MarkMagic

Barcode Labels, RFID Tags, and Electronic Forms Software for IBM System i
Graphic Concepts Tutorial

```
                    Work with Graphics Gallery

Position to graphics type  . . . . . . .
Position to graphic number . . . . .

Type option, press Enter.
   2=Change description      4=Delete

       Graphics   Graphic
Opt    Type       Number    Name                                    tion
  _    PCL           81     CYBPORT
  _    PCL           82     CYBRA
  _    PCL           83     SUSCO
  _    PCL           84     SUSCO
  _    PCL           85     SUSCO
  _    PCL           86     VAI
  _    PCL           87     VAI
  _    PCL           88     VAI
  _    PCL           89     CYBRA
  _    PCL           90     CYBRA          CYBRA .45 x .45

                                                         More...

F3=Exit      F4=Prompt      F5=Refresh      F9=Command line
F11=Source graphics          F12=Cancel
```

Cybra GIF Converter

Resolution (dpi) : ○ 600 ○ 300 ● 200 ○ 150 ○ 100

Scaling % : 100

Rotate: ● 0 ○ 90 ○ 180 ○ 270

Size (inches) : Horizontal 4.68   Vertical 0.6

MONOCHROME ▾   PCL ▾

☑ Use Default Res

Monarch MPCL
Zebra
PCX
TEC2
IOCA
Avery Dennison
MonarchHEX
Intermec

View Original   Preview

Description:

We identify with success.

Welcome

Welcome to Part 3 of the MarkMagic and JMagic combined tutorials! This tutorial will teach you everything you need to know about adding graphics to your formats. As with the previous tutorials, the steps are in different colors so you can focus only on the MarkMagic or JMagic steps separately.

Before we begin we are assuming that:

1. You have completed and understand what was introduced in the "Basic Concepts" tutorial as well as the "Intermediate Concepts" tutorials.
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. (If not, you can use our PDF option to produce your output.)

In this tutorial, you will learn:

1. What a user library is and why you would want to use them.
2. What source and target graphics are and how to create them.
3. How to add a static graphic to your format.
4. How variable graphics work and how to add a variable graphic field to your format.

User Libraries

The MarkMagic User Libraries feature lets users organize labels and forms by department, or customer, or application. If you have multiple groups of users responsible for different applications, it is advantageous to organize formats, jobs, label files, and graphic images by User Library for the following reasons:

1. It will be easier for multiple MarkMagic users to find and work with the formats they are responsible for maintaining.
2. Security is improved by the ability to grant different authorities to different User libraries.
3. Customers supporting multiple sites (and software vendors supporting their customers) can distribute User libraries of customized objects without needing to redistribute the entire MarkMagic product library.
4. Application Software Vendor customers can modify labels without damaging the software vendor's base libraries.

In each of the tutorials thus far, we have used the default user library which is named MRKMAGDTA. You might recognize this name because it is shown in various places throughout the windows and screens.
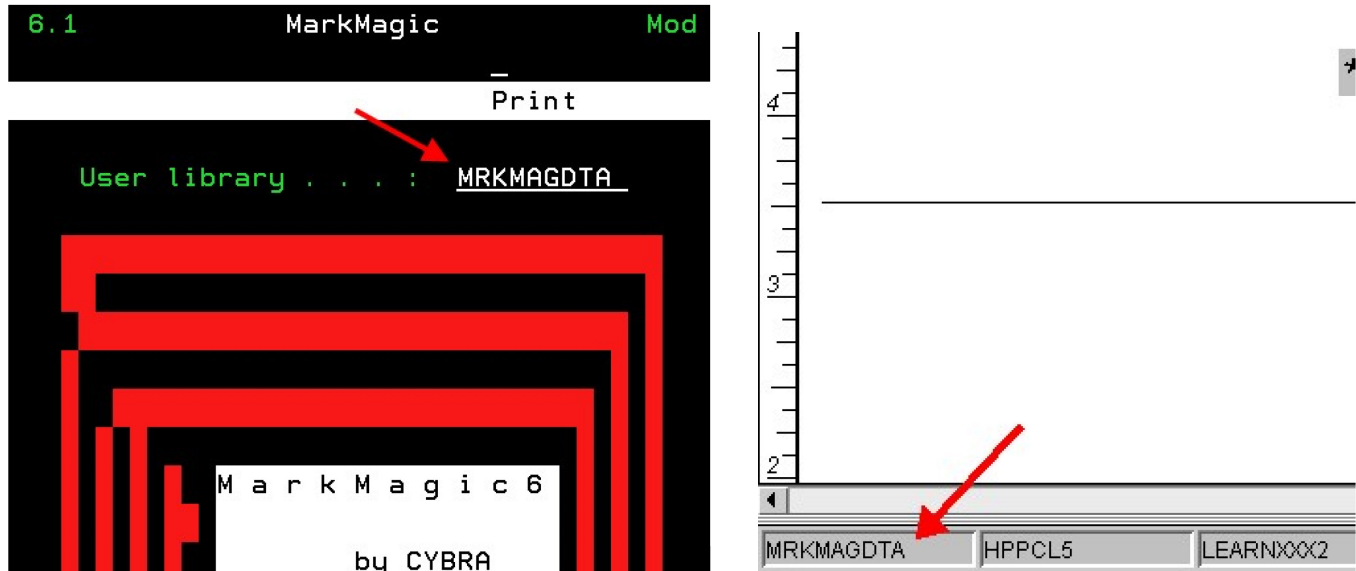
Also, for any parameter anywhere in MarkMagic that requests a user library name, ***NONE** is the same as **MRKMAGDTA.** Even though you can create formats and label files within MRKMAGDTA, we recommend the use of your own custom user libraries.

There are a few ways to create a MarkMagic user library. MarkMagic can automatically create the library for you. All you would have to do is type the name of the library in the space found on the MarkMagic main menu and press ENTER. If the library is not found, it will ask if you want to create it. If it finds a library with that name already, it will ask if you want to convert it to a user library. This does nothing detrimental to the library; all of the existing objects will still be intact. It just creates special MarkMagic database files within the library.

For this tutorial you will continue to use MRKMAGDTA as the user library. We simply wanted to introduce custom user libraries because the topic will be brought up throughout this tutorial.

Source Graphics and Target Graphics

To print graphics in MarkMagic, on any type of printer, you first need a "source graphic". This is the actual graphic file as it exists on your PC. MarkMagic and JMagic support GIF and JPG (JPEG) source files. The source graphic is converted, using tools within MarkMagic and JMagic, to a "target graphic". A target graphic is a copy of the source graphic, but formatted to be compatible with your target printer type (Zebra, Monarch, Laser, Intermec). Let's jump right into adding a graphic to a format.

Uploading the Source Graphic

JMagic is going to be used to do all of the graphics work for us, so start JMagic and get to the main screen. You should notice along the way, the option for user library. Leave it at ***NONE** to start JMagic in **MRKMAGDTA**. The source graphic must be uploaded to the System i, first, before you can convert it to print on your printer. At the very top, click Utilities, Graphics and then Load.


