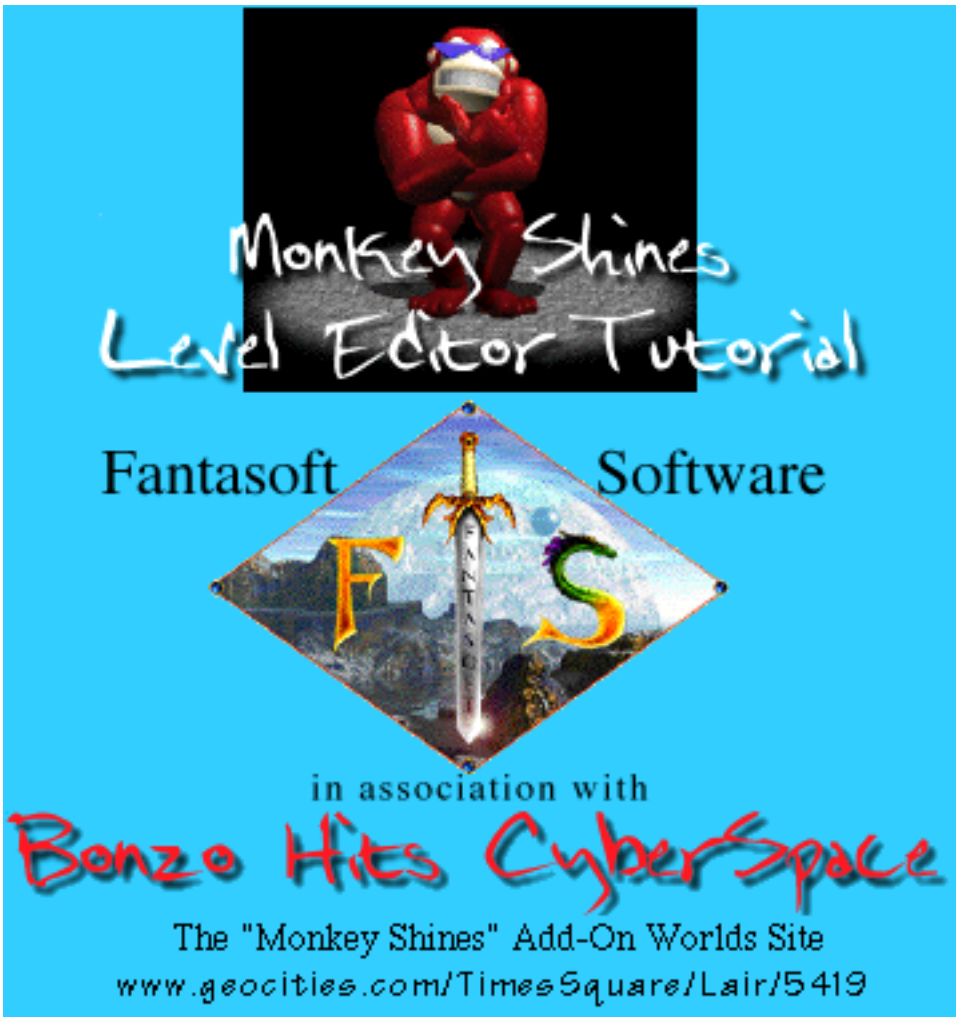


Based on the "Bonzo Hits CyberSpace" tutorial written by Philip Roy
Version 1.0 - November 1997

Just what is "Monkey Shines" and where can I get it ?

Monkey Shines is a shareware arcade-type platform game for the Macintosh, released by Fantasoft Software. It features a monkey (Bonzo) that must run around a number of screens collecting fruit, blue keys (if he wants to get to the bonus levels) and red keys, in order to activate the Exit and complete the level (or world).

In its' unregistered state you can play one world..."Spooked", but there are four other worlds that come with the game..."Spaced Out" (as shown in the image above), "About The House", "In The Drink" and "In The Swing". In order to be able to access these worlds you need to register the game. That's well over 120 screens to work through for the registration fee and before you play any add-on worlds!!!

Registration not only allows access to these four other worlds, but it also allows access to the "Other" button. This button allows you to load worlds that anyone has created.

IMPORTANT
It's no good hoping you can just call any add-on level "Bonzo World 1" and then play it without registering. The game will not function with World 1 adjusted. When you begin work on a level, make sure you leave "Bonzo World 1" as it is.

What do I need to play or create the add-on worlds ?

As mentioned above, you simply need to register the game to play add-on worlds.

You'll notice that the terms 'World' and 'Level' are used fairly inter-changeably within this tutorial, as they are more or less the same thing. These are the files that either come with "Monkey Shines", or that you or others create. In this tutorial you will see the term 'World' used, as it tends to imply that each world is quite different from another. Try and give your world themes...for instance, "Phil's Mac

World", has an obvious Macintosh theme to it.

What is "Bonzo Hits CyberSpace" ?

"Bonzo Hits CyberSpace" is a web site that is run by Philip Roy. Philip was the winner of Fantasoft's Level Design Contest, with his world called "Phil's Mac World". There are still prizes available in the contest, so check out the Fantasoft site.

"Bonzo Hits CyberSpace" is intended to be a focal point for those interested in playing "Monkey Shines" and for learning how to create their own add-on worlds. Philip operates a mailing list at the site, so you can be kept informed of any important news related to the game. This mailing list is used only to inform people about updates or when new worlds are released. He promises not to flood your mail box with annoying news...just things you need to know when you need to know them!!

This tutorial that you are reading is based on the "Bonzo Hits CyberSpace" web site and is an adapted version of the tutorial at that site.

We recommend you take a look at the site for all the latest news, tips and events related to "Monkey Shines"....then head back to Fantasoft to download some of the neat add-on worlds that are available.

Click on the Netscape icon to launch your browser ----> 

Next, click on the world file to go to "Bonzo Hits CyberSpace" ----> 

Next, click on Bonzo to visit Fantasoft's site ----> 

Bonzo Hits CyberSpace : www.geocities.com/TimesSquare/Lair/5419
Philip's E-mail Address : phil_roy@clear.net.nz

Fantasoft : www.fantasoft.com
E-mail : Fantasoft1@aol.com

In this tutorial you will be taken through some of the step-by-step processes of creating your own world for Monkey Shines and also be given the answers to questions that you might have about the whole process.

Contents (Click on each title to go to the appropriate section)

Creating a World without creating graphics !!

Once you have a read of the rest of the tutorial, you made decide you haven't got the skills to create the sprites, platforms and overall look needed in creating a world. So what!! Fantasoft is happy for you to create Worlds from their sprites and other pict files.

In fact some of the first worlds that were released as "add-ons" used a mixture of graphics from various other worlds. You could select sprites from a number of different files and come up with something quite unique. Remember that the graphics you are using are property of Fantasoft and although you can distribute the world around the Internet (via Fantasoft is the easiest way) you should not seek a shareware fee for something that in many respects isn't yours.

Have a read of the section that explains what a World file contains and then simply cut and paste in those sprites you want to use. Then use a graphics package to cut and paste into the Pict 130 file which contains all the stationary hazards and platforms. You are then ready to go straight to the Level Editor.

I've seen a cool sprite in someone elses World...Can I use it ?

This is really something that you need to discuss with the individual author. We recommend that you :

- E-mail the author and ask if it is OK to use a certain graphic or sprite
- Acknowledge the author within your 'Read Me' file

Where else could I get some good graphics from ?

There are plenty of great links to clip-art sites and many of these have animated clip-art to download. These make great sprites, but again, make sure the art is either 'public domain' or you have permission to use them.

Some suggestions :

- Barry's Clip-Art Server
  - www.barrysclipart.com/
- Image-O-Rama
  - members.aol.com/dcreelma/imagesite/image.htm
- Free Clip-Art
  - www.cosmix.com/webtools/clipart.html
- Yahoo : Clip-Art
  - www.yahoo.com/Computers_and_Internet/Multimedia/Pictures/Clip_Art/

Some recommendations of software to use in developing your world

In making a new world for Monkey Shines, you work by altering a copy of a pre-existing world. You have the ability to change so much of the world, to the point that it looks, sounds and interacts completely unlike the world it once was.

What follows is a listing of some software that you could use and some URLs for some of the items mentioned. Anything that doesn't have a URL should be able to be found from a shareware site such as 'shareware.com'.

World development software

- Level Editor (90K) - www.fantasoft.com
  Freeware - By the time you've finished this tutorial, you really should know what this is for!!!!

- ResEdit - swupdates.info.apple.com/alphalist/alpha_swupdates.R.html
  Freeware - You need ResEdit in order to get access to important sections of your world file. This includes replacing PICT files (including sprites), changing the backgrounds and adding new music.

- Phil's Level Design Pack (47K) - www.fantasoft.com
  Freeware - You might like to download this to start with. It has some templates that Philip put together to help in screen design and layout, and the 'Read Me' has a quick run-down on how a sprite animation is put together.

Graphics software

- Graphic Converter - www.lemkesoft.de
  Shareware - This is a 'standard' in the Mac world. For working in 256 colours and for pixel-by-pixel selection and retouching, GC can't be beat. It also has a hidden trick that allows easy access to all your graphics in a world. Look at Chapter 12 to find out what it is.

- Color It! - www.microfrontier.com
  Lite/Commercial - Its' selection and retouching tools are much more advanced than Graphic Converter. Specifically, we recommend using it to create all your masks.

- DeBabelizer Lite - www.equil.com
  Lite/Commercial - DeBabelizer can be used to easily create colour tables

- GifBuilder
  Freeware - Why is this here? Well, you've got 8 small PICTs and you want to see how they are going to act as an animated sprite... make them into a GIF and you can see what they'll turn out like!!!!

- ClarisWorks - www.claris.com
  Commercial - Use the drawing section of this package to take 8 PICTs you are using for a sprite and use the 'align' feature to align them and transfer them into Graphic Converter. Sounds complicated, but it actually makes producing sprite PICT files so much quicker.

- Pattern Manager
  Freeware - This has been developed to help Mac users create Desktop Patterns, but it can just as easily help in the creation of PPATs. It has some excellent advantages over ResEdit, such as the ability to import pictures and adjust them within this application.

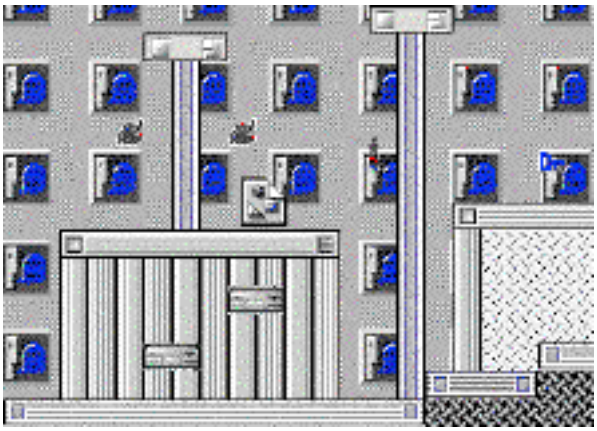
Music software

- SoundApp
  Freeware - Lets you listen to MOD files, so you can decide what music you want in your world.

- PlayerPro - www.quadmation.com
  Commercial - Sophisticated program that can deal with numerous music file formats. This program can turn your MODs into MADH format.

- MacMod Pro
  Shareware - This program lets you play, edit and even create MODs, but sadly, doesn't have the ability to convert them into the MADH resource that we need.

Take a look at the following two images...



Notice the similarities ? They are actually the same world, the only difference being that the first image is of a completely untouched "Bonzo World 5", while the second is the same file with all the images, animations and backgrounds changed to represent something else.

Why do this ?

We recommend that this is actually one of the best ways to start developing a world. No...not copying the layout of an existing world...but aiming to replace the images, sprites and platforms in a world, with your own. Get all the images and animations ready to use and then it is just a matter of sitting down with the Level Editor and creating your screens. This could be compared to a painter preparing all the colours of paint he is going to need, so that all he has to do then is sit down and do the actual painting.

So ?

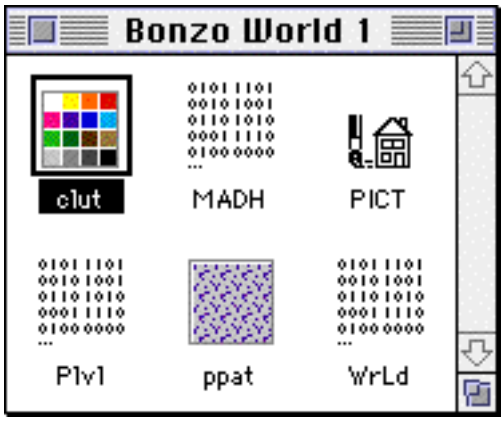
So the reason it is mentioned here is that this is the route this tutorial will follow....preparing your animations, backgrounds and images related to your world **before** doing any work on creating your actual screen compositions. This will allow us to work through a step-by-step process. It makes sense!!

Understanding the six parts of a MS World File

It's possible to take a world that has been created by someone else and do nothing else except use the Level Editor to change the layout of that world. But the problem arises that this new world would have backgrounds that were the same as the original, music the same as the original, a startup screen that is the same as the original...and so on, and so on.

There comes a time when you need to bite the bullet and hack into a file itself to change a few more things!! That's what this whole tutorial is really all about, and on this page you'll see a brief rundown of the six sections in a world file. More detailed information about these resources is contained on other pages of this tutorial.

How do I open a world file ?



Simple. Just open the file with ResEdit. Either launch ResEdit, find the file and open it, or drag the file onto the ResEdit icon. Make sure you use a copy of a file...not an original !!!!

The CLUT resource
This provides Monkey Shines with information on what colours are present in the Splash Screen and the game itself. Take a look at this resource to see what colour tables look like. You will be shown how to create these on another page. CLUT 200 is the colour table for the splash screen and CLUT 1000 is for the game stuff, especially for the images you put in PICT 130. Monkey Shines graphics are optimised to these colour tables.

The MADH Resource
This resource contains the music for your world, stored in a 'MADH' resource of ID 1000. These resources are created from MOD files (a popular music file format) by PlayerPro, or you can e-mail the MOD file to Fantasoft and they will convert it for you. More information about your music is on another page within this tutorial.

