## Making Your Own Decals - 101

By Douglas E. Summers

#### Introduction

Welcome to Making Your Own Decals - 101. The class that answers the age old modeling question, "Can I make my own decals for fun and profit?" Well, I don't know about the "profit" part, but you definitely can make your own decals. For the most part Decals are an integral part of any modeling project. A lot has been written over the years about decals, how they are manufactured, how to apply them etc., so we're not going to reinvent the wheel. We are more interested in the "how-to" part of the equation. Generally speaking of course, most kit manufacturers choose a subject that they think will sell their product. This means making a marking that is Colorful, Artsy and never the subject that you want to build! This has caused more than a little consternation over the years as, invariably, the subject you are interested in building has **NEVER** been on a decal sheet – **EVER**! If it has been done, and you can find it on an Aftermarket Decal Sheet, great, but there are no guarantees. Most times, if you do find it, it'll either be on a sheet not made anymore, or one that is outrageously expensive. Unobtainium, I believe is the word. So, what do you do? What do you do? Well, you could beg the various decal companies to do the markings you want (Laughable!). You could pay someone else to do the decals for you (Pricey). You could paint it yourself (Ya, right, I can do nose art for a 1/72<sup>nd</sup> scale B-17G - freehand!). OR, you can make the decals yourself on your own Home Computer. I hear you snickering or even laughing out loud (I hear you John) saying, "I can't do that - it's impossible!" Well, if you're not computer savvy (and believe me, I'm not) or you have a computer but are barely able to use it beyond reading your own Email etc., fear not. You already have the basic software and knowledge to make most kinds of decals on your own computer. There are some exceptions but even these are navigable if you're willing to experiment<sup>1</sup>.

How do I do this? Well, if you're using a computer with Microsoft Windows, or some permutation there of, you already have a program built right in that will do what you need to make your own decals. "What is this fabulous program I'm unaware of?", you say. "Where do I find it? What's it called?" Well, it's called "PAINT". In most cases it is listed under "Accessories" on your "All Programs" listing on your "Start" index. It is a <u>VERY BASIC</u> art program that lets you import images and artwork, type numbers & letters, and size and resize items. Things that are available to you off the interweb as well as off your very own computer. You are going to have to learn some simple

computer stuff which we will cover at the meeting but the basics are already at your disposal. You'll also need some basic tools that you likely have in your modeling equipment already, but if you don't here's an excuse to go to Harbor Freight, again (like you really needed an excuse)!

Here's a list of some of the most useful tools you should consider having at hand if you're going to make your own decals.

#### They are as follows:

- 1. A Computer running Windows (I use Windows XP, but **Paint** is built into all Windows products, all you have to do is look for it.)
- 2. A Mouse (The computer kind, not the fuzzy rodent kind comedian!)
- 3. Access to the Internet (AOL, Firefox, Internet Explorer, etc.) Not an absolute necessity but a very useful tool in your decal making arsenal.
- 4. A Color<sup>2</sup> Printer of any kind (Inkjet, Laser, Alps if you've got 'em, etc.) the higher the resolution, the better.
- 5. A Scanner<sup>3</sup> (Printer/Scanners Combos are good for this task, but not all scanners are created equal. If you have a dedicated scanner with Hi-Res, all the better.)
- 6. A metal ruler a 6" is perfect divided down into 1/32" increments if possible (Harbor Freight makes a really nice one that's cheap and available in Metric as well, another reason to go!)
- 7. Dial Caliper and Dividers (not mandatory but really useful, fairly inexpensive and another good reason to go to Harbor Freight!)
- 8. Blank Decal Paper<sup>4</sup> (both Clear Decal Film and White) Available from multiple sources on the web or in stores including Micro Mark, Micro Scale, Testers Decal Paper, etc.
- 9. Microscale Liquid Decal Film (Testers Decal Fixative or both)
- 10. Lacquer Thinner (If using Microscale Decal Film.)
- 11. Scotch Brand Magic Transparent Tape

These are the basics items you need to manufacture your own decals. There are other things you'll need like a No. 11 Xacto Knife, A Clean Wide Brush (preferably new and unsoiled), Scissors, Cardboard, Bulldog Clips etc. Things you already have in your modeling stuff (or should have) that you'll use in the process but, as, this is a primmer on making decals not generally a detailed step by step, that's enough about tools. We'll cover all the gory details at the April meeting. If you can't attend April's meeting and are interested in learning how to make decals on your own, see me when you can and I will cove this with you one-on-one.

