a ReportWriter report into which data is placed. In general, it refers to one data element within a record.

Field Definition: The parameters associated with a ReportWriter field, defining such things as field name, data source, format, and posting.

Footer: An optional section that prints at the bottom of every ReportWriter report page. It is usually used for summarizing that page's information.

Format File: The ReportWriter file that contains the report layout and field definitions.

Generate: The process of retrieving AppleWorks data and placing it into the ReportWriter report.

Header: An optional section that prints at the top of every ReportWriter report page. It is usually used to describe the report data.

Key: Information from a ReportWriter field used to match an AppleWorks file field to find the record in question. It can also refer to the AppleWorks field being searched.

Label: Descriptive text placed inside a report layout.

Layout: The description of the ReportWriter report. It includes describing where the fields and labels are placed. Also referred to as a report layout or report format. Refers also to the process of designing a report.

Lookup File: A data file from which retrievals are based on a relation. This can be by matching a key or by matching a record number.

Master File: The file from which the ReportWriter report data originates. Each record is processed sequentially until the end of the file.

Posting: The process of placing ReportWriter data into an AppleWorks file. You can overwrite the old data, and in the case of numbers, add to or subtract from them.

Posting Definition: The parameters of how a ReportWriter posting is to occur. The posting definition is part of the field definition.

Record: A collection of fields, all of which describe one data item.

Relation: The common data element linking (relating) records from separate files.

Report Body: The section in a ReportWriter report where the data records are placed.

Row: A spreadsheet row. It is treated as a record.

Section: The areas of a ReportWriter report, each used for a specific purpose. They are the title, header, body, subtotal, footer, closing, and work area.

Subtotal: An optional section within a ReportWriter report used for summarizing groups of records.

Title: An optional section of a report layout used to describe the data.

Work Area: An optional section of a report layout used for intermediate calculations.

Appendix B

ReportWriter Commands

Editor Commands

⌘-D	Delete the line the cursor is on
⌘-E	Toggle insert or overstrike mode
⌘-F	Find field or text
⌘-G	Generate a report
⌘-H	Print screen to printer
⌘-I	Insert a new line above the cursor
⌘-M	Move a field
⌘-N	Define (Name) a field
⌘-O	Option menu
⌘-P	Print a summary of field definitions
⌘-Q	Quick index of AppleWorks Desktop
⌘-S	Save a ReportWriter format file
⌘-Y	Delete to end of line
⌘-Z	Zoom in or out on field names
Return	Move down one line and to left margin
Delete	Delete character left of the cursor
Control-F	Insert a field marker
Left	Move cursor or scroll left one column
Right	Move cursor or scroll right one column
Up	Move cursor or scroll up one line
Down	Move cursor or scroll down one line
Control-L	Tab left
Control-R	Tab right
Control-T	Set tab length
⌘-**Left**	Move to left margin; scroll one screen at margin.
⌘-**Right**	Move to right margin; scroll one screen at margin.
⌘-**Up**	Move to top margin; scroll one screen at margin.
⌘-**Down**	Move to bottom margin; scroll one screen at margin.
⌘-**Period**	Move to right-most column containing characters
⌘-**Comma**	Move cursor to column one
⌘-**1** to ⌘-**9**	Move up and down proportionally

Formula Entry Card Commands

⌘-E	Toggle insert and overstrike modes
⌘-F	Display and choose field names
⌘-Y	Delete to end of formula
⌘-L	List all functions
⌘-U	Undo editing
Return	Accept the formula
Delete	Delete character left of the cursor
Left	Move cursor left one character
Right	Move cursor right one character
Up	Move up one line
Down	Move down one line
⌘-**Left**	Move cursor to beginning of line
⌘-**Right**	Move cursor to end of line
⌘-**Up**	Move cursor to beginning of formula
⌘-**Down**	Move cursor to end of formula

Text File Viewer Commands

Left	Scroll left one column
Right	Scroll right one column
Up	Scroll up one line
Down	Scroll down one line
⌘-**Left**	Scroll left one page
⌘-**Right**	Scroll right one page
⌘-**Up**	Scroll up one page
⌘-**Down**	Scroll down one page
⌘-**Period**	Move to far right page of the editor
⌘-**Comma**	Move to far left page of the editor
⌘-**1** to ⌘-**9**	Move up and down proportionally

Appendix C

Function List

These are all of the ReportWriter functions you can use to create your reports, along with the page number where more information can be found.

Numeric Range Functions

Numeric Non-Range Functions

Text Functions

Special Functions

Date Functions

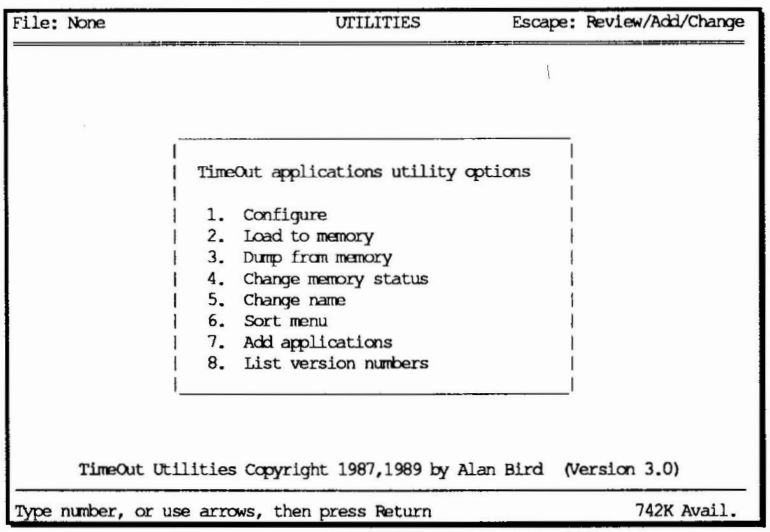
Appendix D

TimeOut Utilities

The TimeOut Utilities application is provided with all TimeOut products. It has several functions that give you a lot more flexibility in using your TimeOut applications.