The PICT Resource
With the exception of the images that you see of Bonzo (which are stored in the game application itself) and the backgrounds that you see on each screen, all images for your game are stored in this resource. This is a very important resource. It contains :

- PICT 130 - that stores the platforms, fruit, keys, power-ups and conveyor belts. There is a very detailed description of this resource in another section of this tutorial.
- PICT 200 - that stores the Splash Screen which is put up while your world is loading. This will be discussed in another section.
- PICT 1000+ (eg 1001, 1002) - These are the sprites...the animated bad guys that Bonzo would quite like not to touch. You can have up to 47 different sets of sprite animations. Each sprite animation is made up of 8 frames. There is detailed information in section 6 of this tutorial.
- PICT 5000 - This is the bar at the top of the Monkey Shines screen. You only need to change the icon for your world as necessary.

For easy access to the graphics in any world, read the "Neat Tricks" section.

The PPAT Resource
This resource stores the patterns that appear as the background for your screens. Since PPAT 1000 is used by default, your file should always have a pattern of this ID. The actual IDs of the other patterns doesn't really matter that much, as you select the patterns for each screen with the Level Editor.

The last two sections are mentioned here, but these resources should not be accessed via ResEdit at all. Instead you should allow the Level Editor to update them for you.

The PLVL Resource
Information on each of the screens in your world is stored here. The starting level has an ID of 1000 and other screens are numbered via a system that will be discussed in another section of the tutorial.

The WRLD Resource
This is where some information about the world is stored. Again, you should not edit this information via ResEdit, but via the Level Editor.

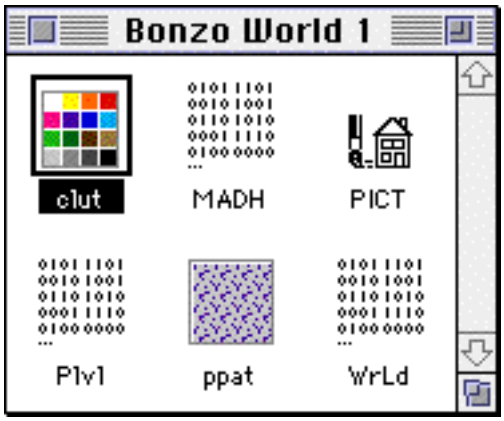
Creating the Splash Screen for your world

As each world loads after you have selected it, you are treated to an introductory screen about the world. This is the Splash Screen. In some respects, it gives you an idea of what the world is all about and maybe shows you some of the nasty creatures Bonzo is about to face.

An example of a Splash Screen can be seen here, with a heavily reduced image of the "Phil's Mac World" Splash screen.

The following section will be very brief, as the Splash Screen is relatively straight forward. But there are a few things you might like to know.

Where do I find the Splash Screen?



The Splash Screen is stored in the PICT resource of your world. Just open the PICT resource and you will see it quite plainly. It is the second image in the file and has an ID number of 200.

What details do I need to know about the Splash Screen ?

The Splash Screen should be the standard screen size of 640 pixels by 480 pixels and should be optimised to 256 colours.

What's that funny red line that appears as the world loads ?

Well...to put it bluntly...it's showing you that your world is loading!!

It gets mentioned here as you don't really want to place a brilliant graphic at that point on your Splash Screen, only to have it covered over by the red 'fuel gauge' that appears.

Those of you that are quite fussy and really want to make sure you leave this area alone, keep the

following area clear :

- Horizontally the red line takes up space from pixel co-ordinate 210 to co-ordinate 430
- Vertically the line covers an area from pixel co-ordinate 450 down to 475

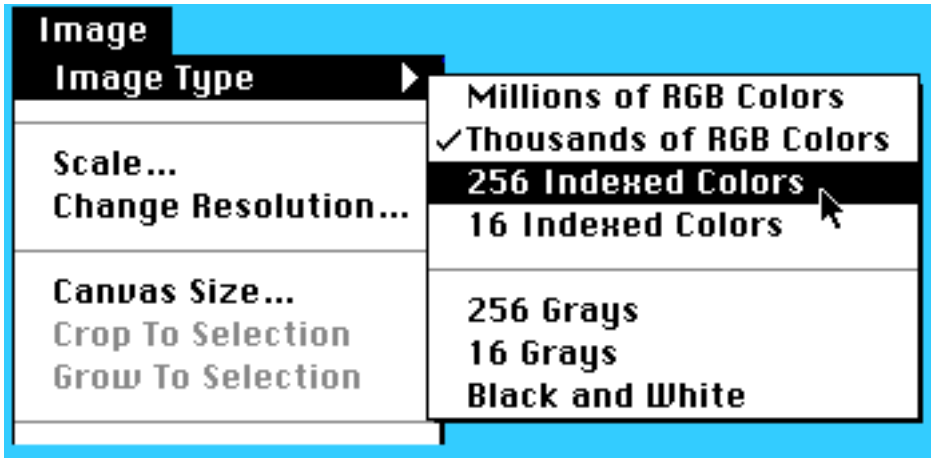
This area has purposely been made slightly bigger than need be. But if you're really into counting pixels, you can figure out the exact dimensions yourself!!

Any tips ?

Yes. It is recommended that you actually work on your Splash Screen Work in "Thousands of Colours" mode. Always keep a copy of this file, even when you consider it finished. It makes it much easier to get at.

Finally, when you are ready to add the image into your world, use a program to change the colours to 256. A program such as the Lite version of "Color It!" gives great results.

To optimise the colour, just go up to the "Image" menu and select the option as shown in the image below...



When the next window appears, just make sure in the "Color Set" window (as shown below) you choose 'Optimised Colors'.

How do I put my Splash Screen into my world ?

Easy...just follow these instructions...

- Open your Splash Screen image using a suitable graphics program
- Copy the image to the clipboard
- Drag your world file onto ResEdit or use ResEdit to open it
- Double-click on the PICT resource
- Double-click on the Splash Screen resource (PICT ID 200)

- When the old Splash Screen comes forward, just paste your new image in
- Quit ResEdit, saving your changes on the way

Anything else I need to know ?

At the moment, no. But later on you will be introduced to Colour Tables. These tables are stored in your world and tell Monkey Shines which 256 colours to use to show your Splash Screen. So...keep a copy of the Splash Screen in 256 colours as a PICT file. It will be useful when you get to the section on Colour Tables.

Creating the animated sprites for your world
Part 1 - Understanding what a sprite is

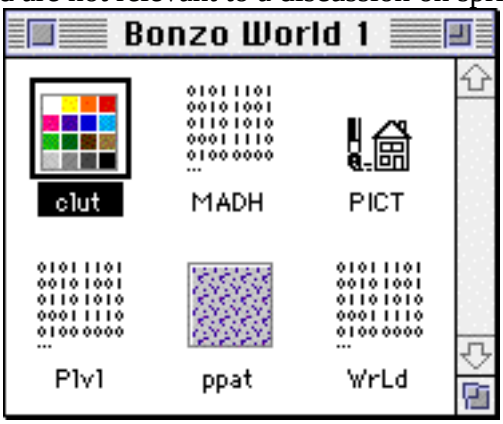
The sprites are effectively the enemies in Monkey Shines. They move around the screen at various speeds and in various directions, just waiting for poor old Bonzo to accidentally touch them and either die, lose some energy or (in the case of a door) end up somewhere else.

For each and every sprite, you are able to allocate the speed it will move at (horizontally and/or vertically), the direction it will initially move in (again, horizontally and/or vertically) and the area in which it is confined to (this can also be horizontally, vertically or a combination of the two). It means that sprites are not simply confined to moving up and down or left to right...they can bounce all over the place!!

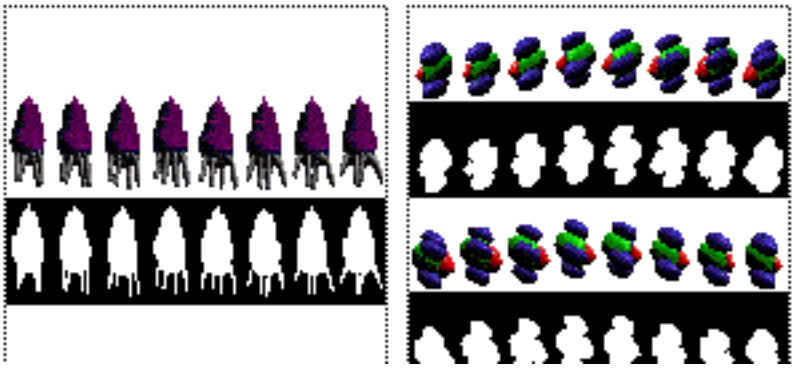
This section (over the next three pages) will explain what a sprite is and some information you need to know about them, and will also take you through the process of creating a sprite. Because you work with sprites mostly through the Level Editor, you will see some screen shots related to the Editor, although the Editor itself will be explained more fully in another section.

Where do I find the sprites ?

With the exception of the backgrounds for your worlds, all images (including the sprites) are stored in the PICT resource within your world file (see the image below). All items in this resource have important ID numbers.The first two PICTs (130 and 200) and the very last PICT (5000) are discussed in other areas of this tutorial and are not relevant to a discussion on sprites.



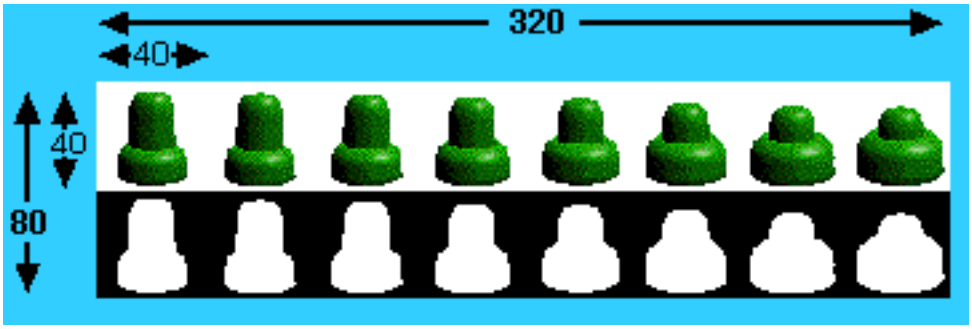
Take the time to open a world using ResEdit and look at the images contained within the PICT resource. The images that are important to us start at ID 1000. **The first three sprite sets should be left alone**. They are ID-1000 (Exit Door), ID-1001 (Bonus Door) and ID-1002 (Bees).Why? Well, a number of authors have experienced problems when they changed the ID numbers of these sprites, so best to leave them alone! The rest of the numbering is fairly straight forward. In the image below, you can see some sprites taken from Bonzo World 2.



1008 1009

What does a sprite consist of ?
Are there any terms I need to know ?

A sprite set (or in other words, a sprite PICT file) consists of 8 frames and an associated set of masks. Each frame measures 40 by 40 pixels. The images have to be in 256 colours. This means (as you see in the following image) that for a standard sprite set, the PICT file will measure 320 by 80 pixels...



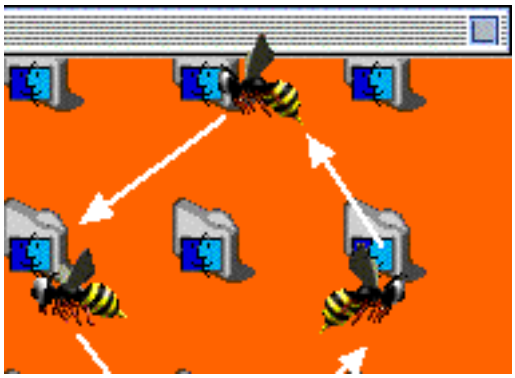
You can have up to 47 of these sprite sets.

There are a number of terms that you need to understand about sprites, in order to work through the rest of this section. They are :

- Sprite - As mentioned, these are the animated objects that can harm Bonzo
- Sprite Set - This is the collection of images that make up a sprite animation. The image above is a sprite set
- Frame - This is an individual image that makes up part of the sprite animation. Every sprite has 8 has frames and associated masks. In the image above you can plainly see the 8 images of the object (the funny green thing) that are the 8 frames
- Mask - The concept of a mask should be familiar to you by now. The black areas of a mask are where you want the background of the screen to show through.
- Cell - This is an optional term that is sometimes used. A 'cell' should be seen as a PICT file that contains a complete sprite package. In the image above the last, the PICT file with the ID of 1009 is a good example. This sprite **cell** contains **two sets** of sprites.

Some of the cells seem to have two sets. How come ?

Well first of all the important bit. Yes...they **do** have **two sets** of sprites, so you need to remember this when keeping to the limit of 47 **sets** of sprites. So, in the image further up the page, the spaceships (PICT 1009) will count as 2 out of this total of 47. The reason they have been stored this way is just to show that they work together and can appear of the screen as one image. Confused? Let me explain...



This is a composite shot from "Phil's Mac World'. In it, you can see that the bee is in four different places, but you may also notice that the bee is actually facing two different ways. By getting the editor to use two sets of sprites, you are able to create a sprite that appears to 'turn'.

The editor actually lets you use two sets of sprites that change horizontally or vertically, so you can either have an image on your screen that changes depending on whether it is heading left or right **or** you can have an image that changes whether it is heading up or down. Neat, huh?

What does a sprite do to Bonzo?

A sprite can be one of three things :

- An energy drainer - At the moment, all worlds that have been released continue to use just the bees for this purpose
- A regular sprite - These kill Bonzo when he touches them
- A door - There are two types of doors available (Exit and Bonus). You place these into your world and later on (in the Level Editor section of the tutorial) you will learn how to indicate where these doors actually are

How do I say what effect the sprite should have on Bonzo ?

Again, you learn more about this in the Level Editor section of the tutorial. Basically, when it comes time to placing the sprites onto a screen, you need to indicate a number of properties (via the Level Editor) that it has. These are :

- The area it can move in
- The location on -screen it starts at
- The speed it moves in (horizontally and vertically)
- How the animation should play
- And..to answer the question...what type of sprite (normal, energy drainer or door) it is

More about Sprites in Part 2 of this Section...

Part 2 - How a sprite looks and moves

How are the sprites animated ?