The most important thing for this project is the willingness to experiment. Don't ever be afraid to experiment – you're not going to ruin your computer or your printer. Just look what the guys in "Weird Science" were able to create! You may think that some of this sounds a bit crazy or far-fetched at first, but keep in mind, I've been doing this for a while now and I've worked a lot of the bugs out. We are light-years ahead of where we were 30 years ago in terms of making our own decals. I did it back then and I can tell you, it wasn't easy, but I did it. If you can navigate your own Email, you can make your own decals. I know that sounds simplistic but it really is just that easy.

### Part I

One of the things that has always frosted me, or did, was wanting to build a particular airplane and needing different markings (serials, side numbers, lettering, etc.) than what is included on the kit's decal sheet. "If they had only made...!" I don't know how many times I said that! Let's get started then. So, what will we be doing for our first project? Well, something simple for a first try. Everybody loves Mustangs (not Raymond), right? Sorry Car Guys, I'm talking about P-51 Mustangs here. Let's take a look at the particular airplane we've wanted to build, but can't, all for a lack of decals. Keep in mind Car Guys, this class is directly applicable to any kind of model building - Car Stuff, Armor, SciFi or whatever, so fear not.

**Our Project:** The F-51D flown by Major Arnold "Moon" Mullins during the Korean War, 4 Yak Kills, spiffy red paint and full color national insignia. A really nice looking F-51D.



You say to yourself, "Well, the national insignia is a standard USAF post 1946 insignia. I've got those in my spares box. I can paint the red tail markings, sure. The stripes, canopy, antiglare panel and wing tips – no problem. I can paint all that, **but,** I can't come up with the rest". The serial number (475728), Pilot – Maj. "Moon" Mullins, the correct sized U.S. AIR FORCE on the tail, the 4 Yak kills etc. These are things I just

don't have in my spares box". There's a USAF on the top right and bottom left wings as well – but I digress. What to do? Where to start? Well, we know you have a ruler (right?) in your arsenal so you've got one of the major tools you'll need. Now might be a good time to consider that Dial Caliper and Dividers too. These are some of the handiest tools you can add to you modeling arsenal. You can find all different types but Harbor Freight has a digital electronic caliper that is small (6") and will do nicely for what you'll need.

So, you know what the markings are, now all you need is a way to make them. For that you'll need your computer and one of those pesky things called a "FONT". But not just any Font, you'll need a "Military Style" Font. Well, you're in luck, most computers you have a large library of Fonts that let you do all kinds on things, like, make your wife a pretty Valentine's Day card or type a letter to Aunt Sarah asking for her famous Chocolate Chip Cookie recipe (I know, SNAIL MAIL, HA!). Now all you have to do is find the right Font for the project. This can be a very time consuming process so I recommend you keep a file of the Fonts that best represent Military or Civi' things you want to build. My computer has over 5000 different Fonts so you can see it can be a real drag trying to find the particular one you need. We will be discussing this at the meeting but for now let's look at the project at hand. It's a fairly basic F-51D Mustang (That's a post Summer 1946 P-51D or Mustang III if you're Brit and cursing our web site "under the radar").

So what are we going to need in the way of a Font? It's a block type Font used by the US Army, USAAF and USAF from the 1920's through today. It has 45° corners and makes up most of the major components of our project. The particular Font you need is one called **AmarilloUSAFPro**. If you don't have this on your computer (and chances are good that you don't), don't worry, you can add this Font to your **Font File** by downloading it for "FREE" for the trial version from the interweb (I know how much you guys like something that's *free*). You'll need to do a Google Search for the name **AmarilloUSAFPro**. It is a "True Type" (TT) Font which means it works on your computer and will be a godsend to you for all things military. You can download the trial copy of this Font to try it out for 30 days. While your at it, you might want to look at another Font that will come in really handy. It's called **LongBeachUSN** and is from the same Font designer. It's a 60° Font used by the US Navy since the 1950's and is common to most everything in the US Navy inventory. That doesn't mean that you won't find aircraft in Naval service with lettering that doesn't conform to the 60° format as, once you start doing your own research (oh that word), you'll find all kinds of oddball exceptions to this "rule" (just so you know). For those who are interested and really like the idea of making your own decals, the company that designed these Fonts and several others, does charge a nominal fee for each of the **Full** versions<sup>5</sup>.