The Load Image into Graphics Gallery window is displayed. It is a familiar "select a file" window that you see on your PC in many other applications. It defaults to your "My Documents" folder. Use the pull down menu and the folder listings to navigate your PC for graphic files. Find the **CYBRA.gif** sample graphic file that was included with this tutorial. For simplicity, we are assuming the graphic is stored on your desktop. Pull the menu down and select **Desktop**.
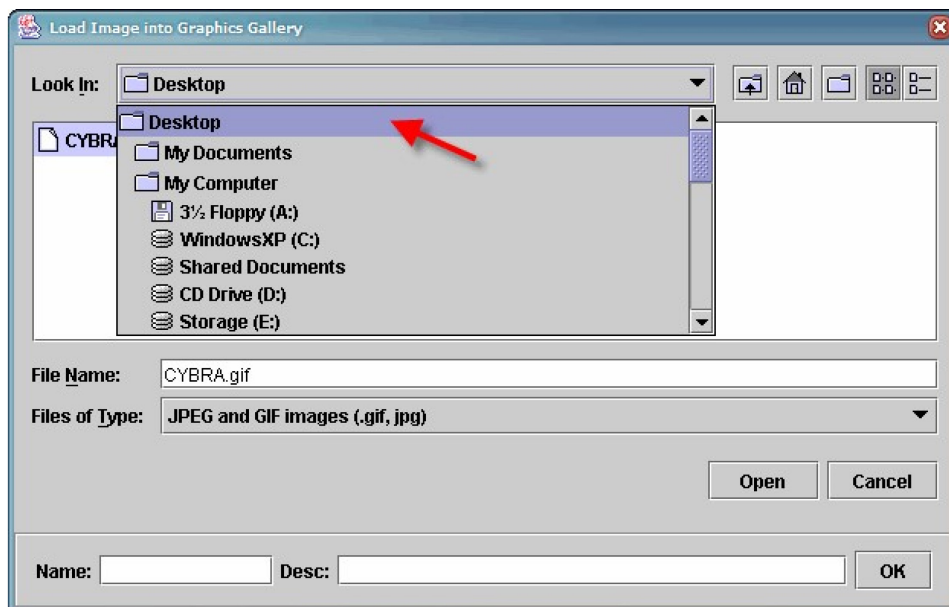
You will be shown a list of JPG and/or GIF files that are found on your desktop. Select **CYBRA.gif** and click OPEN. Doing this simply unlocks the *Name* and *Description* fields below. This data will be used for the source image once it is uploaded to the System i. JMagic will provide a name for you based on the actual graphic name. You can overwrite this with whatever you wish, making sure the name is uppercase and no longer than 10 characters.
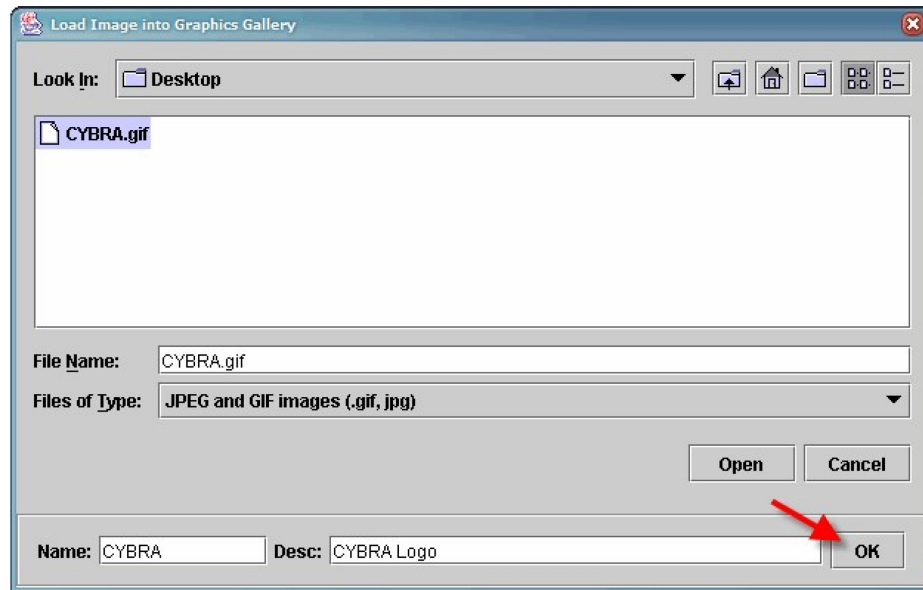
Once you are satisfied with your graphic selection and its source name, click OK. JMagic will upload the file to your System i and you will eventually receive a notice that the image is loaded into the Graphics Gallery.
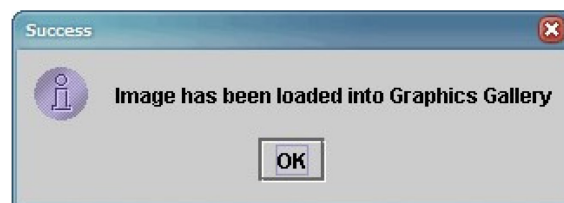

Click OK and you will automatically be brought to the most important screen in this whole tutorial. The Image Converter.
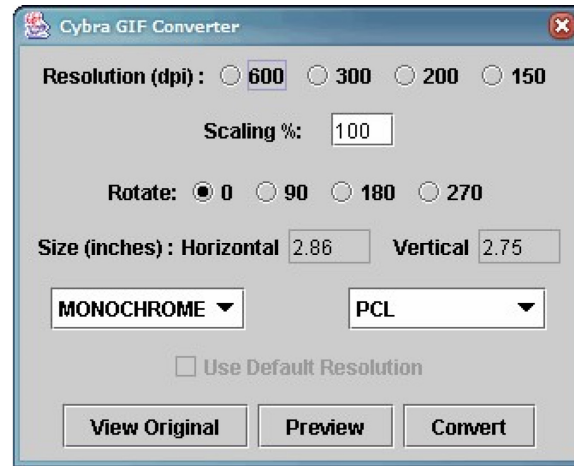
The Target Graphic