Monkey Shines takes the information that you have allocated to each sprite (direction of movement, placement etc) and animates the sprite on the screen. The application takes into account the mask details for each sprite and does not draw this part of the frame...that way, the background shows through and the sprite blends in well with the game...as in the following image, where you can see one frame of a sprite and its mask, and how it appears in one brief moment of "Phil's Mac World"...

The other important issues you need to decide on is how the frames are actually 'played' by Monkey Shines and if you would like to slow the animation process down. Note that this does not effect the movement of the sprite on the screen, just how quickly one frame is replaced by another.

For deciding how the frames are played you have two options. They can have quite a dramatic effect on how your sprite looks. The options are:

- Increasing frames - Really you could call this "Increasing and Decreasing Frames" as what it means is that the frames of the sprite are drawn on the screen in this order...1-2-3-4-5-6-7-8-7-6-5-4-3-2-1...and then the whole thing starts over again
- Cycling frames - In this method the sprite frames are drawn in the order 1-2-3-4-5-6-7-8 and then the process starts at 1 again.

Where do I decide how a sprite should be 'played' ?

That's easy. You use the Level Editor to place a sprite onto a screen in your world. Part of the window that appears in order for you to detail the information about the sprite has a section that looks like the following image...

That seems pretty self explanatory, doesn't it ? More of this will be discussed in the section on using the Level Editor.

Is 'increasing or 'cycling' frames really that important ?

In a word...yes. This option decides the order in which the animation is going to played. For some animations it may have little or no effect...you might be happy with the end result either way. For other animations, it can be a deciding factor.

Where can a sprite be placed on the screen ?

Virtually anywhere... the screen is yours to use!! Well...OK...I'm exaggerating a bit there. There are a few things you need to know.

The Monkey Shines game operates at a screen size of 640 by 480 pixels. At the top of the screen, information on game-play is shown and this is an out-of-bounds area for the sprites. This information (as shown in the image below) takes up 640 pixels across and is 80 pixels deep.

What does that mean ? Well, horizontally, the sprites are free to move anywhere, from co-ordinate 0 right through to co-ordinate 680. However, vertically, the co-ordinates the sprites can move in is from 80 pixels down to 480 pixels.

The reason this is discussed here, is to show you that a sprite can move around a tremendously large area or you can confine it to one place. The placement of sprites does have a few other complexities associated with it and (here comes that comment again) will be discussed it in the section on the Level Editor.

What direction can a sprite move in ?

This has really been answered before. The sprite can :

- Stay in one spot - In other words, no horizontal or vertical movement
- Move up and down only - This means vertical movement and no horizontal movement
- Move left and right only - This means horizontal movement and no vertical movement
- A combination of vertical and horizontal - This can create many effects, the simplest of which would be a diagonal movement (moving horizontally and vertically at the same speed)

More about Sprites in Part 3 of this Section...

Part 3 - Creating a sprite and adding it into your world

What do I need to start with ?

The first thing you need is "Phil's Level Design Pack" that is available from the Fantasoft site. This pack was put together by Philip when he first started designing a world. It contains a few things you might find odd, but they can actually be really useful.
They are :

- A bookmark to a really neat site called "Bonzo Hits CyberSpace" !! ;-)
- A Screen Design Template for your world in ClarisWorks format
- A Screen Design Template for your world in PICT format
- A Read Me file to explain (briefly) what the whole Design Pack is about
- A 40 by 40 PICT file
- A 320 by 80 PICT file

The last two things might seem a bit weird to you, but they can really help you to work quickly. The first can help to make sure each sprite is always the right size and will fit into the game. The second allows you to quickly produce a sprite set. The Screen Design Template is a complete grid layout of a screen, showing all the important co-ordinates you need to know. Print some off, lay them out on the floor and you can see your whole world at a glance.

The last thing you need...is an idea!! For this tutorial, we are going to use the Monkey Shines icon and do some silly things with it. This is what the icon looks like...

We are going to get Bonzo's glasses to flash and for him to produce a sparkling smile. You'll see what we mean later!

OK, what next ?

You need to make a few decisions as to how the sprite is going to behave and what size it is. The Bonzo icon (which is 32 by 32 pixels) is a good size, so we're not going to enlarge it. It does mean that the sprite will have some empty space.

So...the first thing we do is paste the icon into my 40 by 40 template. We are also going to paint the background a colour other than white. You'll see why later. So here's what the 'Master' frame looks like...

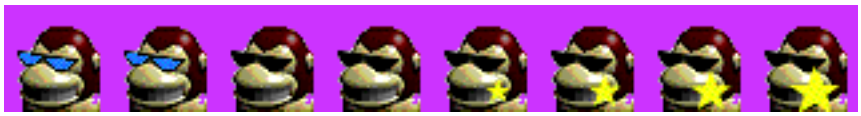
Now it's time to get to work. Let's set out the 8 frames as follows :

- 1. Bonzo's glasses will be blue
- 2. Bonzo's glasses will be blue
- 3. Bonzo will look normal
- 4. Bonzo will look normal
- 5. Bonzo's smile starts to appear
- 6. The star will grow bigger
- 7. The star gets even bigger
- 8. The star from Bonzo will be at the biggest point here

You'll see how they all fit together in the next section.

I've got my 8 frames, now what ?

Now you need to line them up into one image that is 320 pixels by 40 pixels. You can use ClarisWorks for this, believe it or not! Import the frames into the Drawing environment and also import the 320 by 80 template from my starter pack. Then use the alignment and spacing options to get the eight frames all nice and neat. The finished product will look something like this...



Now my 8 frames are one image, what next ?

You now need to create your sprite set, which is the above image (with the background colour turned to white) and an associated mask. This part is actually very easy and you'll see here just why we used the background colour :

- Duplicate the PICT file. Let's call one file 'Top' and one 'Bottom'...for obvious reasons
- For 'Top' use a graphics package (such as a Lite version of 'Color It!") to select the background colour and remove it
- For 'Bottom', select the background colour, invert the selection and cut the images of Bonzo out. Then just select the background colour again (make sure with complicated images that you select every part of it) and turn what you have selected to black.
- Now use a package to join these two images together (again, you could use ClarisWorks) and check that you have the PICT file set at 256 colours

What should the finished cell look like ?

Well...in short...something like this...

Is there a quick way to see how my sprite will look ?

Yes...as long as you've still got the individual frame cells. Just use "GifBuilder" to create an animated GIF of the frames to show you how the sprite will look.

Note : If you are going to play the sprite as an 'increasing frames' sprite, you need to put the PICTs into "GifBuilder" in the following order...frame 1, then 2, 3, 4, 5, 6, 7, 8, 8, 7, 6, 5, 4, 3, 2 and back to 1.

How do I place the sprite into the world file ?

Quite easy really. Open the image in a graphics package and copy it to the clipboard. Then:

- Open your world with ResEdit
- Double-click on the PICT resource
- Paste the image in
- By default, it will be numbered something like ID-128
- Choose "Get Resource Info" from the Resource menu (or Command-I)
- Change the ID to 1000 and whatever, making sure that you don't select an ID number of a sprite that already exists
- Save the changes to your world

That's it! You have now successfully planted some baddies in your world to cause Bonzo no amount of trouble!!!!

Creating the backgrounds for your world

When you look at each of the screens in a Monkey Shines world, there are a number of images that go together to make the 'look' of each screen. Behind all the platforms, behind all the things to collect and behind all the enemies to stay away from, lies the background.

These backgrounds are stored within your world in the PPAT resource. They function very much like 'Desktop Patterns' in that a small image (64x64 pixels) is tiled on the screen to create a backdrop. Take a look at the next two images to see an example.

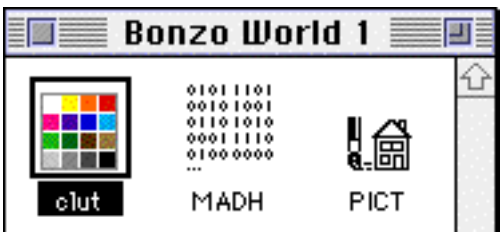
For easy access to the graphics in any world, read the "Neat Tricks" section.

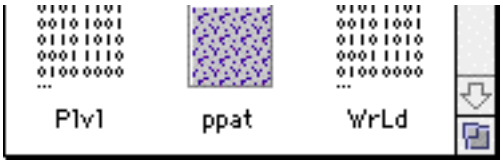
Above : The 'Monkey Shines Rulz' PPAT from "Phil's Mac World" (shown at twice the normal size).

Below : How the PPAT appears on one screen of "Phil's Mac World" (Image reduced)

What is a PPAT and how can I look at them ?

Well, if you really want to know, PPAT stands for 'Pixel Pattern' and they are located in your world file.

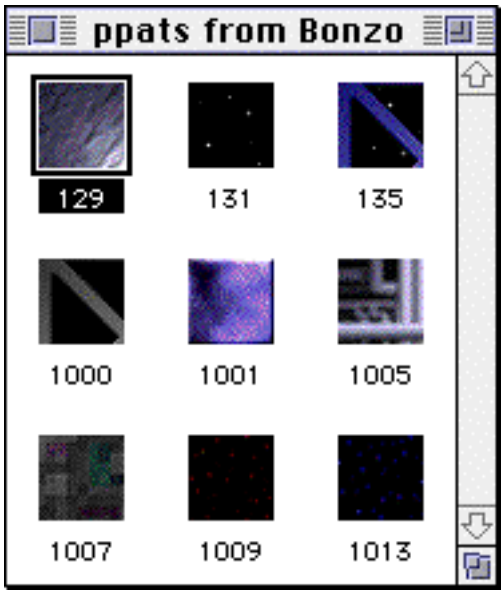




Open your world file using ResEdit and you will see the six sections that were discussed in Section 4. The backgrounds are contained within the resource entitled 'ppat'.

Note how the icon for it is a tile ? This is a visual clue as to the function of the 'ppats'. As mentioned, we use the PPATs to tile the background on a screen.

If you want to look more closely at the various PPATs available for a world (Bonzo World 1 is not a good choice, as it has only one PPAT) just double-click on the 'ppat' icon. As an example, here is the PPATs available for 'Bonzo World 2 - Spaced Out'. There are nine tiles used in this world.



Take some time to look at the 'Spaced Out' world and you'll soon see how these patterns have been used repeatedly.

Remember, as they are just the backgrounds, once you place all your platforms and objects on different screens, screens with the same background will still end up having a very different look to each other. We'll take a closer look at how to edit each of these individual PPATs on the next page.

More about Backgrounds in Part 2 of this Section...

Creating your backgrounds - Part 2

What do I need to know about the PPATs ?

As a general rule, each PPAT measures 64 by 64 pixels in size and uses 16 colours, but there is no compulsion to use these figures. It is possible to ask ResEdit to alter the size of a PPAT (generally in multiples of 2) and the 16 colours can also be changed as there are a variety of options within ResEdit.

Later on you will learn how to create a colour table and optimize your colours for use in your world. This is an important process in telling Monkey Shines what colours to display. However, to not complicate the issue of PPATs too much here, we will avoid this issue! Here we will talk of all PPATs being 64-by-64 and that they are created in 16 colours. Optimising colours will also be left out here and we will imply that you should use the 16 colours already in the editor.

This is certainly **not** the most accurate of approaches, but...

- It is one approach that can be used
- It's the easiest approach to take
- It means we don't have to worry too much about colour tables at this stage
- It leaves those of you out there that understand PPATs free to do what you want

How do I edit the PPATs ?

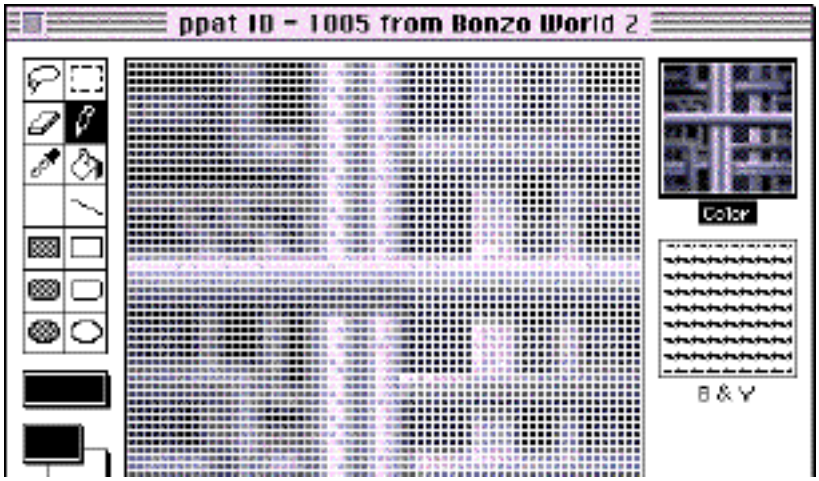
ResEdit can be used to adjust the look of your PPATs in three ways :

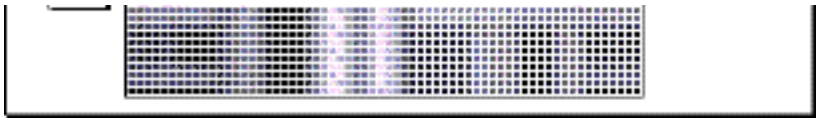
1. It allows you to cut and paste an image into the PPAT resource

   This is a moderately straight forward. Just make up your image within any graphics application. Copy it to your clipboard, open the world with ResEdit and double-click on the 'ppat' resource. Next, either choose 'Paste' at this point if you want to add the graphics to the PPATs already there, or if you want to replace a certain PPAT, double-click on it and then choose 'Paste'. You may find your image changes colour somewhat and this is due to this problem of optimising the colours. It is possible to change these 16 colours within ResEdit.

2. It allows you to edit the PPATs within ResEdit itself

   To do this just open the world with ResEdit, double-click on the PPAT resource and then double-click on whichever PPAT you wish to edit. The following image shows you what this editing screen looks like. As you can see, it is similar to a very basic graphics package, complete with pencil and paint bucket tools.