Using the Utilities

To use the TimeOut Utilities, make sure that the file *TO.UTILITIES* has been copied to your TimeOut applications disk. Start up AppleWorks and press Open-Apple-Escape to call up the TimeOut menu. Select `Utilities`. You will see the following screen:



Configure

The `Configure` option allows you to set new defaults for your TimeOut applications. Configurable options might include printer type, default font, location of files needed by the application, etc. Not all TimeOut applications have configurable options.

To configure an application, select `Configure` from the Utilities menu. Then select the application you want to configure. You will then see a menu indicating what options may be configured for that particular application. You should also see the current value for each option in brackets [ ].

Select an option that you would like to change. Enter or select the new value for that option. Make sure that the TimeOut applications disk is in a drive so that the application can be updated with the new value. The next time you use the application, it will use the new value that you have supplied.

After you are finished updating configurable options, press Escape to return to the Utilities main menu.

Load to memory

TimeOut applications are either disk-resident or memory-resident. If an application was configured as disk-resident when you started up AppleWorks, you can load it into memory using the `Load to memory` option. Just select the option from the Utilities menu and select which application you would like to load.

Dump from memory

If you receive a message from AppleWorks indicating that it was unable to complete an option because of insufficient Desktop memory, you may need to dump one or more TimeOut applications that are memory-resident. Select `Dump from memory` from the Utilities menu and select which application you would like to dump. Notice that the amount of free memory indicated in the lower right hand portion of the screen increases with each application you dump. Applications that are *dumped* are returned to disk-resident status for the remainder of the AppleWorks session.

Change memory status

This option allows you to indicate whether a TimeOut application is disk- or memory-resident. Note that this only indicates how the application will be treated when you start up AppleWorks. To load an application into memory or to return it to the disk for the current AppleWorks session, you will need to use the `Load to memory` option or the `Dump from memory` option.

Change name

This option allows you to change the name of the application as it appears in the TimeOut menu. The Beagle Bros staff carefully selects a good name for each application. However, you have the flexibility of renaming it if you want.

If the new name you enter is longer than the old name, the name change will not be reflected in the TimeOut menu until the next time you start up AppleWorks.

Sort Menu

When you apply TimeOut to your *AppleWorks STARTUP* disk, you are given the option of indicating whether or not you want the TimeOut menu automatically sorted by application name. If you choose not to have the menu sorted, you can still sort it after starting up AppleWorks by selecting `Sort menu` from the Utilities menu.

Add Applications

This selection allows you to add TimeOut applications to AppleWorks at any time while you are running AppleWorks. A new TimeOut menu is created for the new applications.

TimeOut allows you to keep all of your applications together. If your system has a limited amount of memory, you may not want to

use all your applications at once. You can keep your applications on separate disks or in different subdirectories, and add them after starting up AppleWorks. Every time you add applications, a new TimeOut menu is created. Each menu can contain no more than 30 applications. If the disk has more than 30 applications, you will need to move some to a different disk or subdirectory to access them.

> *Note: The limit of 30 applications applies only to the* `Add applications` *feature. You can have as many applications as you want on the first applications disk you use when AppleWorks is started. After that, there is a limit of 30.*

To add applications, select `Add applications` from the Utilities main menu, insert the disk containing the applications to be added, then specify the location of the disk.

There is no limit to the number of new TimeOut menus you can create. To switch from one TimeOut menu to another, press Open-Apple-Escape to bring up the current TimeOut menu, and press Tab. It you continue to press Tab, you will cycle through all of the available TimeOut menus and return back to your original menu.

Use the Tab key to switch between TimeOut menus while using options 1-4 from the `Utilities` main menu. For example, if you select `Configure` and get the wrong TimeOut menu, press Tab until the correct one appears.

List Version Numbers

Use this option to list the version numbers of your TimeOut applications. Check the version numbers before calling Beagle Bros Technical Support for assistance.

Customer Support Information

If you have questions or problems that your dealer can't answer, you can contact the Beagle Bros Customer Support Staff for expert assistance.

Before calling, check the instruction manual to see if it contains the information you need. Write down a complete description of the problem, the version number of the software, and the names and version numbers of any other programs you're using in connection with our software.

If you have a modem, you may also receive Technical Support on our 24-hour Customer Support System. The system provides an electronic mail and conferencing system, along with the latest information about product updates and changes.

Customer Support:
(619) 452-5502 8 am to 5 pm, weekdays (Pacific time)

Modem Technical Support:
(619) 558-6151 24 hours, every day

Fax:
(619) 452-6374 24 hours, every day

Or, you can write to:
Beagle Bros, Inc.
6215 Ferris Square, Suite 100
San Diego, CA 92121
Attn: Customer Support

Index

BEAGLE BROS, INC. • 6215 Ferris Square, Suite 100 • San Diego, CA 92121 • (619) 452-5500