Up until now, the tutorials did not mention anything about designing for specific printer types. You created a format using the standard laser PCL driver. (HPPCL5) It is now time to start thinking about your target printer. MarkMagic supports many printers and each make requires graphics to be in a certain form. That is why we must convert the now uploaded source image file to the correct format. This new file is the target graphic. The most popular printer types are Zebra, Monarch, Intermec and any kind of laser printer.
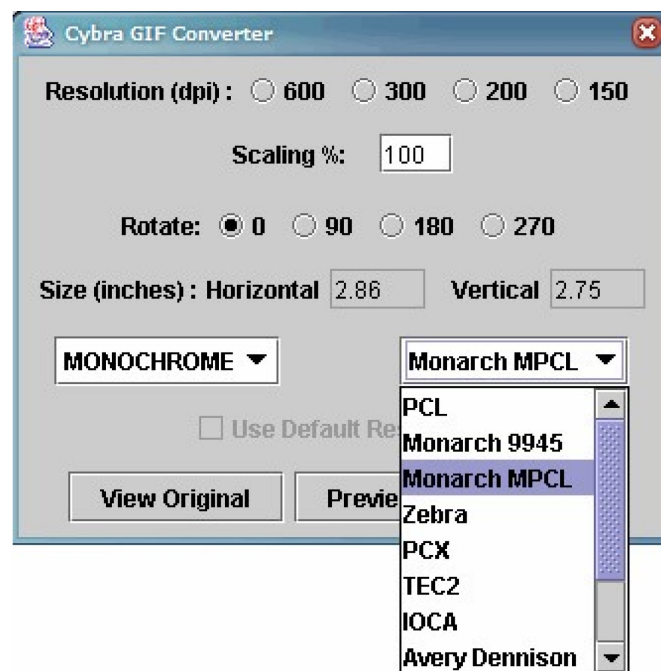
If you have a Zebra printer, choose *Zebra*. If you are printing labels on a Monarch printer, choose *Monarch* MPCL. If you own an Intermec printer, scroll down and choose *Intermec*. If you are going to continue to use your laser printer in this tutorial, choose *PCL*. Also, Printronix printers use *PCX*. For this tutorial, we have picked Zebra, but as you know, yours can be different.

The next characteristic of your target printer to think about is its resolution measured in DPI. (Dots Per Inch.) You will want to choose the dpi that matches your printer. For this tutorial, we have picked 200, but yours can be different.

Notice the values for size. These are actual height and width values for the graphic as it will be printed. You can change the percentage of scaling to make the printed target graphic bigger or smaller and that size change will be reflected here.

The graphic can also be rotated. Some printers can not rotate a graphic at print time, so you must rotate when you create the target graphic.

The pull down menu on the left lists the different methods used to convert the image. If your source graphics is in color, then you will want to choose something other than MONOCHROME. Some selections can provide better results than others depending on the quality of your source image.

Once you are satisfied with the target image settings, you can click on *Preview* to see what the image will look like once printed. You can also click on *View Original* and compare the two.
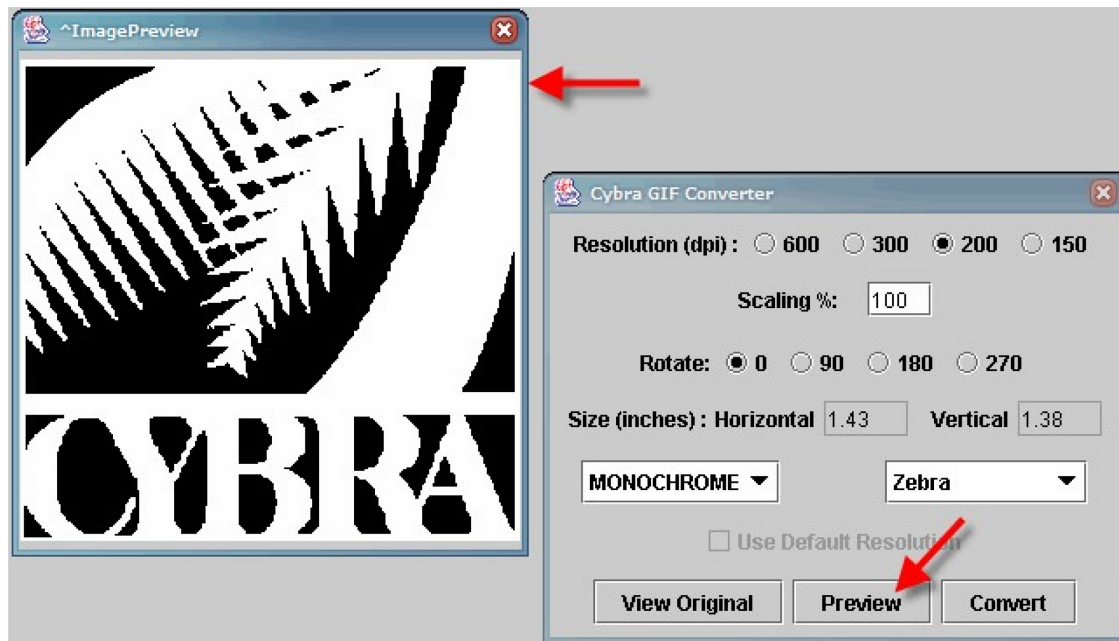
If it looks good to you, click *Convert*. The *Set Target Graphic Properties* window is displayed. Here is where you can set the name and description of the converted target graphic. Leave the name *CYBRA* and set the description to whatever you like. Leave the number set to 0. MarkMagic sorts graphics by "graphic number" and a 0 tells JMagic to use the next available number.
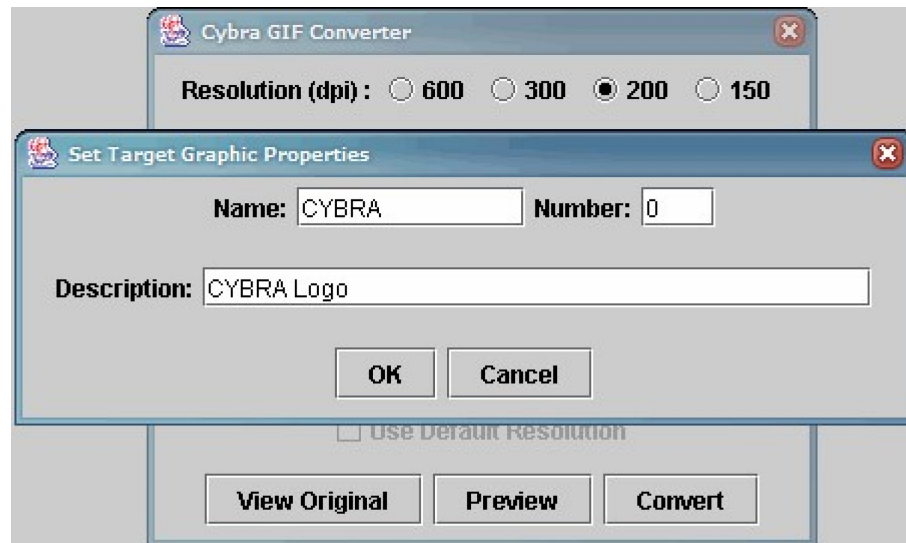
Click OK to convert the graphic. JMagic will pause while it is working and then you will eventually be returned to the previous Image Converter window. It does this so you can create more target graphics, if you wish, from the same source graphic. Since you only use this single graphic for now, close this window.

Congratulations on converting your first graphic. Now it's time to add it to a format.