3. It allows you to view how effectively the PPAT will tile on the screen, while you are working on it

   While working within ResEdit, if you go up to the 'ppat' menu (as shown in the following image) and select 'Try Pattern', ResEdit tiles the window in the background, as though it has just become your new Desktop Pattern. It's a great way to see how the finished PPAT will look.

An alternative way to create PPATs is to use the excellent freeware program "Pattern Manager". Find out more about it and where you can download it, in the section entitled "Software Needed".

How are the PPATs numbered ?
How do I place a PPAT into a screen ?

The actual ID numbers of the patterns doesn't matter at all. What happens (and you will learn how to do this at a later point in the tutorial) is that you open a world with the Level Editor and get the Editor to match a pattern to the screen of your choice. As it has been stated, patterns can be used on more than one screen.

So, just have a go at adding in a few new patterns, not worrying at this stage about which pattern will go on which screen. You have quite a major task ahead of you before that....PICT 130 !!!!

Understanding Pict 130 - Part 1

The Pict 130 resource in the world file contains most of the items you will use to create the look of your world. Using the analogy of a painter (as mentioned in a previous section) this file could be seen as the 'paint' from which you compose your screens.

As you can see by the heavily reduced image on the right, it's a long file (320 x 900 pixels) and looks a bit daunting...but it isn't really. Mostly you'll work on the top two-thirds of the image and leave the bottom part alone.

Remember that this file has been created in 256 colours.

What ISN'T Pict 130 ?

This resource isn't the one that provides the backgrounds for each screen (that's the PPATs) and it isn't the one that has the enemies (the moving baddies) that chase Bonzo in it...they're called sprites and they each have their own Pict file (more of that in another section).

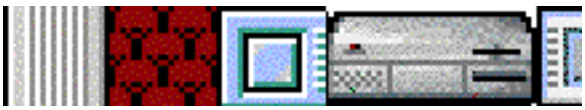
Getting at Pict 130

For easy access to the graphics in any world, read the "Neat Tricks" section.
Or simply follow this next procedure...

- Drag the world you want to edit onto ResEdit (or launch ResEdit and open the world file).
- Double-click on the PICT resource and then double-click on the number 130 resource that appears in the window.
- Select 'Copy' from the 'Edit' menu (or command-C for you power-users out there) and then quit ResEdit.
- You now have a copy of the Pict in your clipboard. Usually at this point you can launch something such as Graphic Converter and select 'New Picture with Clipboard' from the 'Edit' menu. You now have a complete copy of the Pict, which you can then save to your disk.

Size of Images

Each small segment or image in the Pict file is 20 pixels by 20 pixels. The mask (which lies directly below it) is also 20-by-20 pixels. Here are a few examples...



Here in this enlarged image, you can see some images from "Phil's Mac World". The first part is of a 'Copeland'-like platform, the second a brick-like image, the third a Close box for another 'Copeland-like' view and then two adjoining areas have been used to create a Quadra image. Note the mask that goes with this image.

What is a Mask ?

You'll come across the concept of a mask when we look at Sprites also. Everything that can be drawn on the screen has a mask below it. This mask is made up of two colours...white, for where you want the image above to show through...and black, for where you want the background to show through.

This is an enlarged view of two collectable items and their masks.
It is very important that the white area within the mask is 'pure' white and not a shade of white.

When these two objects are placed on the screen, the black of the masks do not show. Instead, Monkey Shines allows the background to be seen through.

Masks are actually very easy to produce with a good graphics package. One method is to use a 'Lite' version of "Color It!" and simply invert the colours of the image (which turns the surrounding white of an object to black), use a selection tool to select this black, reverse the selection (in other words, select anything that ISN'T black) and then cut this selection out. Sometimes this also calls for a little more work, but generally it is that quick.

More about Pict130 in Part 2 of this Section...

Understanding Pict 130 - Part 1
Pict 130 Breakdown

The following images are from the Pict 130 resource of "Phil's Mac World". It is used here as an example, as it crams just about everything into it that you can. It shows how you can make full use of the Pict 130 file to create quite a unique world.

Solid Platforms

The first two lines (and their masks) of Pict 130 are for any platforms that Bonzo cannot go through AT ALL. They are SOLID. He can't jump up through them or towards them. If he does, he will hit them with a thump! In the example here there are no masks for any item, as all images were 20 by 20 pixels square.

Jump-Through Platforms

The next three lines (and their masks) are for platforms that Bonzo can stand on, but also can pass through. To best see how this works play any level were you can walk along with a platform that you can walk past...it doesn't block your movement, but you are also able to jump up onto it. That's a 'Jump-Through platform'.

These are very useful if you want Bonzo to be able to jump up and keep climbing, but not have the ability to go downwards. Or you want to give him the option of jumping at something and not have his movement restricted as he flies through the air.

This segment of Pict130 in "Phil's Mac World" also contains a"Get A Life...Get A Mac" banner. Neat, huh? You can just make out parts of it.

Scenery

With the next six lines (and their masks) the idea is the same as with the previous sections only these images have no effect whatsoever on Bonzo. He can't interact with them in any way....they are purely there for show.

Most of the worlds that came with Monkey Shines don't use many of these lines, but it is amazing just

how much you can put in here. Plan very carefully and you can decorate your world with a number of things. In the image above, you might be able to make out a photo of Phil as a kid, the Apple logo and even a banner for Phil's Home Page.

Hazards

The next two lines (and their masks) are for the bombs, dynamite, light-bulb and lava hazards. Note that each object is represented twice as these objects are animated. Look closely and you'll see the light-bulb is darkened on the top layer and bright on the lower. This produces the flickering animation we see in the game.

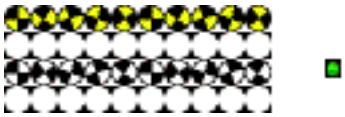
The lava images may look slightly odd, as Phil created his own 'Binary Lava' (full of moving 1's and 0's) for his world.

Collectables

The next two lines (and their masks) are for the items Bonzo can collect or the Power-Ups, such as the shield, wings or multiplier points. You'll notice that there are TWO lines. This is because these object were going to be animated,but it was decided against it. You could animate your collectables, but we recommend not doing this.

Read Part 3 of this section for an important word on changing the appearance of these items.

Conveyer Belts & Green Thing



The next two lines (plus masks) are where the animations for conveyor belts (usually spinning wheels that move Bonzo along) are stored. There are actually four sets of animations here...

The top layer contains two sets of conveyer belts. The first five images in yellow are one set and the second set of five images in yellow are a second set. These conveyor belts spin clockwise and move you right.

The next layer (below the masks of the images in yellow) contain two sets of conveyer belts also. The first five images in white are one set and the second set of five images in white are a second set. These conveyor belts spin anti-clockwise and move you left.

And the green thing? That is used for your energy bar that appears at the top of the game screen.

Dissolving Platforms & Menu Items

The next two lines (and associated masks) are fairly straight forward. These are two lines on which you can create collapsible or dissolving platforms (in this case a computer and a floppy disk). Next to them are the images that appear in the title bar of the game when you collect a multiplier, the wings or shield.

'Yum', Explosions & Score

Contained within this last section of Pict 130 is the animation used for 'Yum' (when Bonzo collects something), some animations that create an explosion (when Bonzo hits something) and the numbers used for your score.

Note the excellent example of a mask for the 'Yum' animation and the explosion.

More about Pict130 in Part 3 of this Section...

Understanding Pict 130 - Part 1
What NOT to touch in Pict 130

It is possible to change everything in the Pict 130 file and thereby radically change the whole look of items within Monkey Shines. While this will seem a neat idea to many, it could create a level that is extremely confusing for others. There needs to be some consistency between the worlds that come with Monkey Shines and any others that people create. For that reason, the 'Read Me' that accompanies the Level Editor has a few suggestions of what to keep and here we have expanded upon them.

Our recommendations on what NOT to change are :

- The collectable objects, especially keys. If you change the concept of collecting fruit you should make it blatantly obvious what is of value to collect. We also recommend not animating these objects despite the fact that the option does exist. Movement or animation currently within Monkey Shines implies something nasty that Bonzo shouldn't get near.

- The 'Yum' animation and miniature explosions. Unless you want to create some stunning new effects, these are best left alone.

- Multipliers (x2, x3 etc) and Power-Ups (shields etc) should be left intact unless your changes are obvious. Things such as the changing of the shield to the 'Disinfectant' shield in "Phil's Mac World" was OK, given the 'Mac' feel to the world.

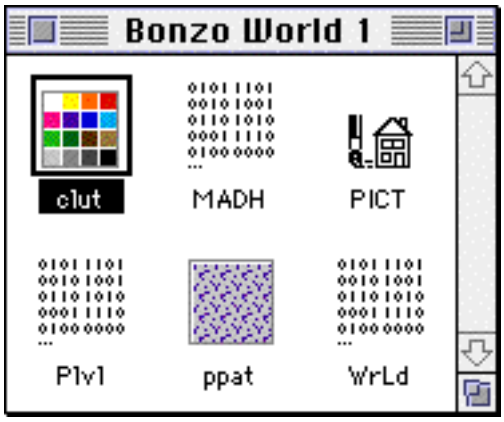
- The Energy Bar. There seems little point in changing this.

Getting the best colour in your world

Monkey Shines operates in 256 colours. You may not realise this, given that you might have your monitor at another setting. But when it launches, all the images you see are in 256 colours and these colours have been optimised.

Well what does that mean ? Basically, it is a way of telling the computer just which 256 colours your world uses. We all know that there are far more than 256 colours available for a computer to use, so when we limit the choice to 256 colours we have to let Monkey Shines know just which colours we have opted to use. This information is stored as a CLUT in the add-on world you create.

So what is a CLUT and why do I need it ?



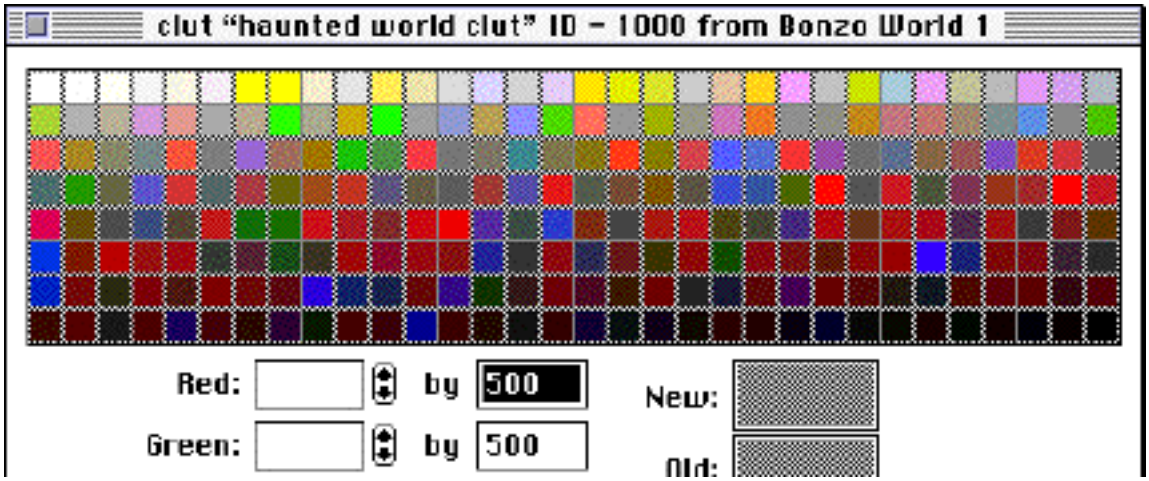
The 'clut' resource is present in every world file. The name 'clut' cleverly refers to 'Colour Look-Up Table' and this sums up the whole idea of what the resource is brilliantly. The table is where an application (in this case Monkey Shines) looks up a list of colours that it is allowed to use to draw images on the screen.

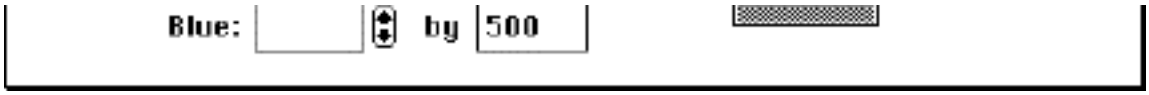
Why do you need it ? Well, imagine we gave two people a painting to copy and told them they could use any 256 colours they felt like to reproduce the painting. The final results could be quite different. Creating a CLUT says to Monkey Shines..."Here is my image. It's made up of 256 colours and here are the 256 colours you can use to recreate the image"....makes perfect sense!

Monkey Shines has two CLUTs. One to tell us about the colour in the Splash Screen (that's the large screen that appears while a world loads) and one for all the images within the world (Pict 130 to be more precise).

How can I view the two CLUTs ?

Drag your world onto ResEdit, or use ResEdit to open your world. Then double-click on the 'clut' resource. Double-click on either of the two CLUT resources and you'll see something similar to the following image. We aren't going to explain the image, mainly because you don't actually need to be able to understand what you can see.





How do I create my CLUTs ?

There are a number of graphics packages that can create colour tables for you, such as "Graphic Converter" and "DeBabelizer Lite". There is no reason why you can't use "Graphic Converter" to perform the process (and it is a great program), but we are going to show you how to create your colour tables with "DeBabelizer Lite", for two reasons :

- The program (in 'Lite' version) is free and the process is easy to do
- The results that come from using the program are good

You need to create two CLUT colour tables...one (ID 200) for the startup "Splash Screen" (which is discussed in-depth in another part of this tutorial) and one (ID 1000) for the Pict 130 file, which is also discussed in another part of this tutorial.

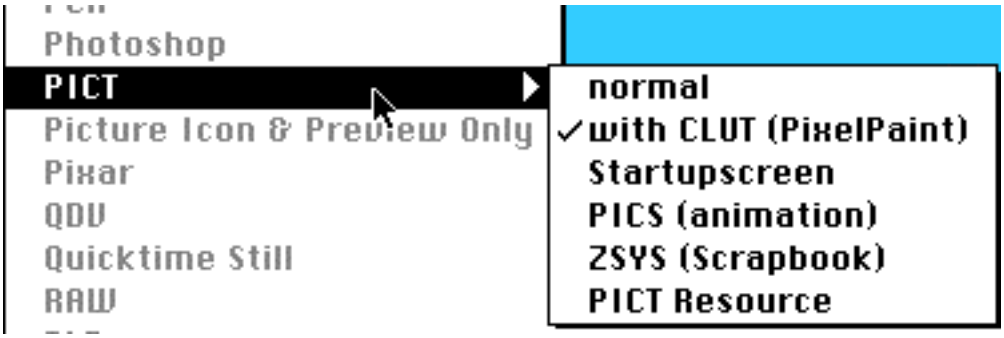
So obviously, we need to be ready with two image files...