That being said, these are *the* best, most useful Fonts I have found in my 17+ years of decal making. There are other "**Free Fonts**" that are similar in design, but they just aren't the same quality. As the saying goes, "Ya pays yer money, ya takes yer choice."

Now, download the Font, drop and drag it to your Font File located on the Control Panel of your computer and your ready to go. **WWWHHHAAA?!?!** If you didn't understand anything I just wrote, it's OK, you will after the April meeting. I'm going to show you just how to do it. Read **Part VI** below on **How To Add A Font** to your computer. This will help you to "stay on same page" so-to-speak, during the meeting.

Anyway, back to "Moon" and his F-51D. You've got the Font, now what do you do with it? Well, for that you'll need to come to the meeting so I can show you as, this is a very visual process and it's lots easier to show you rather than to try to explain it in a text format. I hadn't thought about it but this is a lot like one of those cliff-hanger endings in a TV show – "Tune in next time.....!". Anyway, trust me, you'll learn more this way and it's easy. It's even easier with an "Art Program" which you can find at most stores that sell software (WALMART, for example). Corel Print House 3 is the one I like to use. It has a VERY EASY learning curve, is cheap and does most anything you could want in a basic art program. It's fancier than Paint and in a lot of ways easier to use. It also comes with photo editing software to fix those old, damaged photos you have in that box right next to your old, comfy sweat socks. There's also the program we discussed at our last meeting "Inkscape". This has a much higher learning curve and is outside the scope of our class, but would make a great subject for a later date. Just think about it. There's so much more you can do with an actual art program but, for the sake of expedience, we're going to stick with "PAINT" for this one as it's free.

## Part II: The "Summers Method"

I do want to talk to you about actually printing your first decal. I have a method that I've been using since the beginning. This is my own, personal method and is, by no means the only way to produce decals, but it works well and it helps hold down costs. Lets assume that you have a decal design that is ready to print.

- Step 1. Take a sheet of plain-jane 8  $\frac{1}{2}$ " x 11" paper. Mark one corner with an "X" (or Y or your initials whatever) in pencil.
- Step 2. Place the sheet into your printer "X side" up with the mark in the corner in the printer tray closest to the machine's intake opening.

- Step 3. Print your image on this plain sheet of paper. When the printed page emerges, take note of the direction the page came out relevant to your "X". Is it face up or face down? It the "X" on the same side as the printed image or is it on the opposite side? You'll need to know for this next part. Write it down, it's important.
- Step 4. Cut out a piece of blank decal paper slightly larger than the image. Give yourself a good ½" to 1" of space all the way around the image so that, when you lay the blank decal paper over the printed image it covers it completely and is centered. Step 5. Tape the blank decal paper along the top edge on the side where the paper
- is drawn into the printer (THIS IS VERY IMPORTANT).
- Step 6. Place the page with the decal paper taped to it in the paper intake tray "X" side up just like in Step 2.
- Step 7. Now print the image again.

Assuming you have followed the above steps correctly, you should now have an image, printed on decal film and ready to be coated with Microscale Liquid Decal Film. A word of warning: Let the ink dry thoroughly before attempting to coat it. A good rule of thumb is overnight. I know some folks who rush this step and have had no problems, but why not be sure. After all, you are going to be putting a liquid over fresh ink, so it could cause it to run if it hasn't had time to dry (if you are printing with an Alps or Laser Printer you can skip this step as, these products are dry and ready for coating immediately after printing).

Once dry, take a *sharp*, #11 Xacto and slice the tape along the taped edge, separating the decal paper from the paper it has been taped to. Take a couple of Bulldog Clips and clip your newly printed decal to a piece of cardboard. Take care to keep the clips edges well clear of your artwork. You are now ready to coat the decal/image combination with at least one coat of **Microscale Liquid Decal Film** (two would be better). This liquid is self-leveling and dries smooth and thin so don't worry about brushing it. It won't leave brush strokes on it's surface (all paints should dry like this stuff does when you brush it on!).