Adding a Graphic to a Format

In this tutorial you are going to create a new format to work with. If you are not comfortable with creating a new format, please see the first tutorial: "*Basic Concepts of MarkMagic and JMagic.*" It explains, in detail, how to create new formats in MarkMagic and JMagic.

Now that you have converted a graphic to print on your specific printer, you need to make a format that uses the correct Device type designed to print on your printer. You couldn't simply direct the print job from the previous tutorials to a Zebra printer because Zebra printers use a different language than laser printers.

If your copy of MarkMagic is already configured to print to your target printer, please ignore the following step.

The first thing you must do before making specific formats is to configure MarkMagic so it supports all printers. At a command line, type **MRKMAG60/SETMMPRM** and press Enter. Type ***ALL** in the first spot for *Printer Device types* (overwriting whatever might already be there) and press **ENTER** twice. Now, MarkMagic will allow you to create formats for all sorts of printers!

```
                        Set MarkMagic Parameters


    Date: 10/07/07          CPU model type:  520          Version: 6.1
    Time: 18:24:30          CPU serial num:  10C2AAE       Mod lvl: 070928
                            Processor group: P05
                            Logical partitn: 001


  Type choices, press Enter.


    Printer device types  . . .   *ALL                    F4 for list
                                  _____
                                  _____
                                  _____
                                  _____
                                  _____
                                  _____
                                  _____
                                  _____
                                  _____


                                                              More...
    F3=Exit     F5=Refresh     F8=Product Keys     F12=Cancel
```
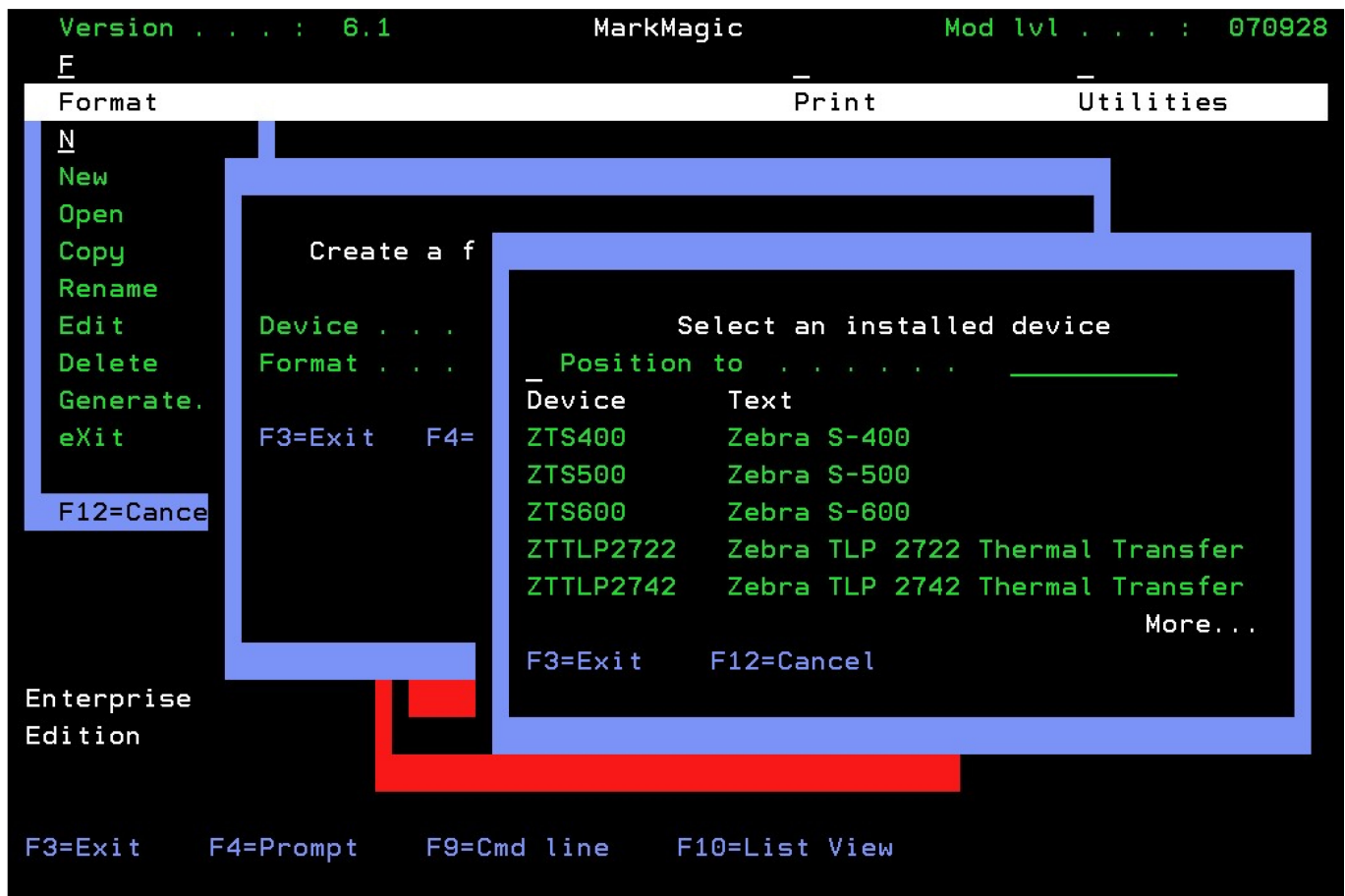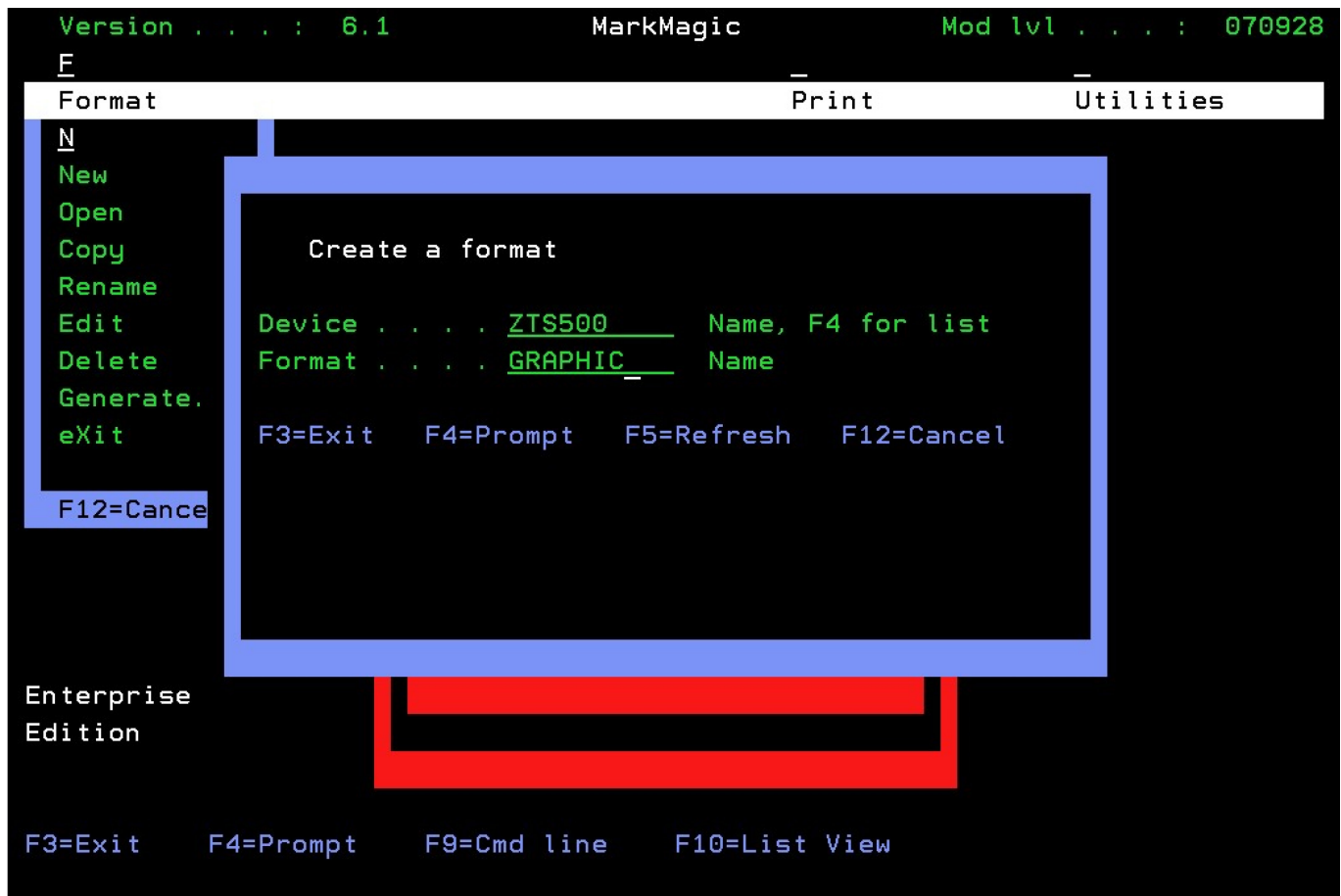
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Start MarkMagic and create a new format but this time, prompt (F4) the Device parameter. You will be shown the full list of supported printers. Since MarkMagic supports almost every printer available, your printer make and model should be listed. Place your cursor on your preferred device and press ENTER. This tutorial will use the Zebra device ZTS500, but your selection will most likely be different.

```
 Version . . . :  6.1          MarkMagic          Mod lvl . . . :   070928
 F                                         _              _
 Format                                  Print         Utilities
 N
 New
 Open
 Copy            Create a f
 Rename
 Edit         Device . . .           Select an installed device
 Delete       Format . . .    _  Position to . . . . . .    _____
 Generate.                    Device      Text
 eXit         F3=Exit    F4=  ZTS400      Zebra S-400
                               ZTS500      Zebra S-500
   F12=Cance                   ZTS600      Zebra S-600
                               ZTTLP2722   Zebra TLP 2722 Thermal Transfer
                               ZTTLP2742   Zebra TLP 2742 Thermal Transfer
                                                             More...
 Enterprise
 Edition                      F3=Exit    F12=Cancel


 F3=Exit    F4=Prompt    F9=Cmd line    F10=List View
```

```
   Version . . . :  6.1            MarkMagic          Mod lvl . . . :   070928
   F                                            _                   _
   Format                                      Print            Utilities
   N
   New
   Open          ┌──────────────────────────────────────────────────────┐
   Copy          │                                                      │
   Rename        │     Create a format                                  │
   Edit          │                                                      │
   Delete        │    Device . . . .  ZTS500      Name, F4 for list     │
   Generate.     │    Format . . . .  GRAPHIC     Name                  │
   eXit          │                                                      │
                 │    F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel     │
   F12=Cance     │                                                      │
                 │                                                      │
                 │                                                      │
                 │                                                      │
   Enterprise    │                                                      │
   Edition       └──────────────────────────────────────────────────────┘

   F3=Exit     F4=Prompt     F9=Cmd line     F10=List View
```