- The splash screen, stored as a PICT
- The PICT 130 file, stored as a PICT

The images in these files should be set at 256 colours. If they aren't, use a graphics package to change them to 256, perhaps optimising the colours (Graphic Converter allows you to do this for instance, under the 'Colors' option in the 'Picture' menu) until you get a picture that still looks good.

Let's now create a CLUT for one of the files (in fact, if you want to get fussy, what we are actually doing is saving the image with a CLUT added into the file)...

- Drag the file onto the "DeBabelizer Lite" icon. The program will launch.
- Select "Save As...from the File menu
- Choose to save the file as a "Pict" in the "Save Format" menu and select "with CLUT (PixelPaint)" that appears in the hierarchical menu. Just look at the following image to see what we mean...



- For "Save Colors" choose to save the image in "256 (8 bits)" colours, as in the next image...

- Then just give the file a new name and save it.

How do I put the CLUTs into the world file ?

Let's imagine you are going to put in the colour table for your Splash Screen, which will have a

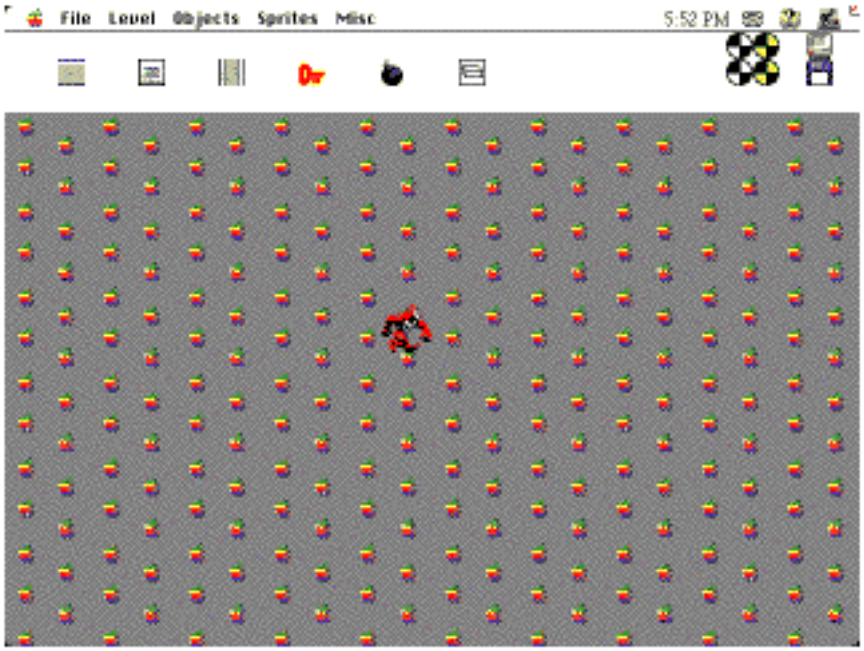
resource ID of 200. You need three things to do this....the newly saved file that has a CLUT table in it (Let's call it "Splash Screen CT" just to make things easy), your world file and ResEdit. Just follow these steps (you can do it in a different way, but here is just one method) :

- Drag "Splash Screen CT" onto ResEdit to open it
- Double-click on the CLUT resource of the file
- From the 'Resource' menu, select 'Get Resource Info' (command-I)
- In the window that appears, change the ID to 200
- Close the window
- Select the ID-200 resource in the CLUT window
- 'Copy' (command-C) the resource
- Close all the windows associated with this file (Don't save any of the changes to this file)
- Select 'Open' from the file menu and open your World file
- Double-click on the CLUT resource
- Select 'Paste' from the 'Edit' menu (command-V)
- Select 'Yes' when warned about replacing a resource with the same ID
- Quit ResEdit, saving changes to your world file on the way

To add the colour table for all the game stuff (remember, this CLUT has been created from your Pict 130 file), just follow the same procedure, but use an ID of 1000 at all stages instead of 200.

Using the Level Editor - Part 1
Introduction, Section Index and important rules

In an earlier part of this tutorial, we used the analogy of painting to describe the whole process of laying out each screen in Monkey Shines. Well, in that case, we've come to the point where our paints are all ready, the canvas is set...and it's time to get stuck in!! Over the next few pages you'll learn just how to take something like the following image and turn it into a masterpiece!!



Poor, sad Bonzo. Just sitting there in CyberSpace with no-one to play with!!

Is there anything important I need to know before I start ?

Yes....a number of things :

• There are a couple of rules you need to be aware of :
  - You may not have more than 25 collectable items (Keys, Fruit, Lives etc) per screen
  - You may not have more than 10 monsters (these also include doors) per screen

• Use the most recent version of the Level Editor. Some earlier versions are known to sometimes corrupt the file you are working on. This means you could lose your work.

• An older version of the Editor had a problem that meant it only worked when your monitor was set at 256 colours. This is now fixed with the latest version of the Editor, but just keep it in mind if things don't seem to work...you may not have the latest version of the Level Editor.

• An older version of the Editor had a problem not showing the background patterns in the window that let you select them. This now seems to be fixed with the latest version of the Editor.

• Finally, in the Level Editor, a screen is referred to as a Level. Some people prefer to refer to a level in the Editor as a "Screen". So when we say "New Level", we are being

true to the Level Editor, but what we really want to say is "New Screen".

More about the Level Editor in Part 2 of this Section...

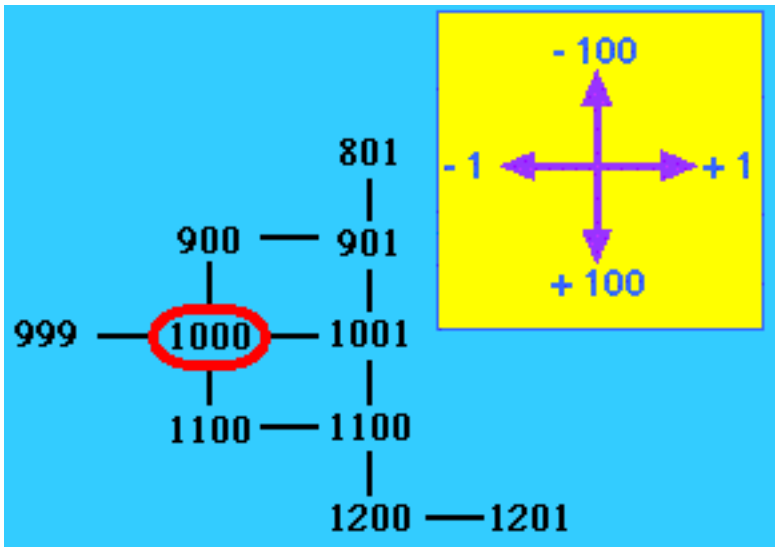
Using the Level Editor - Part 2
World Layout

How does the layout of a World work ?

Monkey Shines needs to keep a track of these screens some how and it does this by the use of a numbering system. The screens that you have in your world are referenced via this system. There are two important numbers that you need to be aware of first of all :

- Screen 1000 - This is the opening screen where Bonzo appears after the Splash Screen has loaded
- Screen 10000 - This is the first screen of the Bonus levels

From these screens other screens branch out, via the numbering system. For screens above the present one, their ID number is 100 less than the screen you are on. For screens to the left of where you are, deduct one. For screens to the right, add one and for screens one level down, add 100. Have a look at the following diagram....



Here you can see the starting screen of 1000 and some screens that branch out from it. To number a screen to the left of 1000, we just subtract 1 to get 999. To place a screen directly above screen 1000, we subtract 100...therefore, screen 900 is directly above screen 1000.

This information is stored in the 'Plvl' resource that was discussed on a previous page. Remember, we don't alter this resource directly...we let the editor do it for us.

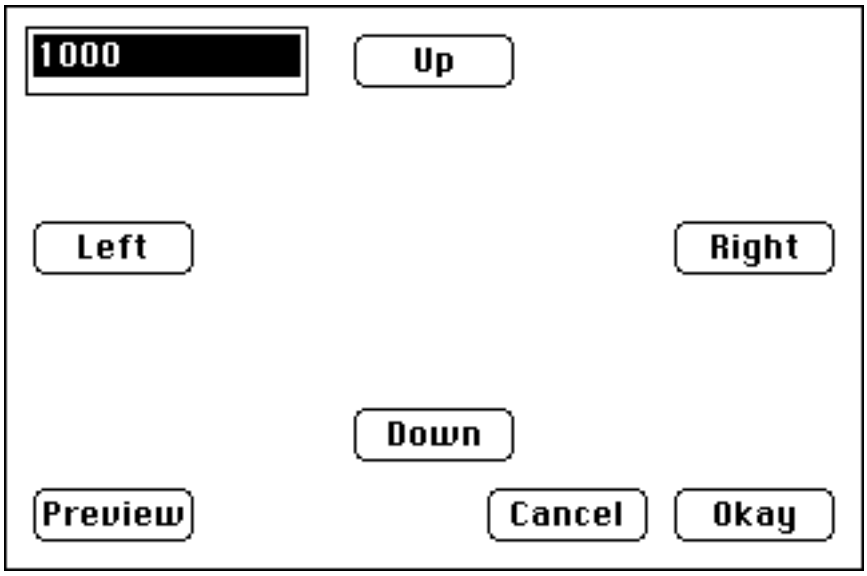
But my world was a world!! How do I check what is there already ?

When you first start laying out your world, you need to remember that the world file you are changing already has a layout present. We recommend that you get a pen and paper, launch the editor and use it to find out all the screens that exist in that world. You may need to delete some of them if you don't want them.

To determine what screens actually exist in a world :

- Launch the Level Editor and open the world
- From the "Level" menu select "Open Level" (or Command-O)
- Use the window that appears (as shown below) to move around the world (by pressing up, down etc)
- Keep a note of the "Preview" button. When it becomes greyed it means that there is no screen at that number

• Just sketch out which screens show up on a piece of paper
• For the bonus screens, type in 10000 and work from there



So I know what is there now. How do I remove the screens I don't want and add in ones I need ?

Well, if you know which screen you don't want, then you must have some idea of the layout for your world. There are lots of ways to do this...just sketching the numbers for screens that you want on a piece of paper is good enough. What we recommend is that you download "Phil's Level Design Pack" and print off the screen design templates. Then just lay these out on the floor and you have a good indication as to the total structure of your whole world.

To Delete a screen, just choose "Delete Level" from the "Level" menu (or Command-D) and type in the appropriate screen number. Be careful!

To add in a new screen select "New Level" and type in the screen ID appropriate to where you want the new screen placed....in other words, if you wanted it to the left of the first screen (and a screen didn't exist there already) you would type in 999. You will then be asked to select the appropriate pattern to use for that screen. This is fairly straight forward, but will be discussed later anyway.

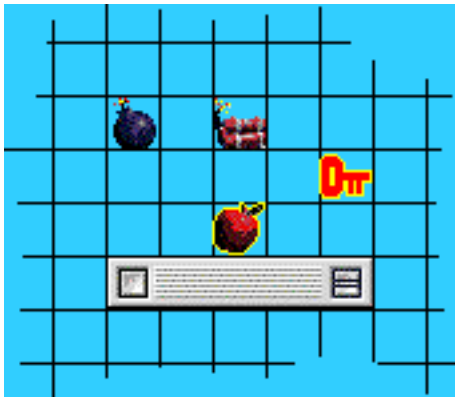
More about the Level Editor in Part 3 of this Section...

Using the Level Editor - Part 3
Screen Layout

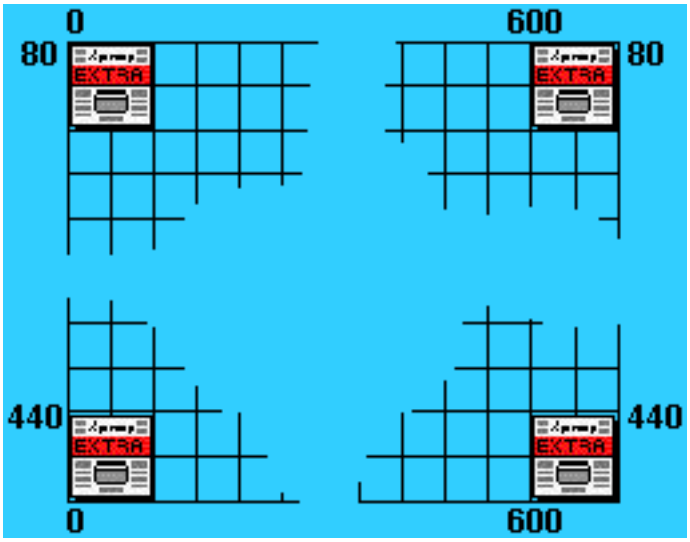
How is each screen set out ?

As mentioned in a previous section, Monkey Shines plays in what is considered a standard screen size of 640 by 480 pixels. The top 80 pixels of the screen are devoted to game information (such as your score) while the rest of the screen is virtually yours to play with.

The next thing you need to be aware of is that screen layout also ties in to the size of your platform images and the sprites. The platforms, fruit, hazards etc are all a maximum of 20 by 20 pixels and so it makes good sense to think of the screen as being divided up into 20 by 20 squares, as in the following image...



The sprites are 40 by 40 pixels, so you need to keep this in mind later when deciding the movement and placement of the sprites. Have a look at the following image and then we'll explain...



Here you can see the four corners of the screen in which the sprites can move (effectively its boundaries) and you can see we have placed some screen co-ordinates on the image also. You'll notice that we only go up to 600 horizontally and 440 vertically. Why ? Well later on when we show you how to provide details for where a sprite is placed, you will see that you need to leave room for the actual image of the sprite.

Please note : These figures do not apply for the area in which the sprites can move...just where they can start from.