I use a soft, wide, and flat brush (about 1" wide) to cover the image with the Liquid Film (that's when I brush it on). I usually Airbrush the Liquid on using one that I purchase expressly for the purpose of laying down Liquid Decal Film (and for spraying clear coats with Future Floor Wax) so no color contaminants have ever been through it. I purchased the Airbrush kit from Harbor Freight on sale for \$15. It's a cheap one but it works for this application perfectly. Be sure and clean your brush or your airbrush

components with *Lacquer Thinner* as Microscale Liquid Decal Film is a lacquer based product.

Guess what? You've now created a decal that's ready to apply to your model project! That's the "Summers Method" of printing decals. It's easy, effective, saves decal paper and lets you stretch your supplies (well, all but your ink).

#### Part III

## #1. The following web sites and information will help you in your pursuit of Fonts for designing and producing your own decals:

#### http://www.tlai.com/med\_des/modeling.html

These are the best of the best when it comes to USAF & US Navy Fonts. Not that there aren't other fonts you can find to fill in but remember, keep a Font File as a reminder of the names of the fonts you are using for decal making. Like I said – 5000 Fonts on my home computer so it makes good sense to keep a separate file for them. You can even print out a page and keep a binder of the Font pages from your Font file on your computer.

#### http://hans.presto.tripod.com/fonts/stencil5.html

This site has hundreds of free Fonts and are all geared to Military, Aviation and SciFi subjects. I highly recommend them. An FYI - just because you've downloaded from a site before and don't think you need to go back to it, doesn't mean they won't ad to the list of Fonts at a later date. I just found a Font today that is a very nice 45° Format that's not exactly AmarilloUSAFPro but it's close and free. You never know what you might find.

## http://web.archive.org/web/20020202210838/http://members.aol.com/k5083/profiles.htm#contents

This is available indirectly through site #2 above so I've included the direct link to its contents sheet. There are multiple RAF and Commonwealth Countries Fonts on this site. Download them, as they can help you can make Spitfire, Sea Fury, Lancaster and any number of other aircraft decals by using these Fonts.

These should give you a great starting place to find free Fonts.

#### #2. Reference Ideas For Aircraft:

Here's three sites that will help you find subject matter for your newfound skills as a decal designer.

### http://wp.scn.ru/en/news

Wings Palette – a really great profile site for Aircraft modelers.

#### http://wings-aviation.ch/index.htm

Wings Aviation – the same type of thing as Wings Palette but for US Navy fans. He has other stuff too so check this one out.

#### http://www.clavework-graphics.co.uk/

Clavework Graphics is another profile site with ALL KINDS of stuff. Lots of Aircraft as well as SciFi, Cars, Guns, etc., etc. etc.! Check this one out Car Guys!

If you don't find something that interest you at one of these three sites (and I'm including the Car Guys in this) you're dead to me. Well, maybe not dead, but soulless. Ok, maybe not soulless but...

### #3. Where do I get Decal Paper from?

<sup>4</sup>There are a lot of ebusiness that carry blank decal paper. Since price is an always an issue with most of us, so do a lot of practice print on regular old paper before you actually try put ink to decal film. But that's the beauty of the "Summers" method. You use less decal paper and extend the life of your supplies. Here are several good starting points for you to purchase decal paper.

## http://www.decalpaper.com/?gclid=CO6y5uub8NICFQyAfgodmtcBdQ

From what I can tell, these guys have every kind of decal paper there is and at reasonable prices including Inkjet, Laser, Alps, Tattoos, Iron On and others.

### http://www.tangopapadecals.com/

<sup>6</sup>Good decal paper and at the time one of the only games in town. I'm still working off my original order from him. Nice guy too. Into model rocketry in a big way.

## http://www.hobbylobby.com/Crafts-Hobbies/Model-Kits/Tools-Adhesives/Clear-Decal-Paper/p/1158

The above is a link to Hobby Lobby for Testors Decal Paper but it can be found all over the internet. You can also get a kit with Decal Paper, Fixative and a small program for making decals all in one kit. If you're really ambitious they also make a larger version of the software that retails for less than 10 bucks and will let you make all kinds of decals.

#### http://www.beldecal.com/decals.cfm

You'll have to contact Beldecal for their pricing structure as they don't give out prices on the web.