Name your new format anything you like, but for this tutorial, **GRAPHIC** was chosen as a name. Press ENTER to get to the *Work With Format Definition* screen.

When you create your format, make sure it is sized correctly. Most thermal label printers use 6 inch length and 4 inch width labels. Once again, yours may vary. After creating the format, you will eventually be brought to the familiar design view.

Add a ***HEADING** text field towards the top-middle of your format with **Graphics Tutorial** typed in the *Description* line. Leave every other parameter at the default. This will create a simple text field at the top.

Next, a few inches below that, press **F6** to add a new field, but this time press **G** for *Graph field*. Notice that it also has a name of ***HEADING**.

```
                         Work with Graphic Field
 Device . . . : ZTS500
 Format . . . : GRAPHIC      Length:  6.00"    Width:  4.00"    Rotation:    0

 Field #  . . : 002

 Type choices, press Enter.

    Field name . . . . . . . . .   *HEADING    Name, *HEADING, *LINK,
                                               F4 for list of fields

      Description . . . . . . . .  _____

    Length  . . . . . . . . . .   ____       1 - 30
    Decimals  . . . . . . . . .   __         0 - 9
    Reference type  . . . . . . .  _          0=number, N=name, D=description

    Row / Column  . . . . . . . .  3.40   1.70 .04 - 6.00  /  .01 - 4.00
    Stored graphic  . . . . . . .  _____      number, F4 for graphic list
    Length  . . . . . . . . . . .  _____      .04 - 6.00
    Width  . . . . . . . . . . .   _____      .04 - 4.00

                                                            More...

 F3=Exit    F4=Prompt    F5=Refresh    F12=Cancel
```

Just like text fields, graphic fields can be ***HEADING** fields. Except the description field doesn't matter here. The way you tell MarkMagic what graphic to print is by specifying the graphic number in the *Stored graphic* parameter. Place your cursor there and prompt the field. You will be shown a list of graphics that are compatible with the device you chose. (Example: Zebra graphics will not show if you are working with a Monarch format, etc.)

```
               Select a Graphic

Device . . . :  ZTS500              Graphics type . . . . :    ZPL


Position to graphic number . . . . . . .   ____


Type option, press Enter.
  1=Select


    Graphic
Opt  Number   Name          Description
 1       1    CYBRA         CYBRA Logo















                                               Bottom
F3=Exit     F5=Refresh     F11=Source graphics     F12=Cancel
                          (c) Copyright CYBRA Corp. 1991, 2005
```

