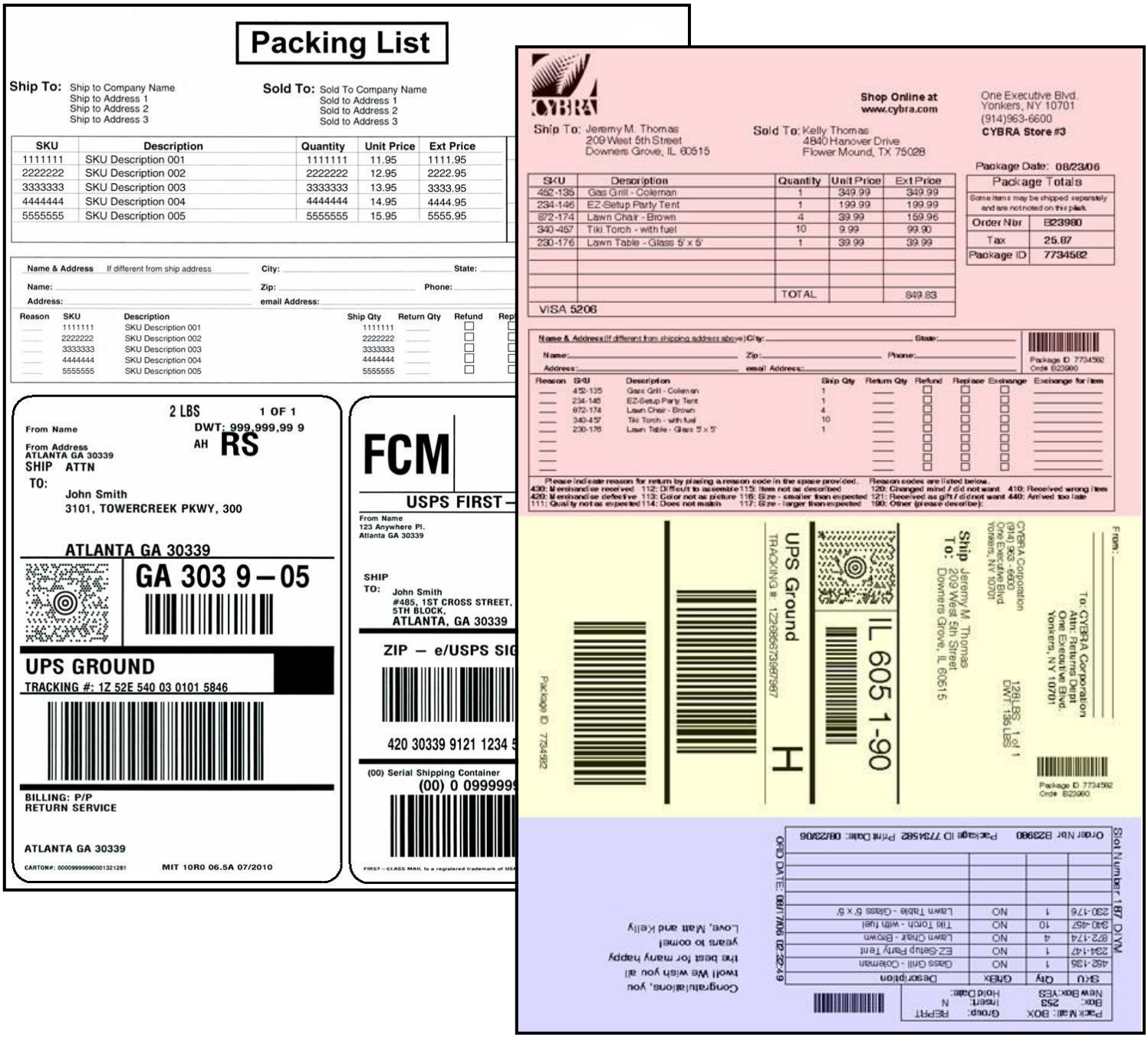
MarkMagic 7

Bar Code Label, RFID Tag, and SM@RT Forms Software for IBM System i

MarkMagic



Version 7 Add-on Options – FormWeaver

CYBRA Knows Bar Code

help@cybra.com

Welcome

Welcome, this tutorial will introduce you to the MarkMagic add-on option, FormWeaver. A brief explanation of MarkMagic Jobs is also provided if you are not familiar with that aspect of our software. There won't be any JMagic steps in this tutorial, due to the fact that FormWeaver is only an AS400 command accessible through the "green screen" menus and commands.

Before we begin we are assuming:

1. You have completed, and understand thoroughly, the "Basic Concepts" and "Intermediate Concepts" tutorials. (Creating formats, creating variable text and barcode fields, creating and printing from label files and spooled files, etc.)
2. You have a printer available at your location (thermal label or a laser printer) that is configured for printing on the System i server.

In this tutorial, you will learn:

1. What a MarkMagic Job is and why you would want to create jobs.
2. The RUNMFJOB command. Also known as the FormWeaver command.
3. What the difference between *SEQ and *RANDOM is in FormWeaver.
4. Using the *SKIP feature.

Before You Begin

Before you start this tutorial, you must have at least three formats ready to go that are designed to be able to print using the same MarkMagic label file. Using a *MASTER format with three dependent formats would be ideal. That would ensure that all formats involved are able to print using the same MarkMagic label file. This tutorial will reference three different formats, **FWTUT1**, **FWTUT2** and **FWTUT3**. All created using the HPPCL5 printer type. Each format is dependent on a *MASTER format to ensure they will both print correctly using the same label file. The label file name used in this tutorial will be **FWTUT**.

To follow along, please create three formats that each contain the same set of variable data fields or are dependent on the same *MASTER format. Also, create a label file that can be used to print these formats.

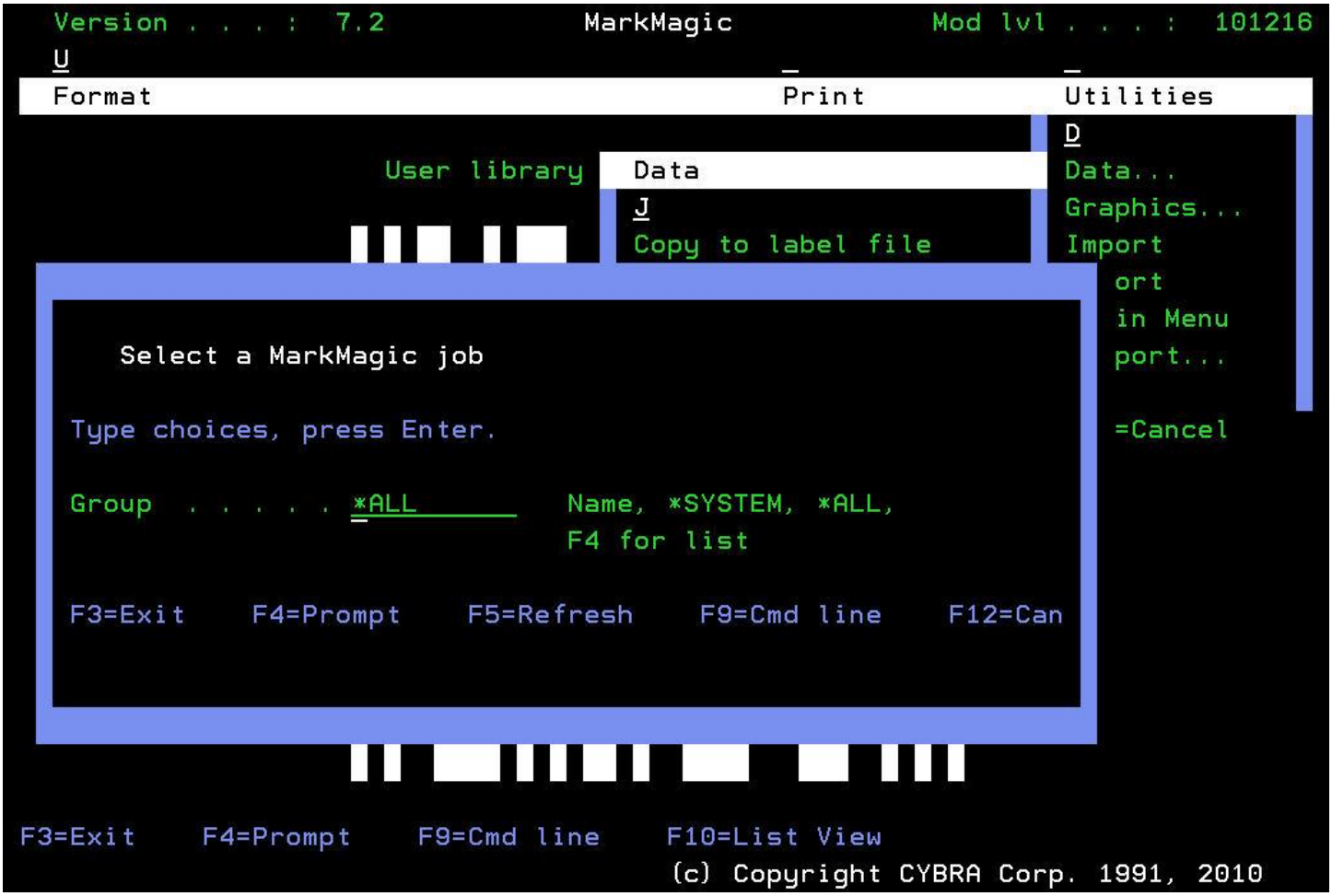
This tutorial will use FormWeaver to combine three different MarkMagic formats onto the front of one printed page. Each format involved in the "weave" will print using its own record of data from the label file. If there are 3 records in the file, then you receive one printed page at the printer. If there are 9 records in the file, then you will receive 3 printed pages at the printer.