So, the sprite at the bottom left is at co-ordinates (0,440) because we need to leave 40 pixels below 440 for the image. The sprite at the top right is at (600,80) because the sprite can only be placed as far as 600 in order to allow room for the actual sprite image. It sounds complicated, but it doesn't actually work out that way...especially if you take our advice on the next question!

20 by 20, 40 by 40, upper limits, lower limits...is there anything that can help ?

Yes. We recommend you download "Phil's Level Design Pack" and print out a design template (in PICT or ClarisWorks format). Even if you only print out one copy it will give you a very quick idea as to how the whole screen comes together. And don't worry, the whole co-ordinates thing isn't that complicated....you just indicate the boundaries for a sprite and the movement of it, and Monkey Shines does the rest.

Time now to get working!!!!

More about the Level Editor in Part 4 of this Section...

Using the Level Editor - Part 4
Opening a file and understanding menus and palettes

How do I open a file to work on ?

It's important to understand that in order to use the Level Editor, you need a file to work on. This means that you create your world from a pre-existing world. So, before you even use the Level Editor, copy a world and name it to whatever your world is going to be called.

When you first launch the Level Editor you will be asked to select a file, as a dialogue box similar to the following image will appear. Just select the appropriate world file and click on 'Open'.

The cursor will spin and then you will be faced with a mainly blank screen, although at the top of the screen you should notice some menu titles and below those you should notice a few images and a funny box thing in the middle. These will all be explained in a moment.

Note : If you can't see any images you may have an older version of the Level Editor that requires you work in 256 colours. Using the most recent editor will overcome this problem.

What do all the pull-down menus mean ?

File Menu

- New File...this option is not available. The only way to create a new world file at the moment is to edit a copy of an existing world file. OK...that's not actually completely true...you can create one via ResEdit, but it's too complicated.
- Open File...use this to open a world file, other than the one currently loaded into the editor
- Close file...use this to close the world file that is currently loaded into the editor

Level menu

If you remember, you could think this should be called 'Screen Menu' and you'll see why later.

- New Level....use this for adding a new screen into your world. Just type in an appropriate number for

where you want the screen placed
- Open Level...use this to go to a certain screen to work on it. You just type its number into the dialogue box that appears
- Revert Level...this will revert the screen you are working on to the last saved version of it
- Save Level...this will save the screen you are working on
- Delete Level...Type in the number of the screen that you want to delete

Note : For 'New', 'Open' and 'Delete' you don't have to type in a number. You could click on the buttons that appear in the dialogue box to navigate the world file and put your screens together how you want. This dialogue has a preview button to help you see which screen you are at.

Objects Menu

You could consider this menu somewhat redundant, as you don't actually have to use it (unless you want to do some tricky things), but we'll explain it anyway.

Monkey Shines keeps track of all the objects in your world by assigning a unique ID to each object. It is possible to manually assign ID numbers to each of the objects, but the Level Editor takes care of this for you if you select 'Autonumber Items' from the 'Misc' menu.

Sprites menu

- Sprites Visible...this allows you toggle whether the sprites appear on the screen you are working on or not. The sprites are still there though...they are just hidden when this is not selected
- Edit Sprite...to edit a Sprite that is already on the screen you select this menu item and click on the sprite
- New Sprite...this creates a new sprite and immediately asks you for information about it
- Delete Sprite...Select this and then click on a visible sprite to remove it

Misc menu

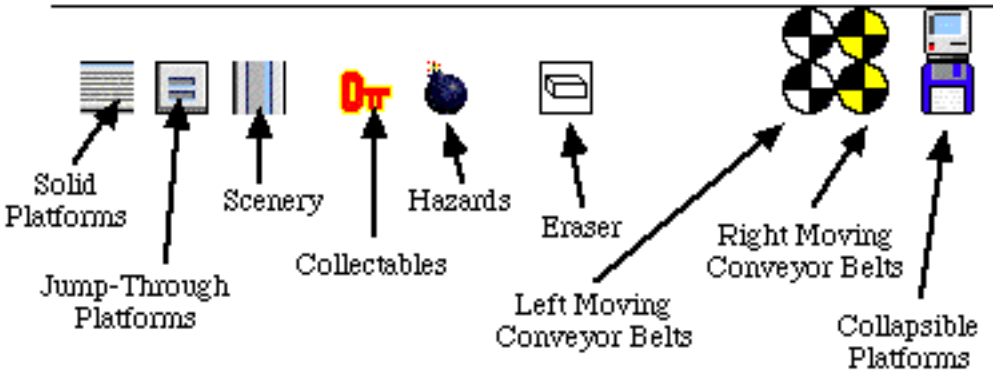
- Place Bonzo...If Bonzo comes onto a screen and dies without landing safely, he is placed back on the previous screen. Use this menu to define where he will be placed. This actually quite important, as :
  - it can effect game play quite a bit
  - failing to do so may cause the game to crash. It MUST be done for ALL screens
- World Info - Here you can manually set the number of keys and fruit. You don't actually need to do this, as the "Autonumber Items" menu item will do it for you. You also need to tell the game which screen the Exit Door is on and which screen the Bonus Door that leads to the Bonus screens is on.
- Select Pattern - This allows you to choose the background pattern for a screen.

- Autonumber items - As mentioned earlier, Monkey Shines keeps track of all the objects in your world by assigning a unique ID to each object. The easiest way to keep track of all the fruit, keys, power-ups etc, is to let the Level Editor take care of the numbering for you. Unfortunately "Autonumber Items" currently can't be left on permanently, so you need to remember to select this menu item on a regular basis, especially just before you test your world.

The pop-up palettes - Why are they grouped in certain ways ?

Well, first of all, you might be asking yourself "What pop-up palettes ?"

You've already seen an image and been given a description of what appears on screen once the Level Editor opens a world. The range of icons that you see along the top of the window are pop-up palettes that allow you to select the items to place onto each screen. There is also an eraser in the middle to delete items you have placed onto the screen, but don't want. Just have a look at the following image to see what all the pop-up palettes stand for.

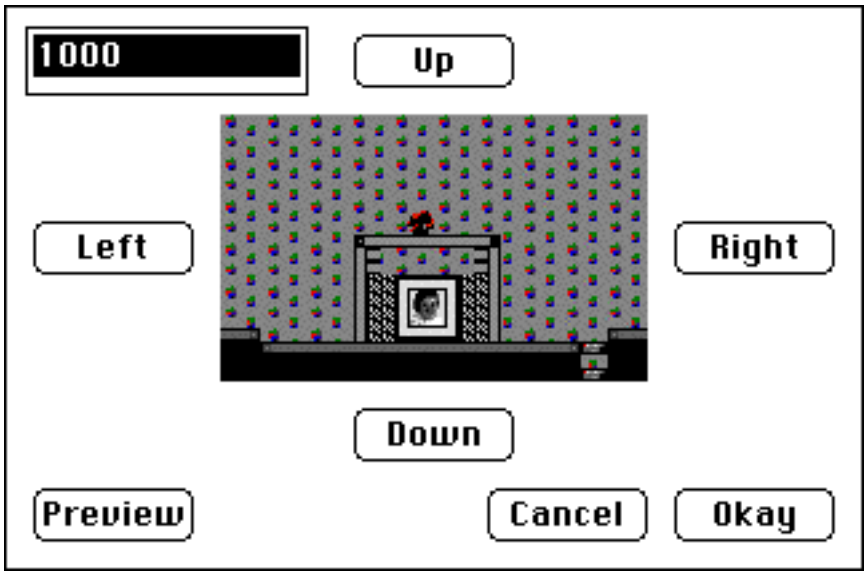


More about the Level Editor in Part 5 of this Section...

Using the Level Editor - Part 5
Choosing a screen, background and placing items

How do I get to a screen to work on it ?

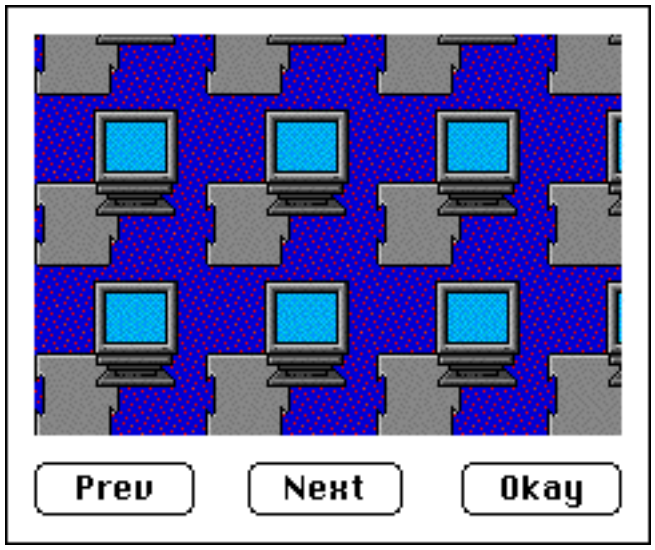
The easiest way is to go 'Command-O' and this will bring a dialogue box up similar to the one shown below. In this image we have just clicked the "Preview" button and we can see that we are at the very first screen (1000) of "Phil's Mac World".



To navigate the various screens in your world, use the direction buttons (Up, Down, Left and Right) or just type in the screen number you want to get to and click "Okay" (or press your 'Enter/Return' key).

How do I choose the background for each screen ?

Once you have moved to the screen you want to work on, go to the "Misc" menu and choose "Select Pattern...". You will then be presented with a window (as shown in the image below) that is relatively straight forward. Just use the 'Prev' and 'Next' buttons until you see the pattern you want and then click on 'Okay'.



Important : The Level Editor doesn't consider that your screen has changed, even though you have changed the background pattern. So, if you leave this screen and come back to it, it won't remember what background you wanted, unless you had saved your choice. So, just after you choose your background, choose "Save Level" from the "Level" menu, or more easily, press Command-S.

How do I place the platforms and hazards onto the screen ?

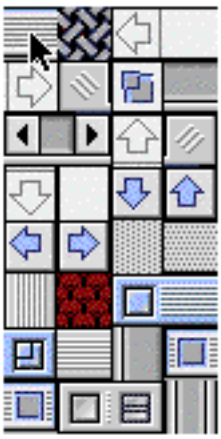
Once you've got an idea as to how you want a screen laid out (or even if you haven't) you can make a start on placing all the solid platforms, the jump-through platforms, scenery, collectables and hazards onto the screen.

Remember to think about the screens to the left, right, top and bottom of the one you are working on (if any exist) as it is very easy to make the mistake of allowing Bonzo to walk onto the screen at the wrong point, only to find himself stuck in a solid platform. It sounds funny, but it shows how you really have to test your world once it's finished.

Test and re-test. It is quite easy to allow Bonzo to accidentally walk to somewhere he shouldn't, or to accidentally place a walk-through platform instead of a solid one. Jumping onto a screen can also cause some unusual results if platforms haven't been placed properly.

For a very important discussion on problems related to platforms near the top of the screen, look at the trouble shooting section.

To place a platform or object onto the screen, just click and hold the mouse button on one of the pop-up palettes. Then (holding the mouse button down) move the cursor to the object you want from the palette that has appeared and then release the mouse button.



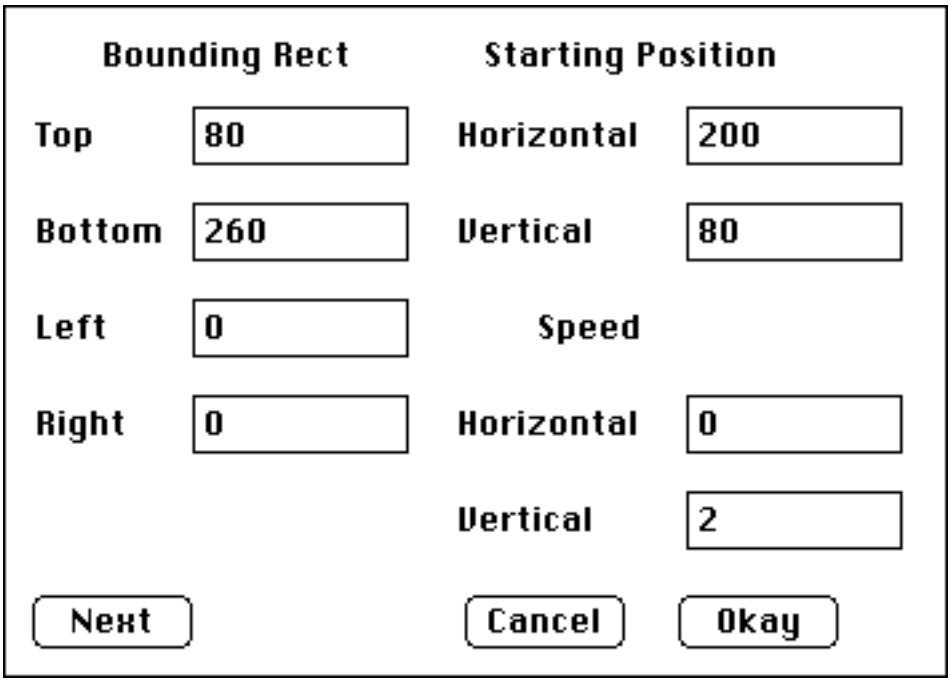
Unfortunately at the present time, the Level Editor gives you no visual indication of what you have selected. It's not until you move down to the screen you are designing and click the mouse button, that you will see your selection appear at a given point. Note that you can also click and hold the mouse button down, allowing you to draw the same object many times.
If you make a mistake, just click on the Eraser tool and rub the image out. Remember also to "Autonumber" the screen when you finish placing items (collectables etc) on to the screen.

More about the Level Editor in Part 6 of this Section...

Using the Level Editor - Part 6
Placing sprites into a screen

How do I place a sprite onto my screen ?

Go up to the "Sprites" menu and select "New Sprite.." The following window will appear, although the numbers may not be as seen in this example...