#### Part IV

# How To Download And Add A Font To Your Computer Step-by-step instructions for non-techies

We're going to have to assume a few of things to start with – **First:** Your computer is turned on and is on the **main page** or the **opening screen** for your computers system. **Second:** You have signed on to the Internet. **Third:** You have accessed website number 2 (see above) - **http://hans.presto.tripod.com/fonts/stencil5.html** and, lastly you are looking at **Font.TK**'s page of free Stencil Fonts.

On the left side of the screen you will see a box with a lot of data. Look under the **Stencil Fonts tab** and click on **Free Fonts**. We're going to download the font named **Phantom Stencil**. Click on the highlighted letters >> **Phantom Stencil** and you will be taken to a page called **Font Freak**. You will see the words **click here to download** - click on this. You will be redirected to a page telling you your download will start in 3 seconds. If it does great, if not, press the key that says **Download Link 1 zip** and a dialog box will appear stating **Opening phantom\_stencil.zip** on your screen and asking if you want to **Open** or **Save** your File. The **Save** 'dot' should be highlighted. That's what you want to do is to save this file. Press **OK** at the bottom of the dialog box. Depending on your system, you should now have a downloaded copy of the Font in your **Download File**. I have **AT&T Internet** so I have an arrow "\" **"Icon** that indicates files have been sent for download to your computer but *your particular system* may show something different (for this one guys your kinda on your own as

every web browser is different). If you do have AT&T, click on the arrow "\" lcon (or go to your help box and see what it says about downloading from the internet) and select the file image with the "zipper" drawn across it. Your computer will redirect you to another dialog box that says <a href="Downloads">Downloads</a> on it. Hold on guys, we're gettin' there. Click on the file with the zipper on it again. Another dialog box will open. In it you'll see an Icon that says PHANTOM STENCIL under it. Next to this (to its immediate left) is a block that says **Folder Tasks**. Under this it says **Extract all files**, click on this tab. A Welcome Box will come up for the Extraction Wizard. At the bottom of the box is a gray key that says "Next >" press this key. Another box will come up asking if it is OK to add this to a particular file (your Download File) on your computer, answer "Next >" again. The Wizard will say Extraction Complete. Press Finish to complete the process. A dialog box will appear with a gray and blue Icon "TT" click on this **Icon** and, hey presto you have a dialog box that shows an image of what your Font looks like in a sentence in gradually larger sizes. You can print this out for a Font binder if you wish by selecting gray **Print** button in the corner of the box. OK, now the hard part – just kidding. Close the dialog box so you are back to the "TT" Icon. Now you are ready to add this Font to your Computer. Go to the lower left corner of your computer screen add this Font to your Computer. Go to the lower left corner of your computer screen and press <u>START</u>. It's the one with the little Microsoft Flag next to it. Your computer will open the main list of programs you use on a regular basis. On the right side of this box is an Icon that says **Control Panel**, press it. Your computer will open a new box with a bunch of Icons for your Computer including your Printer, Date & Time etc. You're looking for an **Icon** that says **Fonts**. Click on it. A new box will open with a whole bunch of "TT" Fonts listed. This is your **Font Library**. Each one of those little "TT" in indicate a separate and unique Font that you have on your computer. Now here's the tricky part – if your computer lays out your pages in "tiles" for you (that is to say one page on top of the next), you will have a page that says **phantom\_stencil** with the little "TT" in the top left corner of the dialog box. It will be located just behind the one showing your **Font I ibrary** page. Now move your **Mouse's Pointer** (you know. one showing your **Font Library** page. Now, move your **Mouse's Pointer** (you know, the little arrow thingy) to the "TT" that says **Phantom Stencil** under it and press the **Left Mouse Button** down and **HOLD IT** (don't let it up). Move the "TT" from the **phantom\_stencil** dialog box to the **Fonts** dialog box (you'll see a ghost-like image of the "TT" as you move it from one box to the other). Just move it to any point in the Fonts box and let go of the Left Mouse Button. You have now successfully added the Font *Phantom Stencil* to your Font Library by "dropping and dragging" from one file to another. You have a bunch of open files across the bottom of your page and on your screen. You can close them – or, you can be brave and find some other new Fonts to drop and drag. There are an endless variety of Fonts and Images out there and a great many are **FREE** so don't be shy, go get 'em.

If you're not totally lost by the above then you should have a pretty good grasp on how to add some very useful items to your arsenal of model building tools & techniques.