Please note: there must be one "base" format that is defined with the full size of your actual printed page stock. For example, you design an 8.5x11 letter size packing list but only using the top four inches of the page for actual pack list detail. The bottom of that MarkMagic format is left blank. That open area is where FormWeaver will "weave" together the other smaller MarkMagic formats. The other MarkMagic formats can all be designed at any size you want. A 2x2 sticker, a 6x4 shipping or return label, etc.

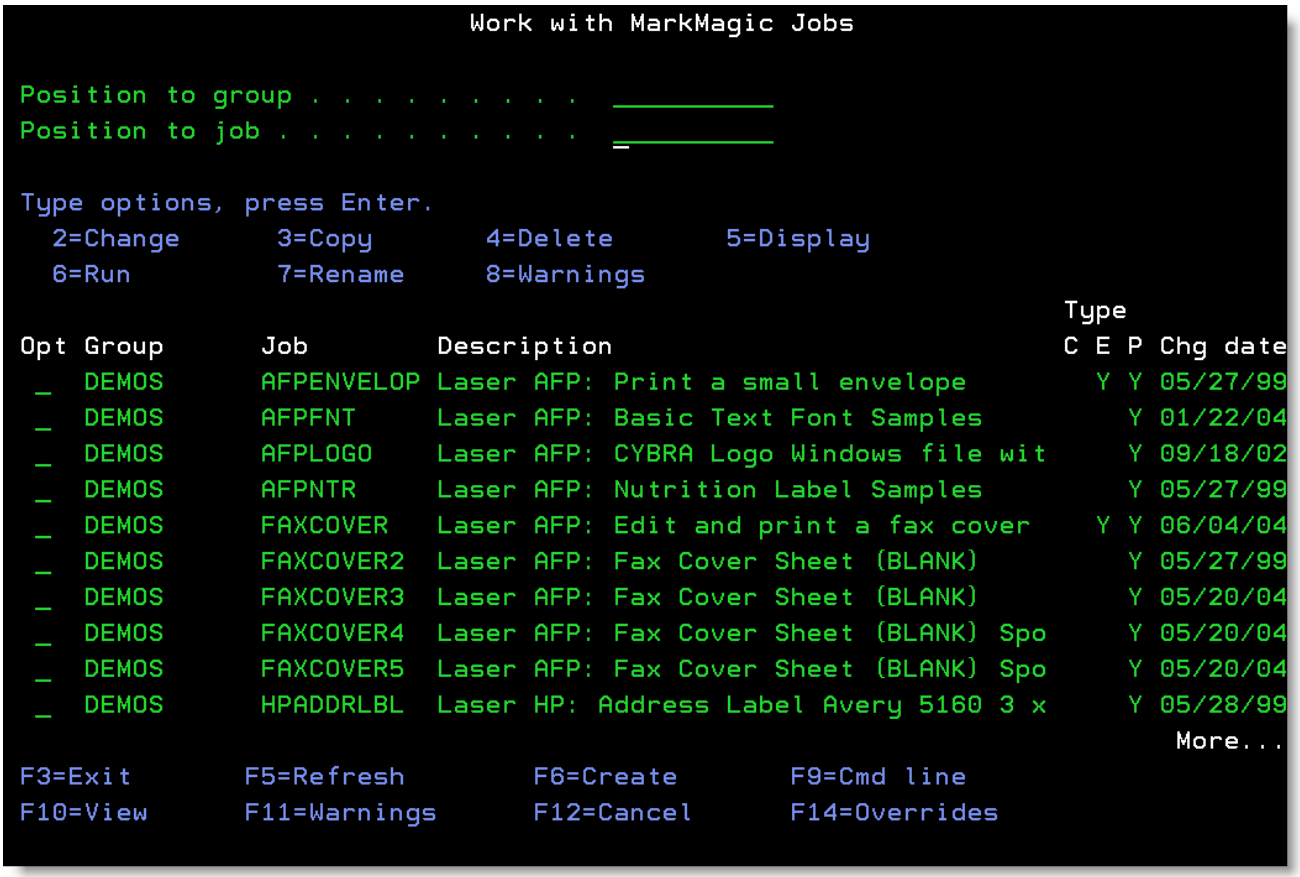
Mark Magic Jobs: An Introduction

MarkMagic Jobs let a user predefine individual print jobs that can copy data from a production file to the label file, edit data in the label file, and print the label file. These jobs can be defined to display only the parameters that are required by the operator, and can be organized by job groups and/or user libraries. The MarkMagic User Guide describes, in more detail, how to create jobs, what each parameter means, and how to use jobs in production and in your programming, but for this tutorial, we will only cover what is needed to successfully setup a job to be used by FormWeaver.

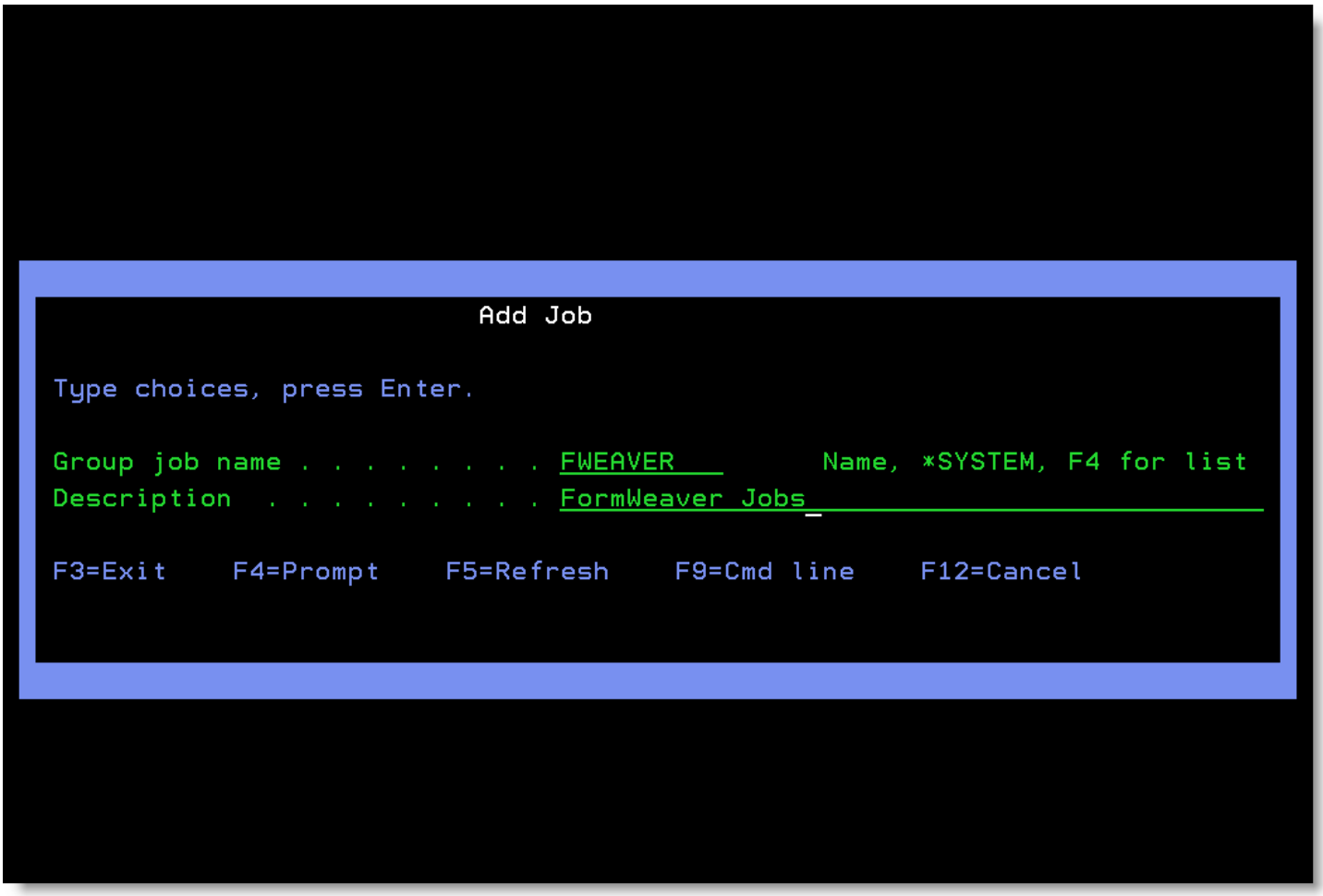
To create a job, from the MarkMagic main menu, choose **U** for *Utilities*, then **D** for *Data*, and finally **J** for w*ork with Jobs*.