As you can see, there are three sections to this first part of placing a sprite :

- Bounding Rectangle - You only need to use this section if you are going to have a sprite that moves either horizontally, vertically or a combination of the two. If your sprite is going to remain still, this section can be ignored
- Starting Position - This selects the starting position for the sprite. It is quite an important part of placing the sprite onto the screen.
- Speed - If your sprite is going to move, it has the option of moving vertically, horizontally or both. Figures here can be in positive or negative numbers. A negative vertical value will cause the sprite to move upwards first, while a positive value will cause the sprite to move downwards first.

  For a horizontal value, a positive figure moves the sprite right first, while a negative value moves it left first. The easiest way to see how it all comes together is to actually open a world, select "Edit Sprite" from the "Sprites" menu, click on a sprite and look at what has been entered in for its details.

Why is 'Starting Position' so important ?

For a number of reasons :

- If you are going to have a stationary object, then that's the only information you need to type in. You can leave the Rectangle and Speed sections alone
- Often you need to consider where Bonzo can enter the screen. If he can come onto the screen from the bottom right (as an example) the last thing you want is

for the sprite to start at (0,440) as he'll die the moment he walks on to the screen
- When you are placing a number of sprites together to form a pattern, these figures are very important.

What will the sprite in this example do ?

OK...let's read the information from the last image to find out what that sprite will do.

First of all, look at the speed information. It has a vertical value of 2 and a horizontal value of 0, so it means this sprite will only be able to go up and down. Because the value is positive, it will go down first. The Bounding Rectangle information shows that it can move in an area from the top-most position available on the screen (80 pixels) down to 260 pixels.

It's starting position is 200 horizontally (about one-third the way across the screen) and 80 vertically, which is the top of the screen. So it is moving from 80 vertically, down to 260 (about half-way down the screen) and then back up again...and so on.

The horizontal starting position says 200, but the left and right figures say zero. Why ?

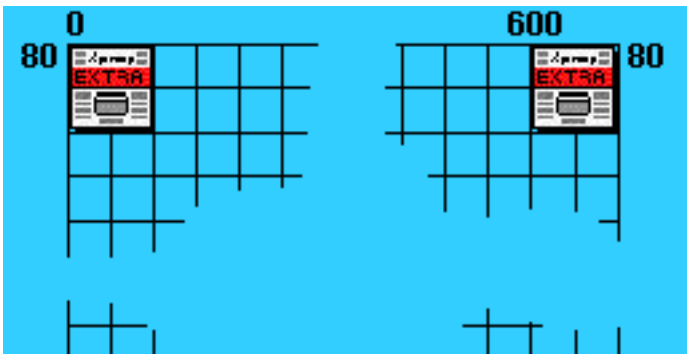
Because this sprite has no horizontal speed it means the left and right figures of the bounding rectangle are meaningless. OK, if you wanted to be fussy, you could say the left and right edges of the rectangle the sprite moves in are 200 and 240 (since the sprite is placed at a horizontal position of 200 to start with) but there is no need to type this in. We can simply ignore the left and right values since the sprite doesn't move horizontally at all.

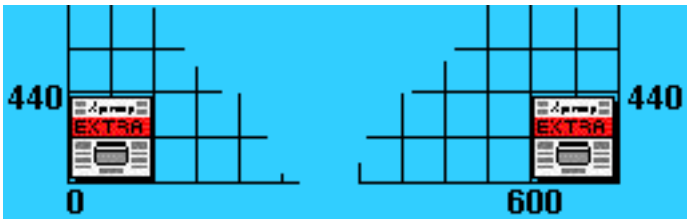
You mentioned something about boundaries for sprites earlier. Why ?

For the boundaries of the rectangle in which a sprite can move in, you are free to use all minimum and maximum values. For example, if you wanted a sprite that could move anywhere, you could have the following values :

- Top - 80
- Bottom - 480
- Left - 0
- Right - 640

However, when determining the starting position of a sprite, you need to keep in mind that a sprite is 40 pixels by 40 pixels in size. Therefore, as you will see in the image below, there is a limit to the values of where you can place a sprite. If you exceed these values, the Level Editor will just replace the value with the maximum values acceptable.

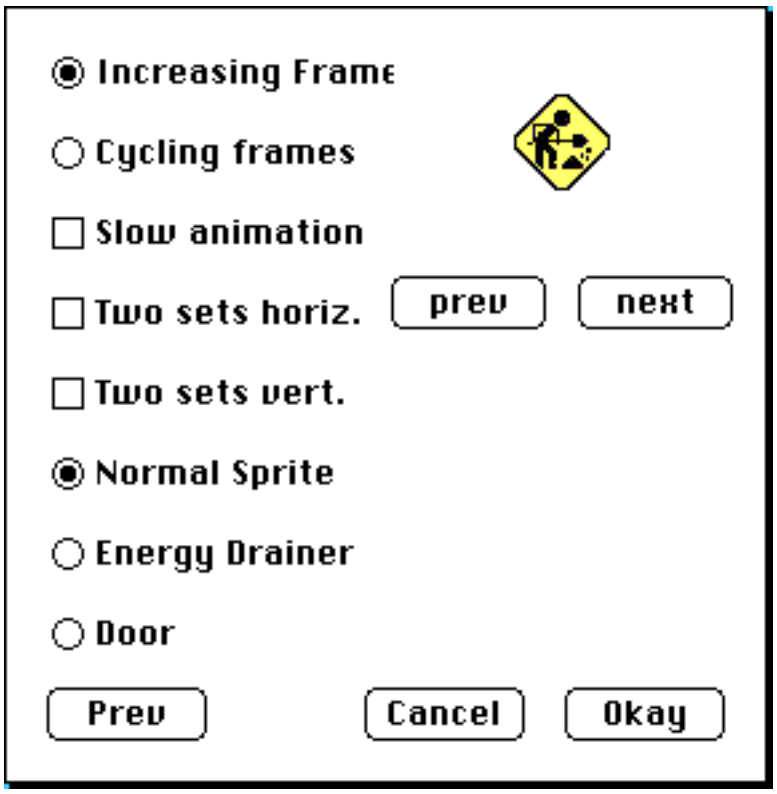




From the image above, the maximum starting position horizontally for a sprite is 600, while the maximum vertical starting position is 440.

What about which animation I want and the type of sprite it should be ?

Right, click on the 'Next' button in the sprite information window (as shown in the image before last) and something similar to the following image will appear...



A lot of this information, especially about animating sprites, has been discussed in a previous section so we are not going to go into detail here. We will explain the layout of the window to you though:

- Increasing/Cycling Frames - Choose one of these values for how the animation plays
- Two sets horiz - This allows you to use two consecutive sprites (a right facing bee and a left facing bee for example) so that one sprite plays in one direction horizontally and then changes to the other sprite in the opposite direction
- Two sets vert - Similar to the last setting, but here the sprite will change when going up or down Normal Sprite/Energy Drainer/Door - A sprite has to be one of these three.
- Prev/Next (at top right of window) - These allow you to select the sprite graphic set that you want to use. If you choose to use two sets horizontally or vertically, you should select the image of the first sprite set
- Prev (button at bottom) - This takes you back to the sprite placement information

- Cancel - stops the changes
- Okay - Enters the information that you have selected

If you define a sprite as a door and mark the current screen as the screen for the Exit door (we'll show you how later), this sprite will not appear until you have all the red keys, and then it will function as if it were a door. It is strongly recommended that you maintain the original graphics for doors. It's also recommended that only 'obvious' sprites (such as Bees) are assigned the value of "Energy Drainer".

And yes, you can have a door that moves around the screen.

More about the Level Editor in Part 7 of this Section...

Using the Level Editor - Part 7
Stationary hazards

What characteristics can stationary hazards have ?

This area is a little complicated, as the Level Editor isn't as informative as it could be when working on your hazards. There are a number of things you need to know :

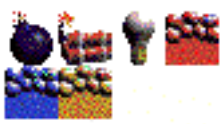
- There is the facility to have up to 16 hazards, each comprised of two frames of animation. Most worlds have about 6 hazards.
- Hazards have a 'Death Caused by' value. This is a little confusing. What it is really saying is that each hazard must be assigned a value that reflects what animation is played out when Bonzo touches it. The values are :
    - * 1 - burned (as in a bomb or lava)
    - * 2 - electrocuted
    - * 3 - bee sting
    - * 4 - fall
    - * 5 - normal monster
- Hazards also have a 'Death Sound' associated with them. These sounds each have an ID number. The possible sounds are :
    - * 12 - Normal Death
    - * 13 - Death from a long fall
    - * 14 - Death from Bee sting
    - * 15 - Death by bomb
    - * 16 - Death by electrocution
    - * 20 - Death by Lava
- Hazards have the potential to explode. Just check the box if you want them to (You'll see the window that allows you to do this in a moment) You can also play one of the sounds above for an explosion sound, or there is one other sound you could use :
    - * 18 - this is the sound of a bomb exploding

How do I set these characteristics ?

First of all, you should realise that the levels which ship with Monkey Shines all have these values set correctly. If you create a world from a pre-existing file, the numbers will automatically be set correctly for you and there is no need to change things around.

If you do want to change things around, it is a little awkward as the Level Editor doesn't give you a great deal of visual feedback.

To change some of the characteristics of your hazards, the first thing you should do is write down the order of your hazards in the pop-up palette. As you can see in the following image, we have a bomb, dynamite, a light-bulb, lava, lava and lava....



Next, go to the "Misc" menu and select "World Info". The World Info window will appear. The important information for us is displayed in the right-hand half of the window, as shown in this example image...

It's possible to see here that we are looking at information about the first hazard in our list...the bomb. How can we tell ? Well look closely and you'll notice that the 'Previous Hazard' button is greyed...there is no previous hazard, so we must be at the first hazard. And that's basically the only way you will know where you are!

So, if you want to alter the sixth hazard, you need to carefully click on the 'Next Hazard' button and say to yourself...

> "I'm at hazard 2 [Click]...I'm at hazard 3 [Click]...I'm at hazard 4 [Click]...I'm at hazard 5 [Click]...I'm at hazard 6"

...and then alter the information. No other visual feedback (other than the values changing) is given.

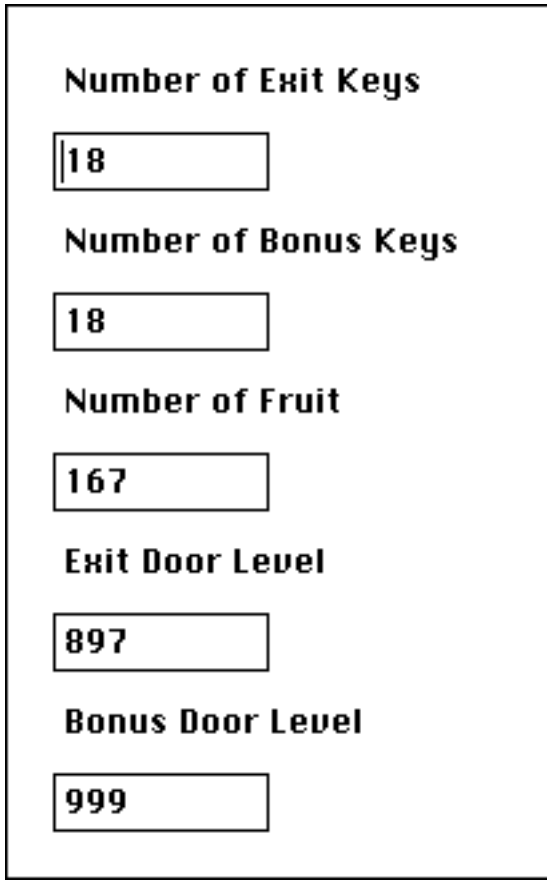
It's important to realise that while the 'Previous Hazard' button greys when you get to hazard 1, the 'Next Hazard' button doesn't go grey until you get to the 16th possible hazard...even if you haven't got 16 hazards!!

Just be careful remembering where you are (you'll notice the information about sounds etc change as you move through the hazards), be careful putting in the sound values and animation values and don't do anything too weird!!

More about the Level Editor in Part 8 of this Section...

Using the Level Editor - Part 8
The World Info Screen

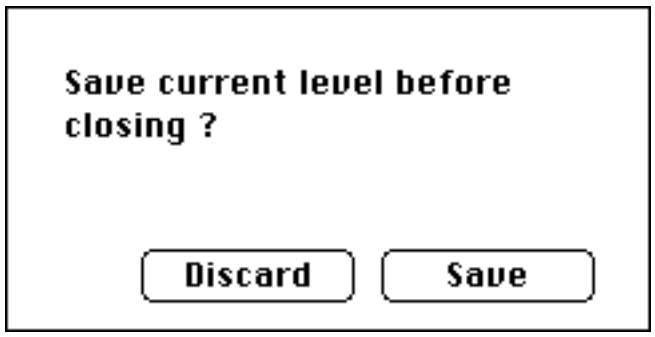
Well..I guess I'm done! Any other windows or items we need to know about ?



Yes...we didn't look at the left-hand half of that World Info window. Let's do that now, as the five boxes need explaining :

- Number of Exit Keys - It's fairly obvious what this is. You don't actually need to touch this box, as Autonumbering will take care of it
- Number of Bonus Keys - Again, let Autonumbering take care of this
- Number of Fruit - Guess what... let Autonumbering take care of this too!
- Exit Door Level - You need to let Monkey Shines know which screen the Exit Door is on
- Bonus Door Level - You also need to let Monkey Shines know on which screen the Bonus door that leads to the bonus screens can be found

And of course, the window shown below is an important one. It may not look like it has a default button, but pressing the 'Enter/Return' key on your Mac will cause your work to be saved. Remember, changing the background pattern is (oddly) not considered a change, so this window won't appear if you just go to a screen to change its' background pattern...you need to save the level (Screen really) by using the menu or Command-S.



Adding music to your World

Since you create your world by altering a pre-existing file, your world already has music in it. However, it would be more enjoyable if you used a new tune instead of one from an existing world. In a previous section, there was a description of the six parts to a MS world file. One of these sections, the 'MADH' resource, is where the music for your world is stored.