There may be more than one graphic in the library you are working in that is compatible with your device. Place a **1** next to the graphic you made earlier and press ENTER. MarkMagic will put the graphic name in the description line for visual purposes. All you need to do is type in the actual graphic *Length* and *Width* values. In most cases, these values do not need to be exact. Type **1.00** for each value.

```
                        Work with Graphic Field
Device . . . : ZTS500
Format . . . : GRAPHIC      Length:  6.00"     Width:  4.00"     Rotation:   0


Field #  . . : 002


Type choices, press Enter.

  Field name  . . . . . . . . .   *HEADING     Name, *HEADING, *LINK,
                                               F4 for list of fields
    Description . . . . . . . .   CYBRA

  Length  . . . . . . . . . . .   ____         1 - 30
  Decimals  . . . . . . . . . .   __           0 - 9
  Reference type  . . . . . . .   =            0=number, N=name, D=description

  Row / Column  . . . . . . . .    2.70   __.95 .04 - 6.00  /  .01 - 4.00
  Stored graphic  . . . . . . .       1        number, F4 for graphic list
  Length  . . . . . . . . . . .    1.00        .04 - 6.00
  Width   . . . . . . . . . . .    1.00        .04 - 4.00


                                                             More...

F3=Exit    F4=Prompt    F5=Refresh    F12=Cancel
```

Press ENTER twice to add your new graphic field! You should see it added to the design view as a box.
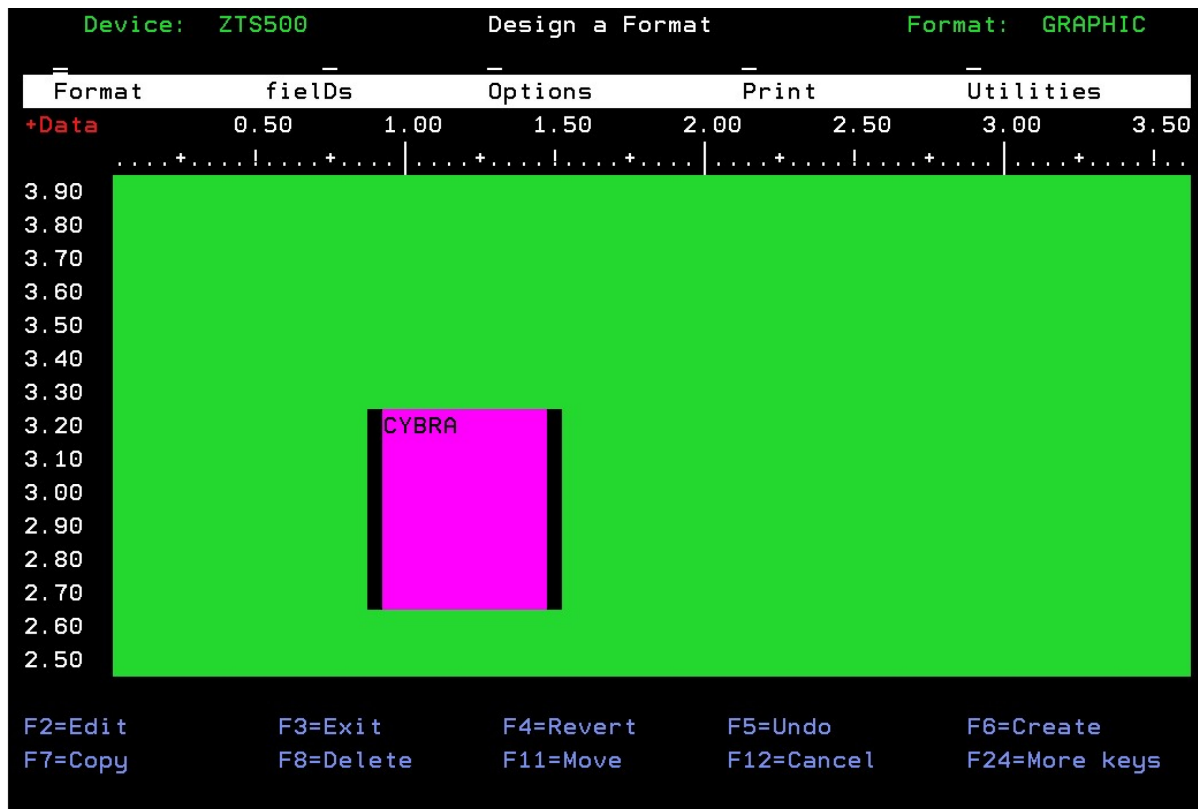
Congratulations on adding your first graphic to a MarkMagic format. Yes, it is that easy. When this format prints, the graphic will show up in the same spot on every label or form. This is because it is a ***HEADING** field. If you want different graphics to print based on specific data, then you will want to see the section describing the use of *Variable Graphics* later in this tutorial.

At this time, you can print your format if you wish. Since there is no variable data on this format, so you can print it just like you did the format in the "*Basic Concepts*" tutorial. Please reference that section if you need help printing from MarkMagic.

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When starting MarkMagic, make sure to leave the selection for *User Library* as ***NONE**. This way, JMagic will look in the MRKMAGDTA library for formats and graphics.

Create a new format. You will be presented with a large list of *Device Types*. Since MarkMagic supports almost every printer available, your printer model should be listed. Click on your printer type and then type. This tutorial will choose **ZTS500**, but yours will most likely be different.
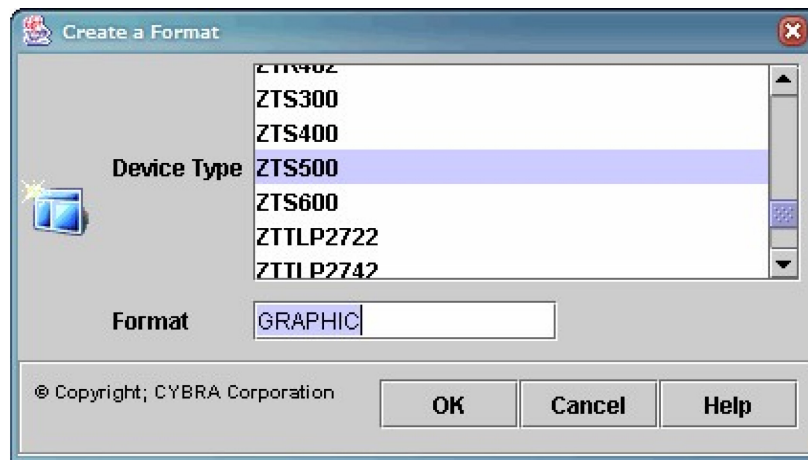
Provide a name for your new format. This tutorial will name the format **GRAPHIC**, but yours can be different.
Click OK to go to the *Create a Format* screen.

When you create your format, make sure it is sized correctly. Most thermal label printers use 6 inch length and
4 inch width labels. Once again, yours may vary. After creating the format, you will eventually be brought to
the familiar design view.

Add a ***HEADING** text field towards the top middle of your format with **Graphics Tutorial** typed in the
Description field. Leave every other parameter at the default. This will create a simple text field at the top.
Now, it is time to add the graphic.