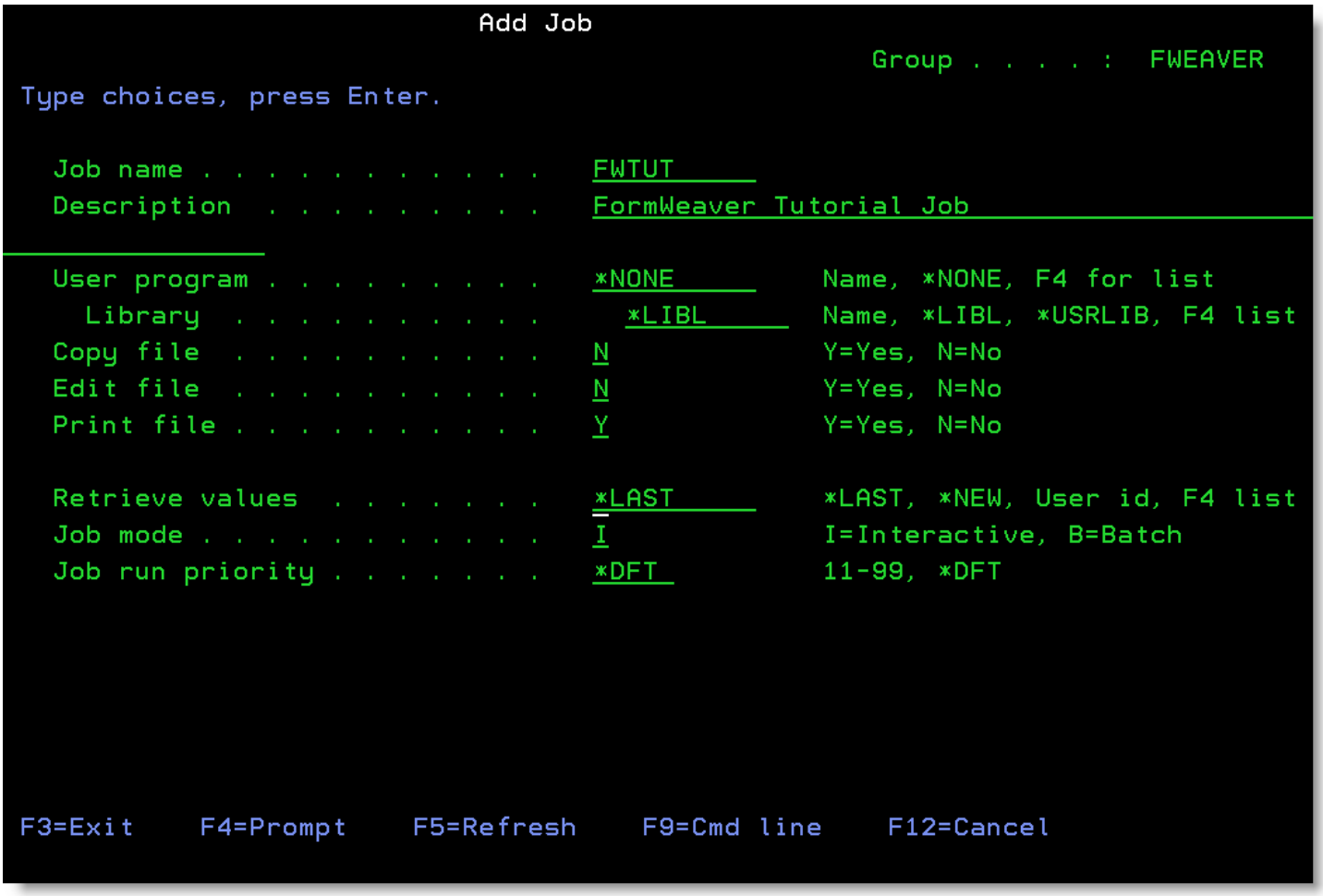
Leave ***ALL** and press ENTER to view jobs from all of the available groups. If you are running MarkMagic out of the MRKMAGDTA user library, you may already see a list of jobs. These are jobs that came bundled with MarkMagic. You will create your own job, however.



Press **F6** to add a new job. The *Add a Job* window appears.

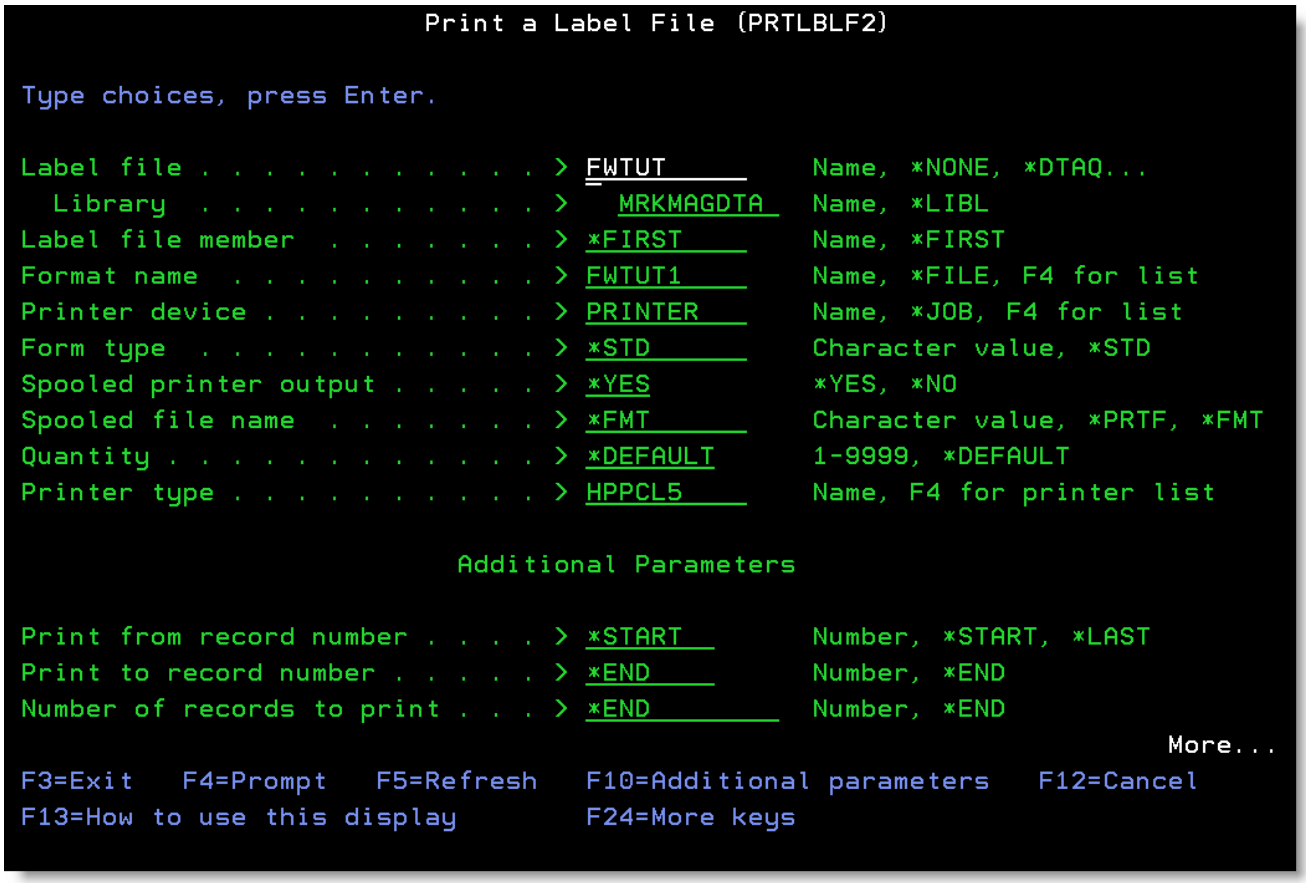


Creating a job group helps to organize your jobs. Type **FWEAVER** for the *Group job name* and type **FormWeaver Jobs** for the *Description*. If you were to create more jobs for use with FormWeaver, you could add them to the **FWEAVER** group. Press ENTER to proceed to the *Add a Job* screen.



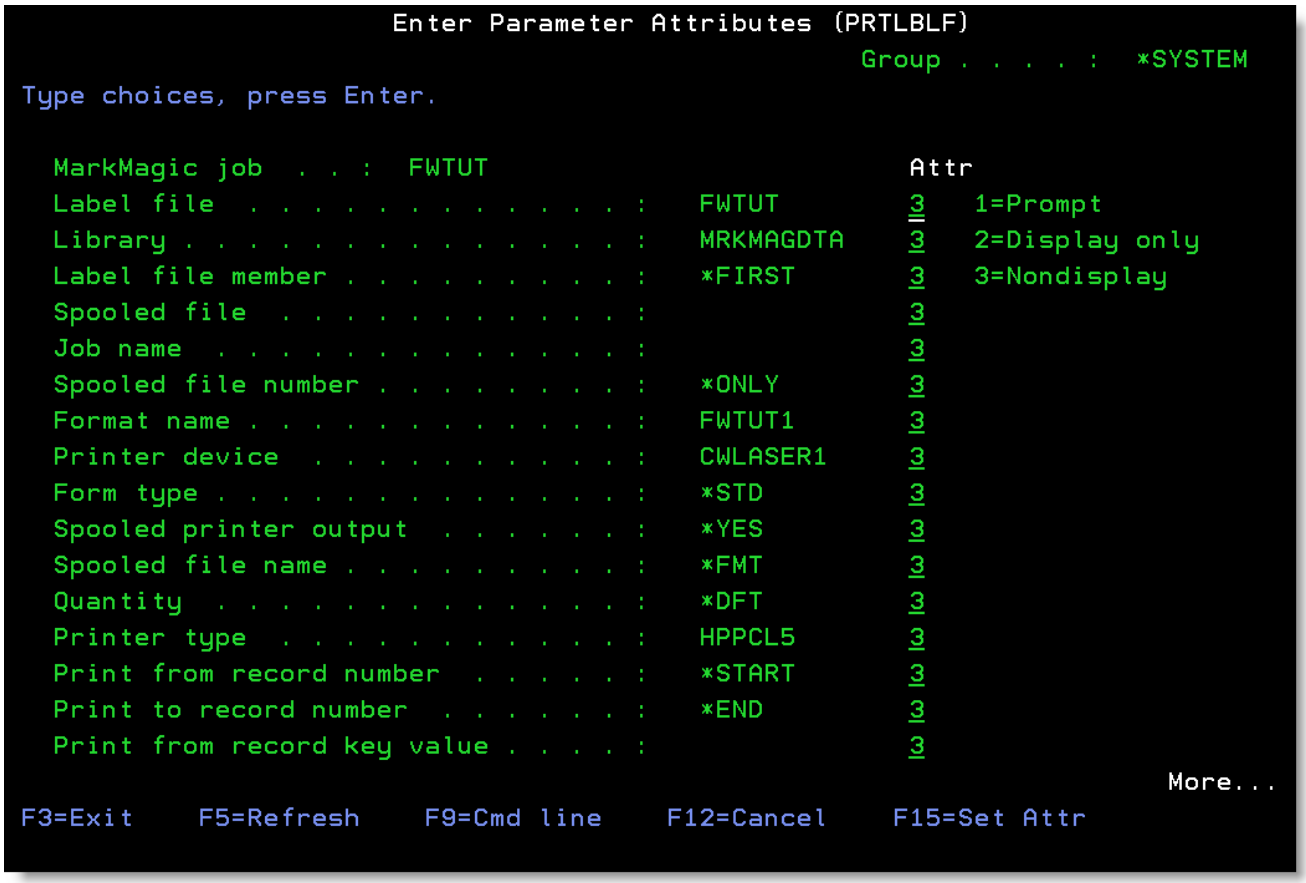
This is where you choose the job's name, its description and whether or not the job will have a copy step, an edit step, and/or a print step. Name the job **FWTUT** and give it a description that will help identify the job. There will be no Copy step or Edit step, so type **N** for both of them. Type a **Y** for *Print file*. Everything else can be left with their default values. Press ENTER twice to create your job. You will be brought to the familiar *Print a Label File* command.