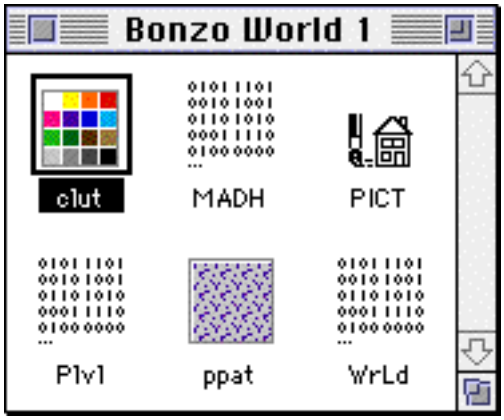
What is a MOD ?

A MOD is a popular music file format that you can listen to on most Macs. The MADH resource in your world comes from a converted MOD file. To convert the file you need a program such as PlayerPro, which currently has a registration price of $99 US. Fantasoft however, are more than willing to convert your chosen MOD for you.

There are literally hundreds, if not thousands of MODs available from the Internet...at web sites and in newsgroups. The easiest way to listen to MODs on your Mac is to download the excellent freeware program 'SoundApp'.

What is a MADH resource ?

The simple answer is that it is just a different type of music file format. For a more technical answer you'll need to look elsewhere on the net...you don't really need to know anything technical about it :-)



How to I turn a MOD into a MADH ?

- Cost-effective method - Decide on the MOD you want to use, compress it and attach it to an e-mail to Fantasoft to get it converted for you ;-)
- PlayerPro method - Open PlayerPro and load the MOD. Then select 'Export As... Application' from the 'File' menu

Upon receiving your converted file (or converting it yourself) you end up with something that looks a little bit like the image here. This is your music in a stand-alone player.

It's quite neat to have a play with this application. Double-click on the file and click the top right-hand 'grow' box of the window that appears. You can now have a play adjusting the speed, sound quality and lots of other things to do with the music, although it should be pointed out that adjusting it here will have no effect on the music as it is transferred into your world.

How do I put the music into the world file ?

You need three things to do this....the newly converted music file, your world file and ResEdit. Just

follow these steps (you can do it in a different way, but here is just one method) :

- Use ResEdit to open the converted music file
- Double-click on the MADH resource of the file
- From the 'Resource' menu, select 'Get Resource Info' (command-I)
- In the window that appears, change the ID to 1000
- Close the window
- Select the ID-1000 resource in the MADH window
- 'Copy' (command-C) the resource
- Close all the windows associated with this music file (Don't save any of the changes to this file)
- Select 'Open' from the file menu and open your World file
- Double-click on the MADH resource
- Select 'Paste' from the 'Edit' menu (command-V)
- Select 'Yes' when warned about replacing a resource with the same ID
- Quit ResEdit, saving changes to your world file on the way

But the MOD isn't mine. Can I use it ?

There is a bit of a problem here. MODs have been around for quite some time, and the Internet is flooded with them...many with no obvious author associated with them. The short answer is 'No...you can't use a MOD that you didn't create', but perhaps we should be more realistic in answering this question.

The positive aspect of tracking down a MODs' author is that there are many great MODs out there, created by authors who are easy to contact and may be willing to allow the use of one of their MODs. Many sites list the authors of the MODs they have stored on site.

You should make every endeavour to try and track the author down. It is extremely unwise to use an anonymously created MOD of a well known theme..."Do the Bartman", "Beverly Hills Cop", "X-Files Theme", etc etc...as these are obviously copyrighted.

In short...**You must seek permission from the creator of the MOD or at least have made a valiant effort to track the author. Authors (or the lack of them) should be acknowledged in your "Read Me" file**

Where can I get some good MODs from ?

There are plenty of sites out there from which you can download MODs. Have a good look on the site to see if the author is named and how you can contact them.

- Yahoo MOD Index
  - www.yahoo.com/Entertainment/Music/Computer_Generated/MOD/

- Mod Archive
  - www.modarchive.com/

- Definite Loud!
  - www.ludd.luth.se/users/jojje/modules.html

- Aminet MOD
  - ftp.wustl.edu/~aminet/dirs/tree_mods.htmlArchive

- cdrom.com MOD Archive
  - www.cdrom.com/pub/demos/music/

- Mysterium's Tracker Archive
  - www.center-nebula.com/mysterium/traxinspace/traxinspacenoframes.htm

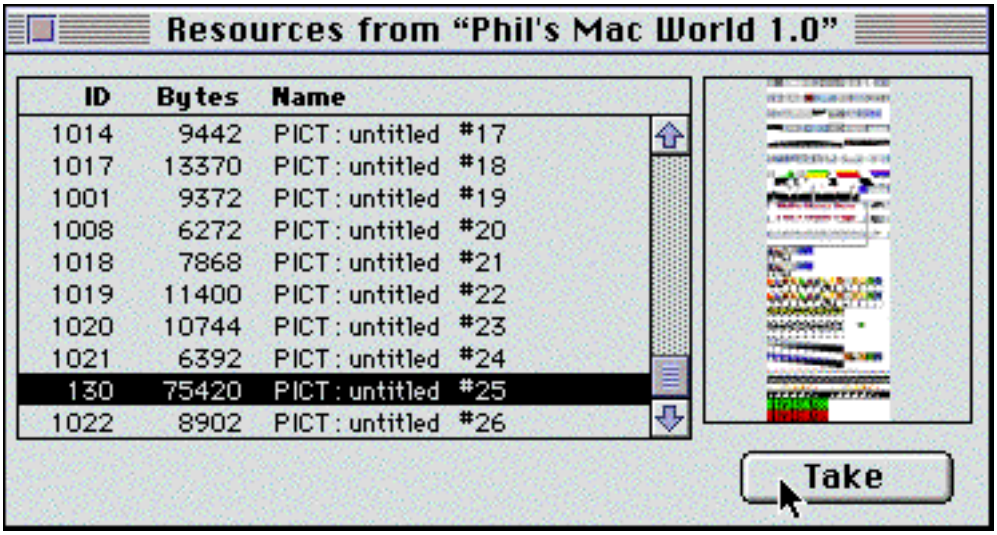
Tips and Tricks

These are a few tips for making world development easier and also some ideas for some neat tricks to use in your world.

Getting at your world graphics without ResEdit

Want easier access to your PPATs and other graphics ? Getting really annoyed at the routine you have to go through just to get at PICT 130 ? Here's a neat trick...

To get at any of the graphics in your world, simply drag the world onto "Graphic Converter". A dialogue window will appear (similar to the one shown here) which will allow you to choose the graphic, tell "Graphic Converter" to 'take' it from the file, and GC will create a new pict file of the image for you (it doesn't literally 'take' the image out of your world). Look how easy it is to get at PICT 130 in "Phil's Mac World"!!!!



Just remember that you will need to use ResEdit when it's time to put the image back into your world.

PPAT Tricks

You may be frustrated by the way your background image tiles itself across your screen...important parts of it don't line up where you want it to and parts of it get cut off due to platforms and objects you have placed all over the screen. A solution to this is to rearrange the PPAT. This image here is a PPAT out of "Phil's Mac World" and is shown as it appears in the resource. By putting it like this, it tiles much more nicely on the screens that it appears on.

Testing Your World

No...Bonzo hasn't died and gone to Monkey Shines heaven!! We put this image here to show

you how you can test your world easily.

One of the principles of all good software testing is to test the software not to see that it does what it should do, but rather test it to see if there are things that you shouldn't be allowed to do.

In other words, try out silly things and see if you get to do them!!
So,what you can do when you test a world is add in some extra lives and then wander around the world being silly. Jump at sprites to make sure they kill you...walk through Bees to make sure they drain your energy...and, most importantly, try to go in directions
and travel to places you know you don't really want to go.This often involves jumping off screens at funny locations, all to see what happens.If something goes wrong, then it means it could go wrong for someone playing the world and it needs to be fixed!!

Solving some of your problems

As more people begin to make add-on worlds an obvious list of common mistakes begins to develop. This page should be your first stop when you have something wrong with your world. If you can't find the problem here (or in the "Read Me" that came with the Level Editor) we suggest you visit the "Bonzo Hits CyberSpace" web site, contact Fantasoft or contact Philip Roy. All three sources are more than willing to help in answering questions.

Please make sure you are using the most recent version of the Level Editor!!! If you aren't, this could be the cause of many of your problems!!

Problem :

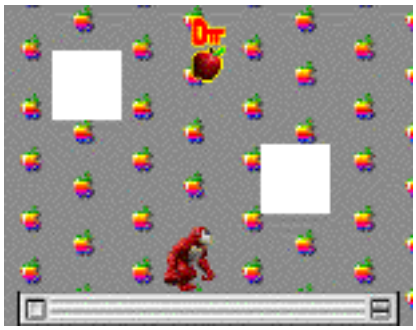
While testing my world the fruit disappear when I walk back onto a screen

Solution :

You have not asked the editor to auto number the items before you quit the editor. Launch the editor, select 'auto number', quit and then try the game again.

Problem :

I've started playing my world and all the sprites have turned into white squares (as in the following image) and none of them have any effect on Bonzo!!



Solution :

This usually happens if you decide to renumber the sprites and/or remove some of the important sprites. The easiest solution is to ensure that the two doors (Exit and Bonus) and the bees are left alone. In other words, keep the Exit Door as Pict 1000, the Bonus Door as 1001 and the Bees (even if you don't use them) as 1002.

Problem :

My world file seems to be getting quite big. What's happening ?

Solution :

There are a number of factors that influence the size of your world file. These include the music you add in, how many screens you have and how many sprites you have. A major cause of large world files is having PICTs that have not been optimised to 256 colours. Monkeys Shines plays in 256 colours, so there is little point having PICTs of thousands or millions of colours. Check each of your PICTs to make sure they are in fact 256 colours.

Problem :

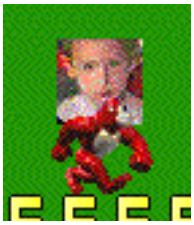
Sometimes when I play the world, my sprites appear really badly or appear in inverted colours.

Solution :

Again, a major cause of this is having PICTs that have not been optimised to 256 colours. Changing the sprites to 256 colours should sort out this problem.

Problem :

The sprites appear on the screen, but they have no effect on Bonzo! Just look at this image...he has been touched by a sprite, but he hasn't died!! Even the bombs don't kill him!!



Solution :

Some problems are caused by solving others!! This really bizarre problem can occur as a direct result of fixing up the previous problem described on this page. The solution is simple but a little time consuming. Just use the Level Editor to select the sprites that the problem is being caused on and "pretend" to edit them...turn it into an 'energy drainer' and then back to a normal sprite. Then just save the changes (in fact, you haven't really changed anything, but the Level Editor will update the file). For the bombs and other hazards, just select 'Autonumber Items' from the 'Misc' menu. Then just save your work.

Problem :

When Bonzo comes down from the screen above, he ends up getting stuck on a platform, unable to walk in any direction. I also notice he isn't standing on the platform properly, as in this screen image...

Solution :

The problem here is that when Bonzo falls from the bottom of one screen onto another, the application needs a bit of time figure out where all the platforms are on the new screen. Here Bonzo has completely gone through two solid platforms and sort of landed on the third. The easiest solution is that when you design a screen and you want platforms that Bonzo can land on from the screen above, place

these platforms 4 sections down...in other words, in the image above, you would be best to place a platform under these three (which would be at the optimal height for it) and remove the top three platforms.

Problem :

When Bonzo comes down from the screen above, he goes straight through the platform he should land on and just keeps falling, as in this screen image...

Solution :

This is very similar to the last problem. The platform you wanted Bonzo to land on is too high up, so that when he enters from the screen above, the application doesn't get enough time to acknowledge the existence of the platform and poor old Bonzo falls right through it. Make sure that the platform is in the 4th section down from the top of the screen (pixels 140 to 160) to give the application time to draw the platform. In the case of the image above, it would mean moving the platform down one section.

Problem :

Bonzo keeps jumping up to the next screen from a platform. There is a platform waiting at the bottom of the screen above for him to land on, but he misses it and falls back down.

Solution :

This is similar to the last two problems. Bonzo is jumping up to the screen above, but the application isn't being given enough time to acknowledge that there is something for him to land on on the screen above. In the image above, Bonzo has just jumped up into the screen above, but has fallen back down. Basically this is because he isn't jumping high enough up in the screen above. Just make sure that the platform he jumps from is in the 4th or 3rd sections from the top (pixel range 120 to 160) to give him enough height. In the image above, if he steps up to the

next set of collapsible platforms, he will have enough height to jump up to the next screen.

And now...the end is near...and so I face...the final curtain...

In the rush to get your world finished, it is easy to over look a few important things before you can say "Yep...my world is finished". On this page you will find a list of things you should make sure you've done before you can say your world is 'complete'.

Some of them may seem obvious, but just work through these points as a final check. Then we can all sit back and play!!

- Placed a Bonzo on every screen
- Auto-numbered the world
- Entered the information on which screen the Exit and Bonus Doors are on into the "World Info" window
- Made sure that all PICT files are 256 colours
- Changed the icon in the Pict 5000 resource
- Optimised the colour tables
- Tested the game!! See the "Neat Tricks" section for a suggestion

Philip Roy is the winner of the Fantasoft Software level design contest for Monkey Shines and operates "Bonzo Hits CyberSpace" - a site devoted to all things related to Monkey Shines.

This tutorial is a composition of his on-line tutorial at the web site.

Phil would really like you to visit his personal Home Page and send him an e-mail from there if you are enjoying playing "Phil's Mac World" or any of the other cool add-on worlds. The "Bonzo Hits CyberSpace" address is mentioned in the 'Introduction' section. His personal Home Page is at : www.geocities.com/Hollywood/Hills/5419

Disclaimers

It is strongly recommended that you save your work and back it up regularly. Some bugs in the previous version of the Level Editor could cause your level files to become corrupted. Fantasoft believe these bugs are now resolved. As far as they know, the editor has NEVER caused any damage to other files on disks. However, they take no responsibility should it do so. Use at your own risk.

Acknowledgement and a tremendous amount of thanks is given to Mark Elliott, the creator of Monkey Shines, who offered his advice, his support and answered many questions when Philip wrote the original "Bonzo Hits CyberSpace" tutorial. It was greatly appreciated Mark !! It should pointed out (for Mark's sake) that this tutorial is based around Philip's understanding and interpretation of how to create a world.