At the top, click the *Create a Graphic Field* button. Just like any other field, the cursor will turn into a **+,** so
click a few inches below the text field you added and the *Create a New Graphic Field* window will appear.

Just like text fields, graphic fields can be ***HEADING** fields. So, name the field ***HEADING**. For graphic
fields, the description doesn't matter. The way you tell JMagic what graphic to print is by selecting the graphic
from the pull down menu at the bottom. You will be shown a list of graphics that are compatible with the
device you chose. (Example: Zebra graphics will not show if you are working with a Monarch format, etc.)

JMagic will automatically fill in the *Length* and *Width* values of the graphic. This is all you need to do to add a static graphic to a format, so click OK. You should see the actual graphic now placed on the JMagic design canvas.
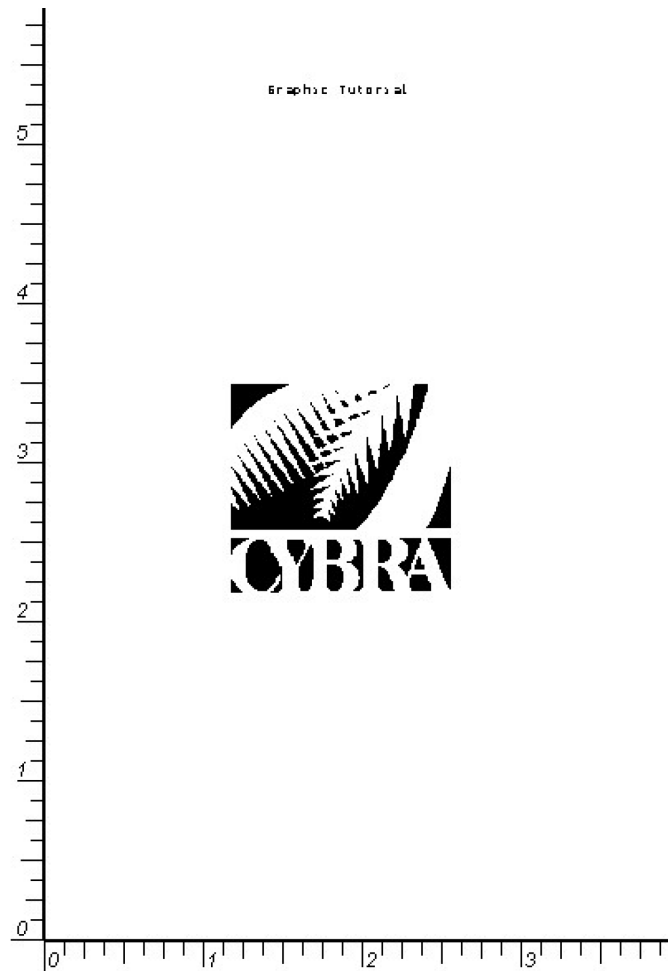
Congratulations on adding your first graphic to a JMagic format. Yes, it is that easy. When this format prints, the graphic will show up in the same spot on every label or form. This is because it is a ***HEADING** field. If you want different graphics to print based on specific data, then you will want to see the section describing the use of *Variable Graphics* later in this tutorial.

At this time, you can save the format and print it. Since there is no variable data on this format, so you can print it just like you did the format in the "*Basic Concepts*" tutorial. (Using ***LAYOUT** as the label file name.) Please reference that section if you are having trouble printing from JMagic.

Working With Variable Graphics

It is highly recommended that you understand the information covered in the "*Intermediate Concepts*" tutorials before working on this section of the graphics tutorial. Many of the methods introduced by those tutorials will be used here without much explanation.

Just like a text field, graphics can be either static or variable. With a variable text or barcode field, you provide the text to be printed or encoded via a MarkMagic label file or mapped from different pages in a spooled file. A graphic field can be linked to a variable data field in much the same way as text field can be. However, you do not provide an actual graphic file when you want to print the graphic; you would provide data that matches an existing graphic's name, description or number.

For instance, if you wanted to print a graphic that has the name LOGO, you would pass LOGO as the variable data. This is only if you have it setup to reference the graphic name. You can also have it setup to reference the graphic number. In that case, if you wanted to print graphic number 39, you would pass 39 as the data and that specific graphic would print. Lastly, if it is setup to reference the graphic's description and wanted to print a graphic that has a description of "Company Logo 2", you would have to pass "Company Logo 2" as the variable data. Each record can pass different data and therefore a different logo can be printed on each label or form.

A good example is a company printing a picture of each of their products by referencing the description of the graphic field. In each description is the products UPC number. They link a graphic field to their UPC barcode and, in doing so, the UPC number is passed to the graphic field. The graphic with the matching numbers in the description field will then print.

How can you change the number, name and description of your graphics to match your data? What is referencing? What happens if data is sent that does not match any graphic in the gallery? Read on for the answers and a quick guide to variable graphics.

### *Uploading / Converting More Graphics*

All of the graphics that you plan on using as variable graphics must be uploaded and converted correctly prior to printing them. Follow the steps described earlier in this tutorial to upload and convert any new graphics you will use. If at any point you want to convert an *already uploaded* source image (remember you just need to upload the source one time) in JMagic, click on *Utilities*, then *Graphics* and then *Convert* to bypass the uploading step.