The command will recall the parameters used the last time the PRTLBLF command was issued by your User ID. Some of the parameters might be correct, such as the printer device, but in any case, you will need to make some changes.

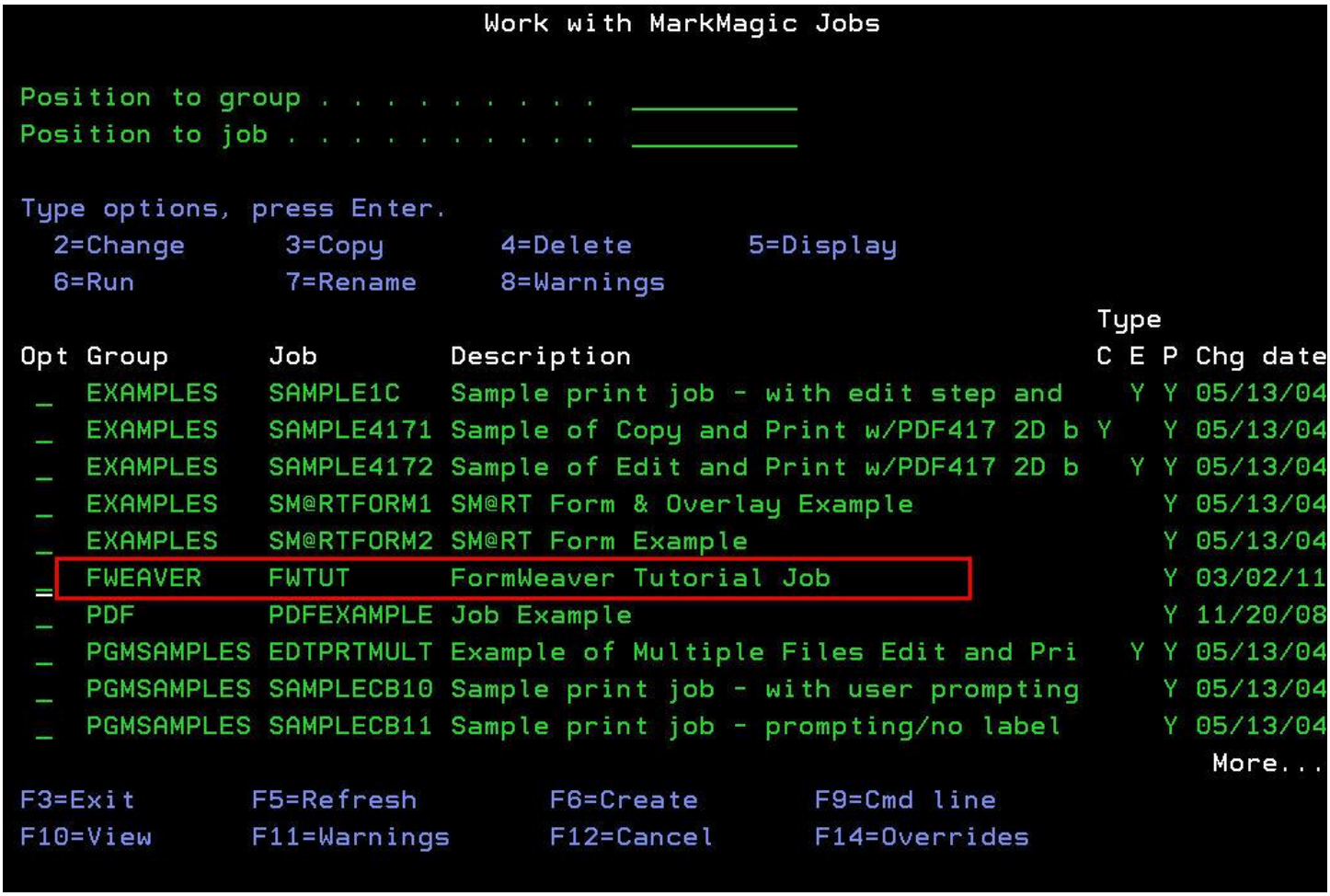


The name of the label file is **FWTUT** and is located in **MRKMAGDTA.** The FormWeaver job should contain the "base" format that will define the entire size of the final printed form / label. This format is **FWTUT1**, so type **FWTUT1** for *Format name.*

NOTE: The format name parameter can be blank and, if it is, FormWeaver will use the first format specified in the "format list" (more on that later) as the "base" format. Please make sure the correct *Printer type* is specified, **HPPCL5** in this case. Please check to make sure the rest of the PRTLBLF command parameters are at their defaults. Such as *Hold / Save spoolfile* being set to ***NO**. Also, *Emulated device* being set to ***NONE** and *User Library* set to whatever library your FWTUT formats are stored in. ***NONE** is used for this tutorial which is the same as MRKMAGDTA. Press Enter to continue.



This is where you pick which parameters will be visible to or changeable by the user when the job is ran. Since this job will be run in the background by FormWeaver, we will want to set each one to 3 for Non-display. The quickest way to do this is to press **F15** twice. Press ENTER to create your new job. You will see the new job in the list.



Press **F12** to return to the MarkMagic main menu.

What is FormWeaver and why use it?

FormWeaver enables printing of documents that combine multiple MarkMagic formats. FormWeaver documents come in many varieties, including the merging of two or more formats on one page. An example of merged formats would be a packing list form with a shipping label and customer returns label in the lower portion of the page. This tutorial covers just that.

FormWeaver documents can also consist of multiple formats printing with the same input record or spool file page. An example of this would be an invoice that contains a "duplexed" back page with terms and conditions.

Certain industries, particularly those that ship directly to the consumer, require that the shipping document contains both a pick ticket, and a variety of FedEx, UPS, USPS, etc carrier labels. You no longer need to program complex documents that contain a packing list with header information, detail information as well as all shipping information, as well as an integrated bar code shipping or return label. All you must do is design one base packing list format, then design a standard shipping label(s) or a return label(s) if needed, and use the MarkMagic FormWeaver Option to merge the different formats into one document at print time. Each "weaved page" can contain completely different formats at different offsets and rotations than the next.

On the following pages, you will see our example packing list format and individual label formats. The last image is the result of using FormWeaver to combine all three formats together as one printed document. Read on to learn more about the RUNMFJOB command.

Packing List

1122ORDNUM456

Ship To: Ship to Company Name
Ship to Address 1
Ship to Address 2
Ship to Address 3

Sold To: Sold To Company Name
Sold to Address 1
Sold to Address 2
Sold to Address 3

Package Date: 06/29/07

SKU	Description	Quantity	Unit Price	Ext Price
1111111	SKU Description 001	1111111	11.95	1111.95
2222222	SKU Description 002	2222222	12.95	2222.95
3333333	SKU Description 003	3333333	13.95	3333.95
4444444	SKU Description 004	4444444	14.95	4444.95
5555555	SKU Description 005	5555555	15.95	5555.95

Package Totals

Some items may be shipped separately and are not on this packing list. Some items may be on permanent backorder.

Total Items	**500095**
Package ID	**451587122**

Name & Address If different from ship address

City: **State:**

Name: **Zip:** **Phone:**

Address: **email Address:**

Package ID 451587122
Ord# 1122ORDNUM456

Reason	SKU	Description	Ship Qty	Return Qty	Refund	Replace	Exchange	Exchange for item
	1111111	SKU Description 001	1111111		☐	☐	☐	
	2222222	SKU Description 002	2222222		☐	☐	☐	
	3333333	SKU Description 003	3333333		☐	☐	☐	
	4444444	SKU Description 004	4444444		☐	☐	☐	
	5555555	SKU Description 005	5555555		☐	☐	☐	

Example HPPCL5 / FWTUT1 format:
8.5" x 11" sized packing list with blank area at bottom

Example HPPCL5 / FWTUT2 format:
6" x 4" UPS Shipping Label

Example HPPCL5 / FWTUT3 format:
6" x 4" USPS Return Label

Packing List

1122ORDNUM456

Ship To: Ship to Company Name
Ship to Address 1
Ship to Address 2
Ship to Address 3

Sold To: Sold To Company Name
Sold to Address 1
Sold to Address 2
Sold to Address 3

Package Date: 06/29/07

SKU	Description	Quantity	Unit Price	Ext Price
1111111	SKU Description 001	1111111	11.95	1111.95
2222222	SKU Description 002	2222222	12.95	2222.95
3333333	SKU Description 003	3333333	13.95	3333.95
4444444	SKU Description 004	4444444	14.95	4444.95
5555555	SKU Description 005	5555555	15.95	5555.95

Package Totals

Some items may be shipped separately and are not on this packing list. Some items may be on permanent backorder.

Total Items	500095
Package ID	451587122

Name & Address If different from ship address
City: State:
Name: Zip: Phone:
Address: email Address:

Package ID 451587122
Ord# 1122ORDNUM456

Reason	SKU	Description	Ship Qty	Return Qty	Refund	Replace	Exchange	Exchange for item
	1111111	SKU Description 001	1111111		☐	☐	☐	
	2222222	SKU Description 002	2222222		☐	☐	☐	
	3333333	SKU Description 003	3333333		☐	☐	☐	
	4444444	SKU Description 004	4444444		☐	☐	☐	
	5555555	SKU Description 005	5555555		☐	☐	☐	

2 LBS 1 OF 1
DWT: 999,999,99 9
AH RS

From Name
From Address
ATLANTA GA 30339
SHIP TO: ATTN
John Smith
3101, TOWERCREEK PKWY, 300

ATLANTA GA 30339

GA 303 9–05

UPS GROUND
TRACKING #: 1Z 52E 540 03 0101 5846

BILLING: P/P
RETURN SERVICE

ATLANTA GA 30339

CARTON#: 00009999990001321281 MIT 10R0 06.5A 07/2010

FCM

FIRST–CLASS MAIL
U.S. Postage & FeesPaid
ATLANTA, GA
PERMIT NO 98

USPS FIRST–CLASS MAIL

From Name
123 Anywhere Pl.
Atlanta GA 30339

PIECE ID: 1797265
1 OF 1
.78 LBS
CTL#: 1000004405
P01

SHIP TO: John Smith
#485, 1ST CROSS STREET,
5TH BLOCK,
ATLANTA, GA 30339

ZIP – e/USPS SIGNATURE CONFIRM

420 30339 9121 1234 5678 9017 9726 59

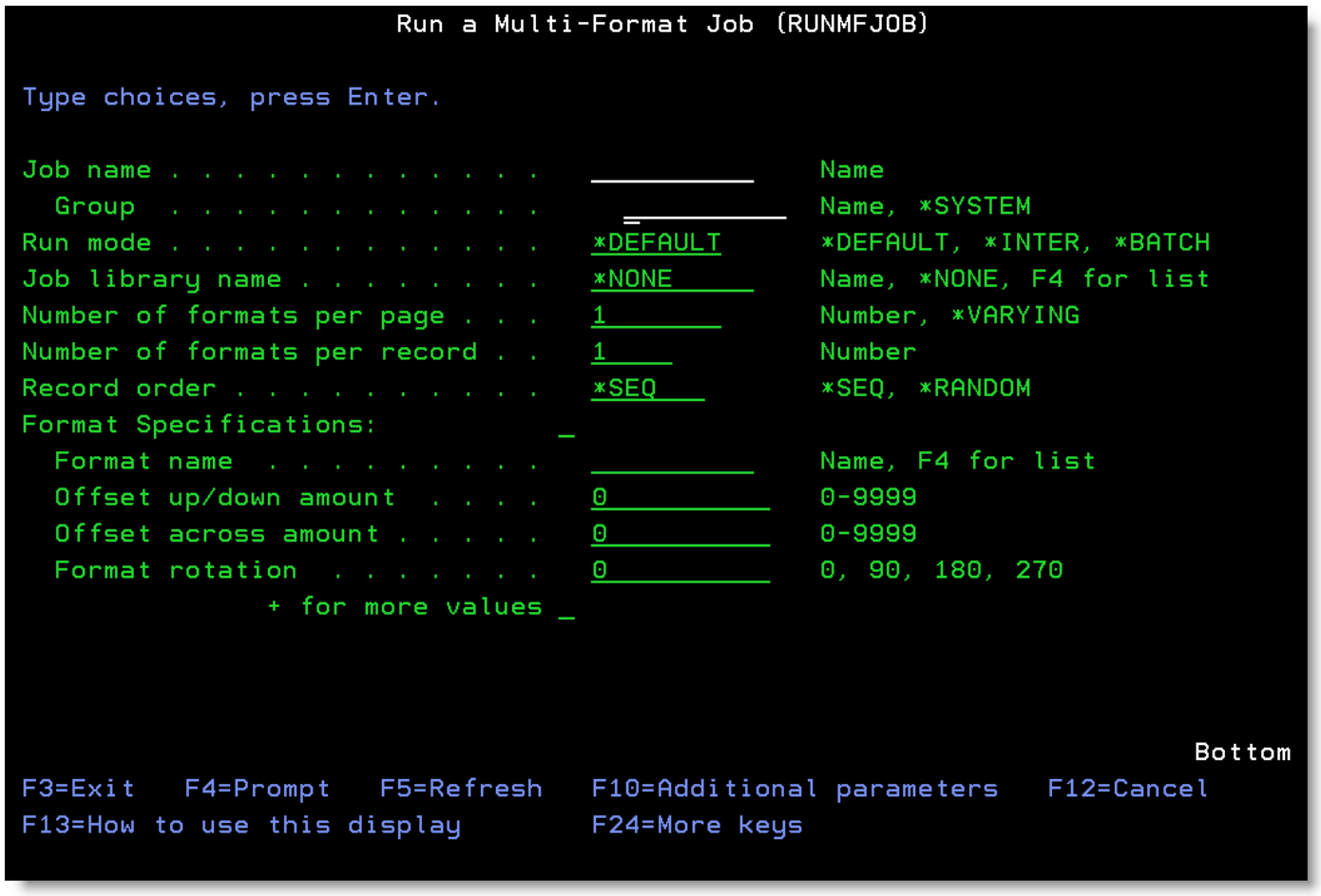
(00) Serial Shipping Container
(00) 0 0999999 000130093 4

FIRST–CLASS MAIL is a registered trademark of USPS MAWM/V300/AS//SHLBL98E

Completed FormWeaver document showing base FWTUT1 packing list with FWTUT2 and FWTUT3 labels at bottom

Using the FormWeaver command: RUNMFJOB

Simply put, FormWeaver *is* the RUNMFJOB command. It is accessible from the Print menu in the MarkMagic main menu. Go to **P** for *Print*, and then **M** for *run Multi-fmt job*. It can also be found in QGPL library just like all of the other important MarkMagic commands.



A better way to use the command, currently, is to run the command straight from a command line. This way, after running the command, you can press **F9** to recall the command and the parameters generated. Then you can press **F4** to display the command with all of your previous parameters. To run FormWeaver from the command line, type: **RUNMFJOB** and then prompt (**F4**).

Let's start out by explaining what each parameter means:

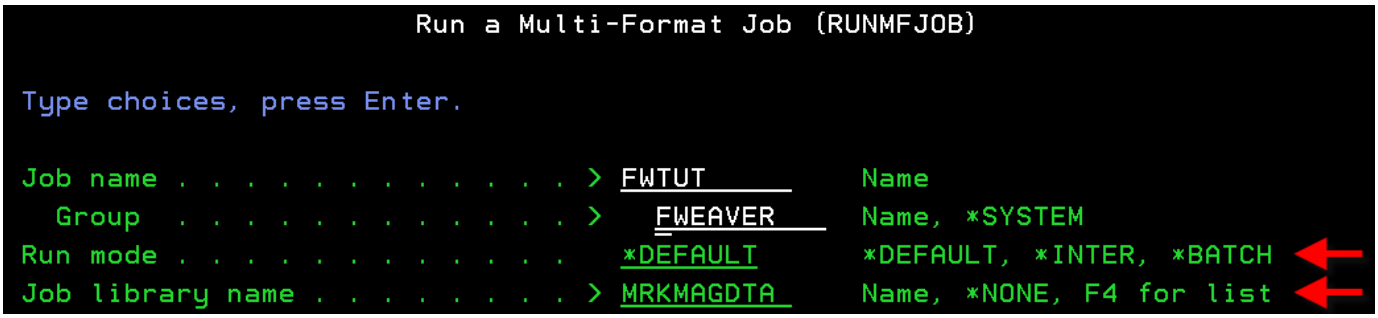
- **Job name –** FormWeaver requires a predefined MarkMagic job. Type the name of the job and the group name here. The job must contain a print step. If the print step's Format name (FMTDFT) parameter contains a value, that format is used to set the FormWeaver document's page (supply) size, margins and rotation. If the print step's FMTDFT is blank, the first format in the RUNMFJOB command's FORMAT list parameter is used to set the page (supply) size, margins and rotation values.
- **Run mode –** Whether or not RUNMFJOB should run in interactive *(*INTER)* or batch *(*BATCH)*
- **Job library name –** the MarkMagic user library where the job is stored.
- **Number of formats per page -** This is the number of MarkMagic formats that make up one printed page. (The special value **VARYING* is not currently supported.) There must be enough records in whatever data source you are using (physical file or spoolfile) to match this value. Each format on the printed page will use 1 record from that data source. If you plan to print 3 formats on the page, your physical file must contain 3 (or a value that is a multiple of 3) records. For example, if your file has 9 records, you will receive 3 pages of printed data.
- **Number of formats per record -** This is the number of formats (and pages) that correspond to each input record. When this parameter's value is greater than 1, the number of formats per page parameter, MULTIUP, should be set to 1. Similarly, when the number of formats per page is greater than 1, this parameter should be set to 1.

  An example of using multiple formats (or pages) per input record would be printing an invoice that contains a duplexed back page with special instructions. You would set this parameter to 2 and for every record in your data source, MarkMagic will print with 2 formats, each on a separate page. On a side note: to duplex your form, you would have to modify the job that the RUNMFJOB command is using to say *Duplex* ***YES**.