The *Choose a Source Graphic* window will appear. Click the expander button next to the type of graphic and then click the source graphic that you want to re-convert and then click OK. The familiar Image Converter will then be shown.
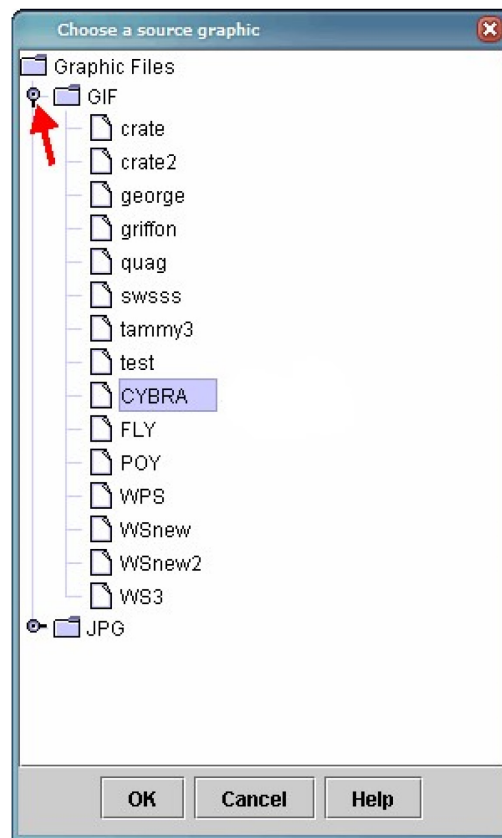
The last step of the conversion process is the most import step when implementing variable graphics. It is the screen where you provide a unique graphic name, description and/or number. One of these three details will need to be matched exactly with your data when printing. There is a way, within green screen MarkMagic, to change the name, description and number of an already converted graphic, so don't worry if you make a mistake here.
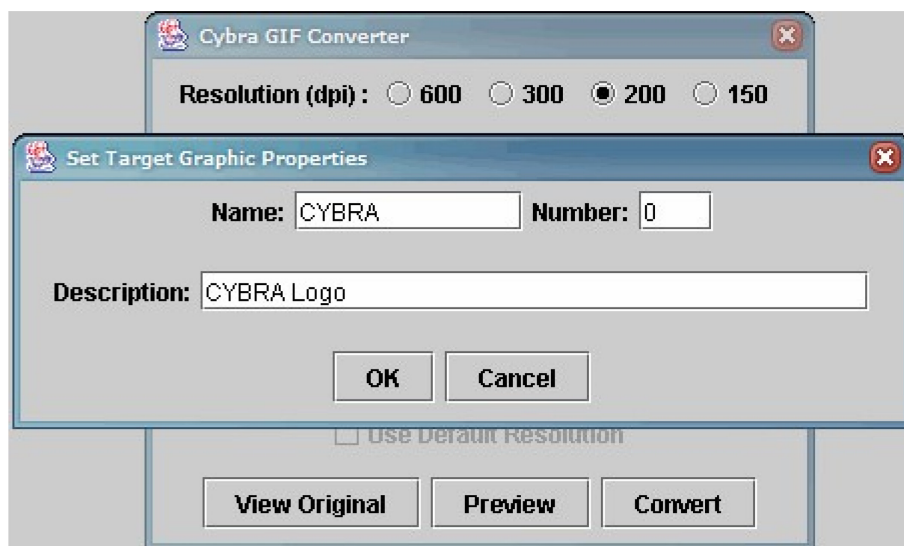
If you need to make changes to the graphic's name/description/number, you can do this in MarkMagic. Go to *Utilities* (**U**), *Graphics* (**G**), *Open* (**O**). You will be presented with a list of graphics sorted by printer type and graphic number. Here is a sample screenshot. (Yours will be different.)

```
                    Work with Graphics Gallery

Position to graphics type  . . . . . . .  _____
Position to graphic number . . . . . . .  ____

Type option, press Enter.
  2=Change description     4=Delete      5=Display      7=Renumber


     Graphics   Graphic
Opt  Type       Number    Name          Description
 _   AFP            1      INTERFACE     Interface Logo
 _   AFP            2      BBB555        Bed Bath and Beyond 2
 _   AFP            3      BBB444        Bed Bath and Beyond 2
 _   AFP            4      BBB555        Bed Bath and Beyond 2
 _   AFP            5      BBB5454       Bed Bath and Beyond 2
 _   AFP            6      BBB77777      Bed Bath and Beyond 2
 _   PCL            1      REPACETEST    Seneca Medical
 _   PCL            2      ATLOGO        Atlogo
 _   PCL            3      21250         North American 0 Rotation
 _   PCL            4      NA180DEG      North American 180 Rotation
                                                           More...

F3=Exit       F4=Prompt      F5=Refresh      F9=Command line
F11=Source graphics          F12=Cancel
```

If you type a **2** next to the graphic that you want to change and press ENTER, you can change the name and description. Also, if you type a **7** and press ENTER, you can renumber the graphic.

Creating a Variable Graphic

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Open your existing format that you made earlier in this tutorial. Find the graphic that you made and place your cursor on it and press **F8** to delete it. Now create a new one in the same spot. Currently, it is a ***HEADING** field, but to make it variable you can either give it a unique name or link it to a variable field. You can also map a graphic field directly to spooled file data. For this tutorial, just give it the name **GRAPHIC**.

```
                        Work with Graphic Field
 Device . . . : ZTS500
 Format . . . : GRAPHIC        Length:  6.00"    Width:  4.00"    Rotation:   0

 Field #  . . : 001

 Type choices, press Enter.

   Field name . . . . . . . . .   GRAPHIC      Name, *HEADING, *LINK,
                                               F4 for list of fields
     Description . . . . . . . .   _

   Length . . . . . . . . . . .    10          1 - 30
   Decimals . . . . . . . . . .    __          0 - 9
   Reference type . . . . . . .   N  ←         0=number, N=name, D=description

   Row / Column . . . . . . . .   3.60   1.15  .04 - 6.00  /  .01 - 4.00
   Stored graphic . . . . . . .   ____  ←      number, F4 for graphic list
   Length . . . . . . . . . . .    1.00        .04 - 6.00
   Width  . . . . . . . . . . .    1.00        .04 - 4.00

                                                               More...

 F3=Exit    F4=Prompt    F5=Refresh    F12=Cancel
```

The most important parameter here is the *Reference type*. If the data you are passing is going to match up with the target graphic's number, select **0**. If it is the target graphic's name, select **N**. Or if it is the target graphic's description, select **D**. Make sure *Stored graphic* is blanked out. Lastly, depending on the *Reference type* the field must be the correct length. For graphic name the *Length* must be **10 alpha**, for graphic number, the *Length* must be **5 and 00 decimal**, and for description, the *Length* must be **30 alpha**. This tutorial chose to reference the graphic's full 10 character name. If you chose to link it to another field, you must make sure to link the appropriate amount of characters or you will not be able to create the variable graphic. If you chose to map it to a spooled file, make sure you map the correct length. Once everything is set, press ENTER twice to create your variable graphic field.

JMagic 6-

Open your existing format that made earlier in this tutorial. Find the graphic that you made, click on it and press DELETE on your keyboard to delete the static graphic. Now, create a new one in the same spot. Before, you created it as a ***HEADING** field. Now, to make it variable, you will have to link it to a variable field already on your format. You can also map a graphic field directly to data in a spooled file.

The most important parameter here is the *Reference type.* If the data you are passing is going to match up with the target graphic's number, type **0.** If it is the target graphic's name, type **N.** Or if it is the target graphic's description, type **D**. You must make sure to link the appropriate amount of characters or you will not be able to create the variable graphic. For graphic name, the *Length* must be equal to 10, for graphic number, the *Length* must be 5 and 00 decimal and for description, the *Length* must be 30. Once these settings are made, click OK to create your variable graphic.

MarkMagic Variable Graphics Example

Notice in the screen shot below, the *Reference type* is "N" and the *Field name* is SKU.

Note there is no *Stored graphic* number — the graphic number only applies to *HEADING (static) graphics.

In the Graphics Gallery, the Graphic Name contains the actual SKU numbers that match the items. For example, the Shower Head graphic will print when SKU 0122587589 appears in the Label File record, the Pipe Fitting graphic will print when SKU 0256565899 appears in the Label File record, etc.

Test the function by printing a label file that has a different SKU associated with each graphic. As the SKU changes, the graphic image printed will change.