- **Record order -** Specifies the order of the input records. The possible values are:
  - ***SEQ -** The records will be in sequence. This means that the input records will follow the same sequence as the list of formats in the FORMATS parameter. When record order is sequential, MarkMagic ignores the LBPARM field in the label file that normally can be used to indicate the format to use for each input record. *SEQ should be used when printing with spoolfiles.
  - ***RANDOM -** In this case, the LBPARM field in the MarkMagic label file is examined to determine the format to use, record by record. *RANDOM cannot be used when printing with spoolfiles.
- **Format Specifications -** Specifies the formats that will be used to process the FormWeaver document. Each format is described in this parameter by a list of attributes. The attributes are format name, row offset, column offset and rotation. You can enter multiple values for this parameter. If you are on an entry display and you need additional entry fields to enter these multiple values, type a plus sign (+) in the entry field opposite the phrase "+ for more" and press the Enter key. The possible values are:
  - **Format-name -** The name of the format.
  - **Offset-up/down -** This is a four digit value that specifies the vertical offset for positioning the format on the page. This parameter value is specified in the unit of measure of the associated format. That means that if the format's unit of measure is Inches, the 4 digits are interpreted as 2 integer digits followed by 2 decimal digits (for example, 0425 is 4.25 inches). If the format unit of measure is Millimeters, the 4 digits are interpreted as 3 integer digits followed by 1 decimal digit (for example, 0425 is 42.5 millimeters). **Note:** If this parameter is 0 the format will print at the bottom of the page.
  - **Offset-across -** This is a four digit value that specifies the horizontal offset for positioning the format on the page. This parameter value is specified in the unit of measure of the associated format. That means that if the format's unit of measure is Inches, the 4 digits are interpreted as 2 integer digits followed by 2 decimal digits (for example, 0425 is 4.25 inches). If the format unit of measure is Millimeters, the 4 digits are interpreted as 3 integer digits followed by 1ecimal digit (for example, 0425 is 42.5 millimeters). **Note:** If this parameter is 0, the format will print at the left edge of the page.
  - **Rotation -** Specify the amount the format should be rotated on the printed page. The default value is 0. Other possible rotation values are 90 degrees, 180 degrees, or 270 degrees.
- **Back Page Format** - The name of the format to print on the back page when duplexing and the number of formats per page is defined (MULTIUP). When specifying Random record order the format will be retrieved from the value in the label file.

To achieve final FormWeaver document shown a few pages back, all you must do is fill out the RUNMFJOB command correctly. It's really all about understanding what each parameter means and using the offsets to envision your completed form. We have already created a MarkMagic job in the beginning of the tutorial, so fill in the *Job Name* and *Group:* **FWTUT** and **FWEAVER.** Now the RUNMFJOB command has access to important print parameters such as Printer Type, Printer Device name, the MarkMagic label file where the data records are, source drawer, etc.

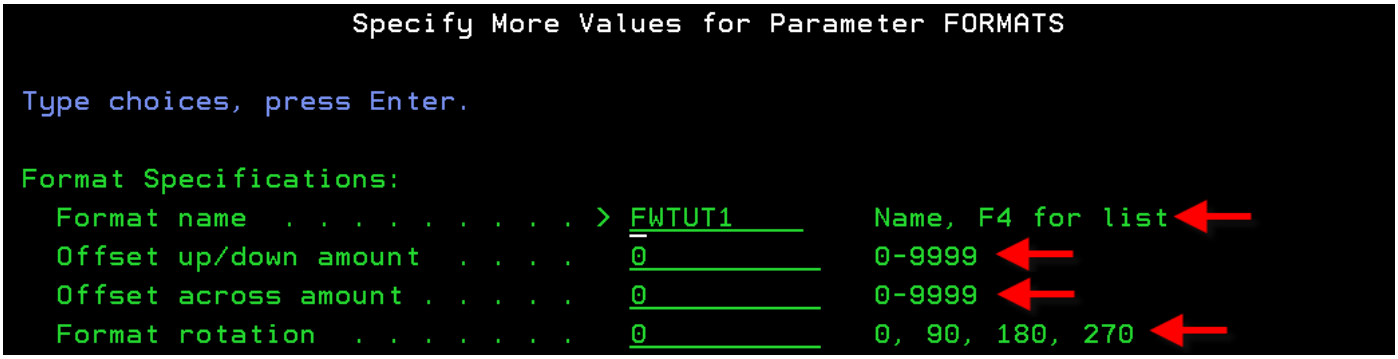
Next, the *Run mode* parameter can be left at the default value. After that, type the name of the user library where the FWTUT job is located in the *Job library name* parameter. This tutorial created everything in **MRKMAGDTA** so we will type that here. If you created everything in your own user library, please specify it here.



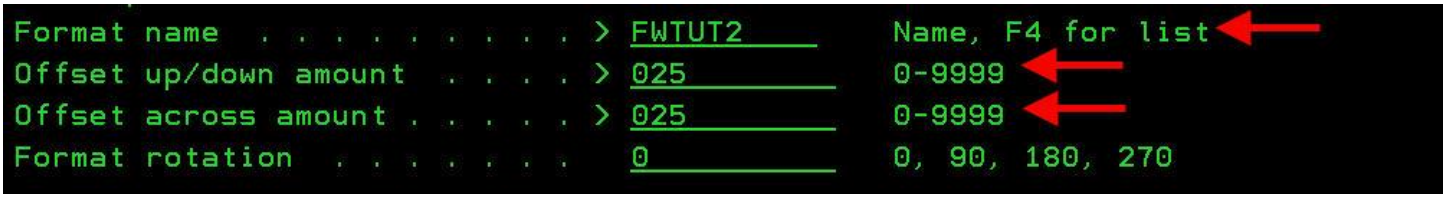
The next three parameters are probably the most important parameters of the RUNMFJOB command. They dictate how the entire process is going to work. For this tutorial, we are designing a document that is made up of 3 MarkMagic formats on one page, so the *Number of formats per page* should be set to **3.** Referencing the help documentation, we know that if *Number of formats per page* is greater than one, then *Number of formats per record* must be left at **1**. (We will not get into too much detail on when to use "formats per record", so just know that it is commonly used to print forms with special instructions duplexed on the back.)

Record order, for this example, should be set to ***SEQ.** This means that FormWeaver will use each format specified in the format list (setup in the next step) in order, one after another (repeating the order if necessary) until all records in the label file are printed. ***RANDOM** will be discussed in the next section.

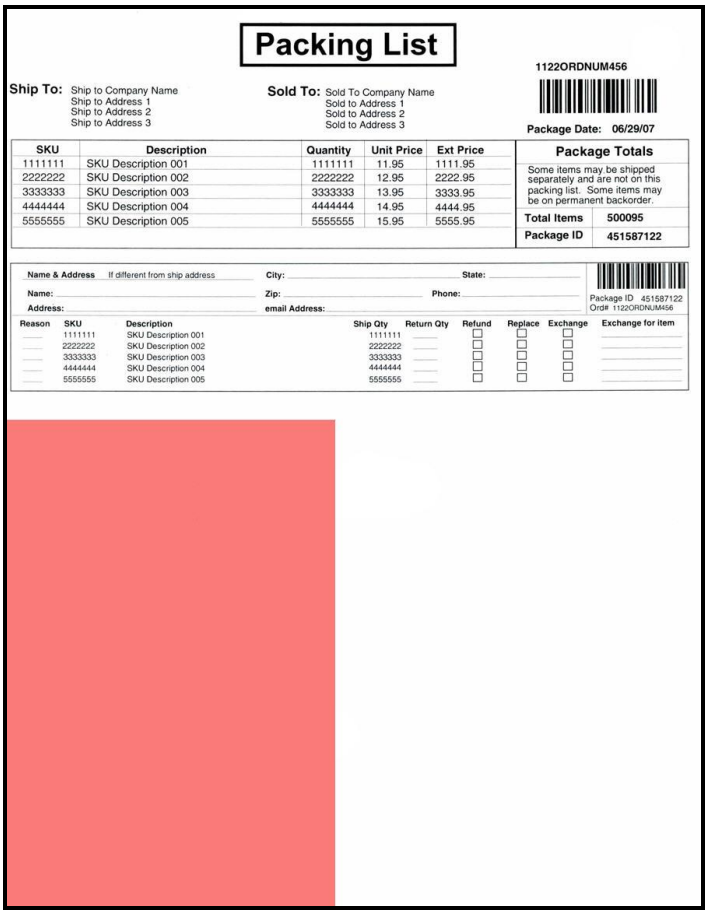
The rest of the command is the "format list". This is where you will specify each format to be involved in the FormWeaver process. Type a "+" next to *Format specifications:* to access a screen where you can type your format information in. The first format *must* be the format that defines the complete form print size. In this case, **FWTUT1** is our "main" format that is defined as 8.5" x 11". No adjustments are necessary to its positioning, so the offsets and rotation parameters can be left at **0**.

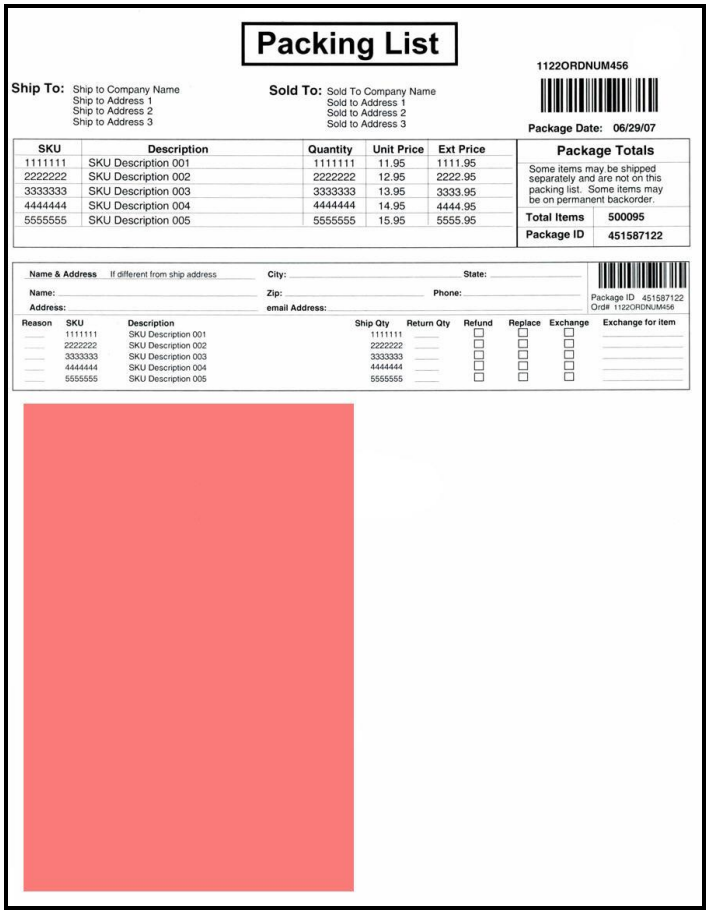


Next, fill in the information for the second format. The format name is **FWTUT2.** In order to place it as shown in the completed document example shown earlier in the tutorial, we must offset the format up and over ¼ inch so that it is not resting on the immediate edge of the FWTUT1 page. To do this, set the *Offset up* to **025** and *Offset across* to **025.** (Remember, the value is in hundredths of an inch.)



Below is a visual showing the offset before and after for FWTUT2. You can see the format is moved up .25in and over .25in:



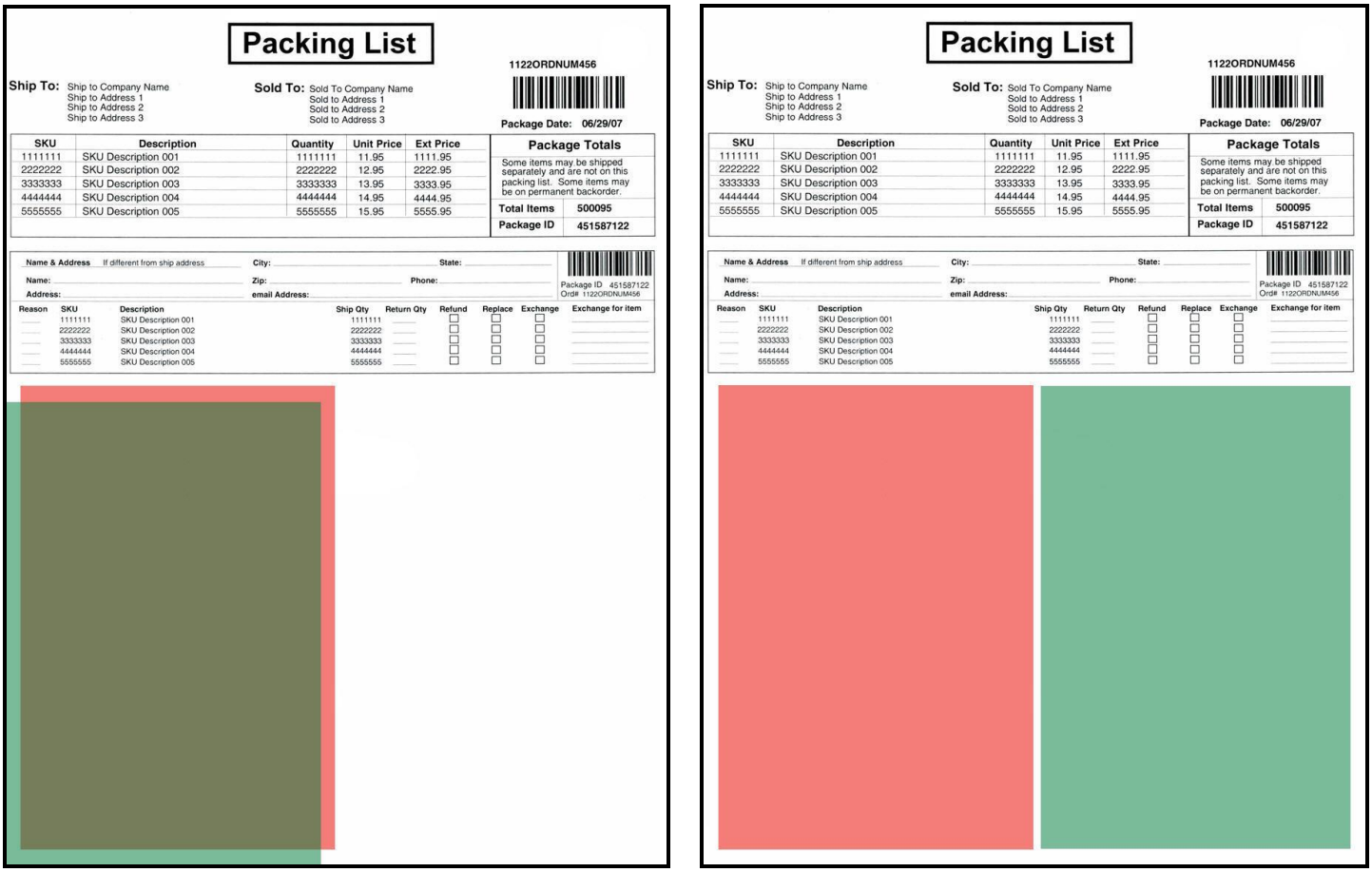


Before and after images for FWTUT2 offsets

Finally, fill in the information for FWTUT3 format which will eventually be placed on the lower right portion of FWTUT1. Set the *Format Name* to **FWTUT3**. We want the format to be offset up the same amount, so set *Offset up* to **025**. We want there to be a little gap between the labels in the middle, so instead of offsetting FWTUT3 over 4.25 inches, we need to take into account a 1/8 inch gap. So the *Offset across* should be set to **438** which is equal to 4 3/8 inches:

```
Format name . . . . . > FWTUT3      Name, F4 for list
Offset up/down amount . . . . > 025      0-9999
Offset across amount . . . . . > 438      0-9999
Format rotation . . . . . 0      0, 90, 180, 270
```

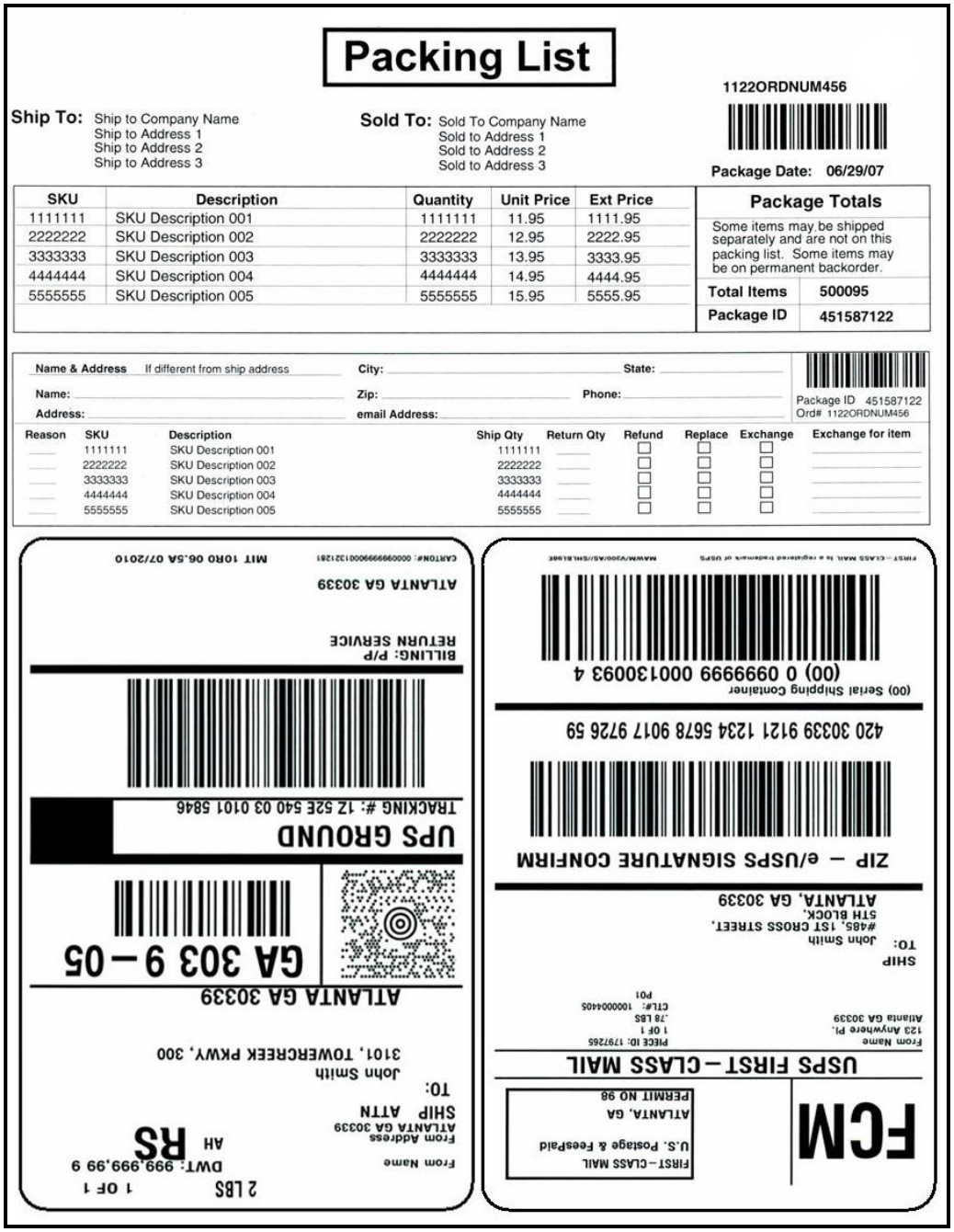
Below is a visual showing the offset before and after for FWTUT3. You can see FWTUT3 format (in green) is moved up .25 inch and over 4.38 inches:



Before and after images for FWTUT3 offsets

The RUNMFJOB command is now complete. When ran, it will print using the 3 formats specifying the list and print one document on your printer for every 3 records in the label file. Record #1 in the file will print the data for the pack list detail at the top. Record #2 will print the UPS ship label on the bottom left and record #3 will print the return label on the bottom right. If you wanted to print multiple FormWeaver documents in one print run, you would then add 3 more records to the file for every new printed page needed. So, 12 records for 4 pages, 30 records for 10 pages and so on. FormWeaver will cycle through the formats in the order they are specified in the command until all records are printed in the file.

Although we didn't show it in this example, FWTUT2 and FWTUT3 formats could also be rotated along with being offset up / across. Here is an example using 180 instead of 0 degrees rotation for both formats:



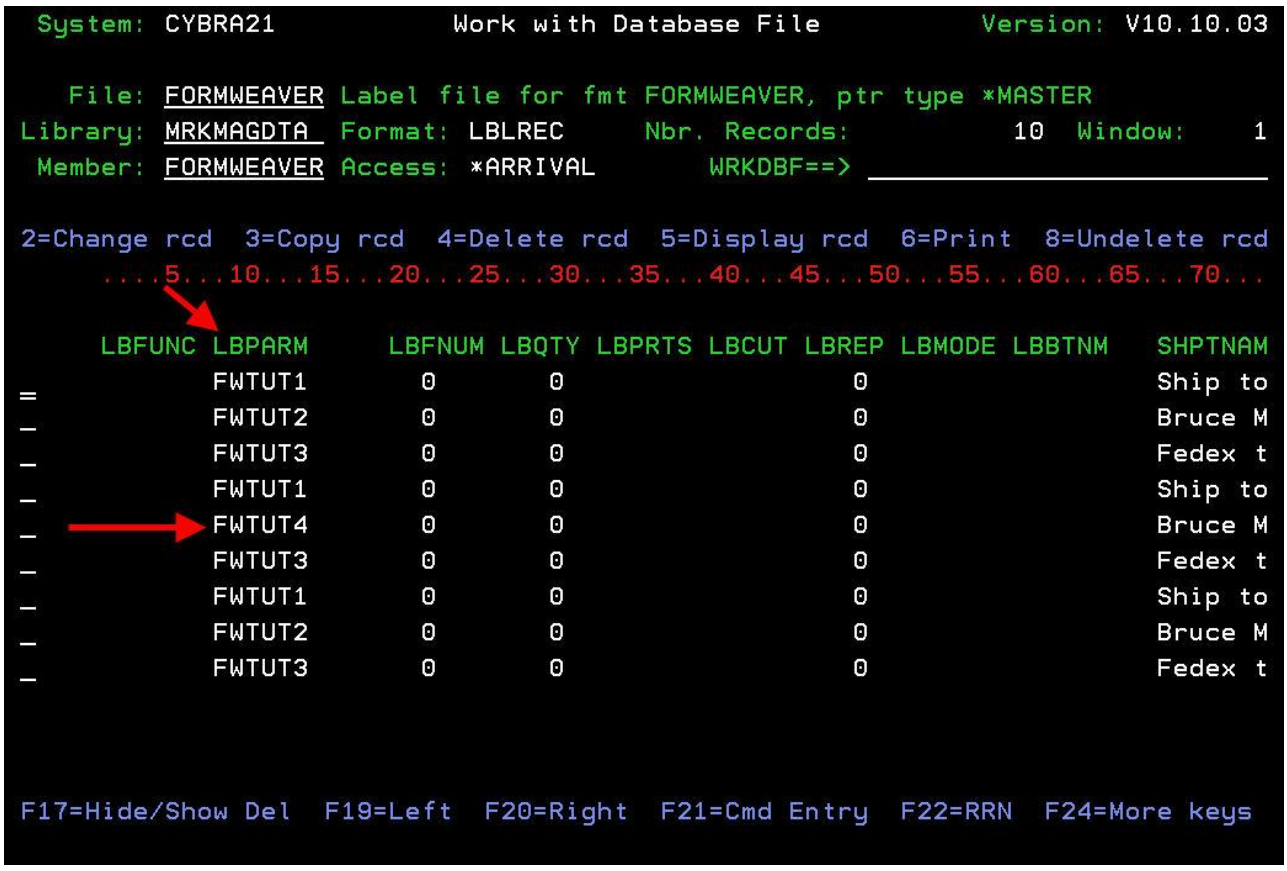
In the next section, we will discuss using ***RANDOM** instead of ***SEQ** for the *Record Order* parameter. We will also introduce *SKIP which will allow you to completely skip the printing of a format on a FormWeaver document.

*Using *RANDOM Record Order and *SKIP to Skip a Format*

This section will discuss some more advanced features of the RUNMFJOB command. In the previous example, we used *SEQ to force FormWeaver to cycle through only 3 formats until all records were printed in the file. What if you need to print a different shipping label, for example FedEx instead of UPS, on some of the packing lists? This is where ***RANDOM** comes in handy.

When ***RANDOM** is specified for *Record Order*, instead of cycling through just the formats listed in the command, the database field 'LBPARM' in the label file record is examined to determine which MarkMagic format to use. You still must list the format in the RUNMFJOB job command, but this is only so FormWeaver knows offset and rotation values for the format. The order of the formats in the RUNMJOB command is not important when *RANDOM is used. So, the list of formats in RUNMFJOB is now just a list of all formats that could show up in the FormWeaver print job.

Example Label File: *(Note the LBPARM field in the beginning specifying the format name)*



You can also see in the above example that we specified a new format (FWTUT4) to print in place of the FWTUT2 format. This is a good example showing how you can utilize *RANDOM to print a different shipping label on a packing list within the same FormWeaver print run. If we were using *SEQ in the RUNMFJOB command, FormWeaver would just cycle through only those 3 formats listed in the command. Now, with *RANDOM, you have full control over which format prints. You can design a collection of different labels and use the LBPARM field to swap between any of them within one FormWeaver print run.

What if detail for a packing list extends to a second page? You would not want to print the shipping or return labels on both pages. In order for the FormWeaver command to work properly, though, you would still need 6 records in the file. For the second and third records you can specify *SKIP in the LBPARM field instead of the format name. FormWeaver will see this and automatically skip over those records and continue to process the RUNMFJOB command like normal. The labels that would have printed would now be completely blank.

Below is an example label file with 6 records (note the *SKIP records) and the two resulting printed documents:

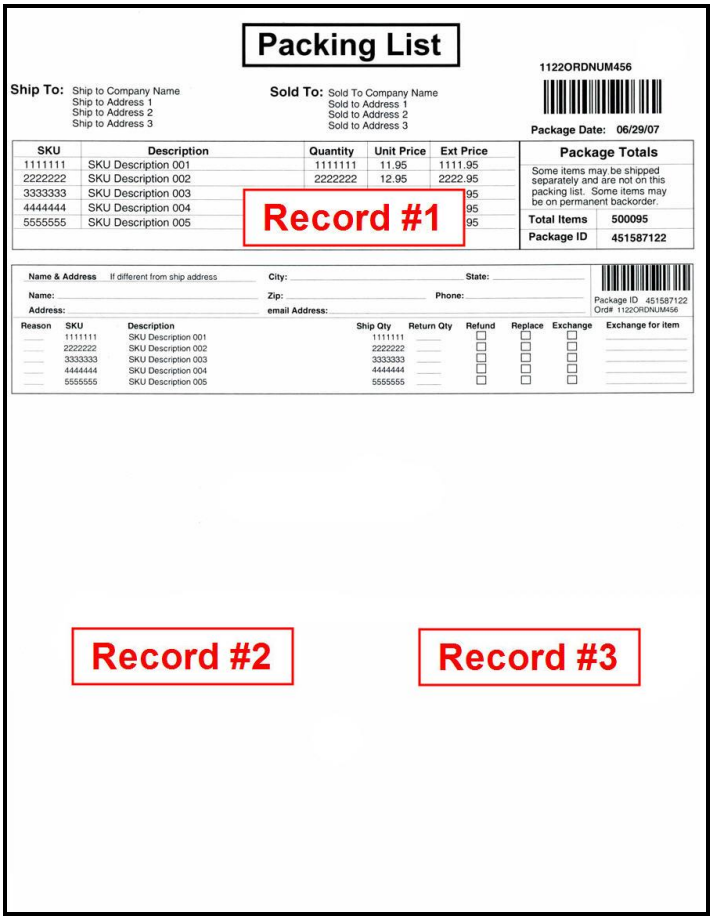
```
 System: CYBRA21           Work with Database File          Version: V10.10.03

   File: FORMWEAVER Label file for fmt FORMWEAVER, ptr type *MASTER
Library: MRKMAGDTA  Format: LBLREC     Nbr. Records:          10  Window:     1
 Member: FORMWEAVER Access: *ARRIVAL       WRKDBF==> ____________________________

2=Change rcd  3=Copy rcd  4=Delete rcd  5=Display rcd  6=Print  8=Undelete rcd
     ....5...10...15...20...25...30...35...40...45...50...55...60...65...70...
              Parameter
     Function Format name Format Number Quantity Parts Cut Repetition Mode Bat
=             FWTUT1        0              0                   0
_             *SKIP         0              0                   0
_             *SKIP         0              0                   0
_             FWTUT1        0              0                   0
_             FWTUT2        0              0                   0
_             FWTUT3        0              0                   0




F3=Exit   F6=Add record   F14=Fields   F16=Find   F18=SQL Cmds   F24=More keys
```



*Example showing *SKIP on record #2 and #3 of a two page FormWeaver packing list*

If you have any questions on this, or any of the tutorials, please contact CYBRA Technical Support department at (914) 963-6600 Option #4.