If you need help – I'll be out driving in my car somewhere. No, seriously, call me. I'd be glad to help if I can. Also, another resource for making decals we have in our club is Neil Hulse. He too is a decal designer and manufacturer and I'm sure would be more than happy to pitch in and give you a hand.

What does all this do for the Car Guys? Well, here's a site that will let you make your own Personalized License Plates from all 50 states and DC. Multiple designs, too!

## http://www.acme.com/licensemaker/licensemaker.cgi?state=Nevada&text=GHPLt d&plate=1969&r=132236220

Now you can make all the personalized plates you ever wanted for your car projects.

#### http://www.clubhyper.com/reference/stencilbg\_1.htm

A link on Hyperscale regarding painting numbers, etc. – It isn't exactly making decals but it is a helpful article on painting markings none the less.

#### http://www.clubhyper.com/reference/aungstdecal/CustomDecals.htm

A really great article from 2001 on making decals buy David W. Aungst was posted to Hyperscale. This is the one that convinced me that I could do it myself, as David was doing what I was trying to do. He has some really great insight into the decal making process and does a great job describing how to make decals using an Alps and Black & White Laser. A lot of his ideas are directly applicable to Inkjet as there was no such thing as Inkjet decal paper back in 2001.

Just keep in mind the whole idea behind this is for you to make what *you* want and to be happy with the result.

## Addendum:

<sup>1</sup> There are lots of ways you can create markings on any model without using decals but some things you just can't do - like WHITE. It is the color, or "lack of color", that makes life miserable for model builders like us. We'll discuss white and ways around it at the meeting but unless you happen to own a Kodak, Alps1000 or 5000 or some other pricey, high-end printer that actually "prints" white you'll have to learn other ways to get around this. I've included a number of links to web sites that have articles on making your own decals, markings etc. These should help to shed a little bit more light

on the process of making your own decals. Also, keep in mind, I'm just a phone call or email away (775-835-0140 or GHPLtd@att.net) so if you're in a jam, I can try to help you out. Just remember, I'm not an expert on art software that I don't own, so all I'll be able to do is point you in the right direction. Decal making can be really fun, but it can also be really hard work, so keep this in mind if you're having problems. You can also bring your ideas to the meeting to share and if you're having an issue you can bring that as well.

- <sup>2</sup> A Black and White Laser can be useful as well, so if black and white is all you have access to, there are still ways to make decals they are just a lot more limited.
- <sup>3</sup> A Scanner isn't a necessity but it's very nice tool to have. A simple way to get one is to buy a bottom of the wrung Printer/Scanner combo at, say, **WALHMART** (Yes, I know, it's a shameless plug, but I need the money!). You can find them on sale throughout the year and for *very cheap* prices (usually in the neighborhood of \$30). **Cannon, Inc.** makes one that will do what you need as well as copy and print Aunt Sarah's famous Chocolate Chip Cookie recipe to share with friends and family (for those of you who still use snail-mail).
- <sup>5</sup> TLai Enterprises has 7 different Fonts (5 military and 2 SciFi) that are all worth your time if you choose to invest in them.
- <sup>6</sup> As mentioned above, one of the companies that produces really great Decal Paper is Tango Papa Decals. He has been in the business for quite some time. His paper is geared for Alps and Laser so Inkjet will not work on it. A direct quote regarding his paper's uses is as follows:

"The paper is true water-slide paper and can be used with most laser printers, ALPS printers and color copiers. Before making multiple copies, always check to make sure the paper is compatible with the printer or copier you are using."

He too has done a very extensive article on how to go about making decals using Microsoft Paint and his own decal paper. I'm including this link since, as, with anything, the more information you have on a subject, the better. The link is:

### http://www.tangopapadecals.com/Make%20your%20own%20decals%20101.pdf

I'm sure this article will answer questions I may have overlooked. It will also give you an idea about working in "layers" which is how the "Big Boys" (Microscale, Caracal, etc.) design their decal masters. It is geared exclusively to using **Paint** for the artwork.

#### Conclusion

In closing, let me add there are other ways you can go about making your own decals like, scanning an old decal sheet and re-coloring it, or finding images of things like aircraft nose art etc. in books and incorporating it into your decal designs. You are only limited by your own imagination.

**WARNING:** One final warning - making your own decals is known to be addictive. Once you start, you may find yourself doing *real research* (there's that word gain) into projects you want to build. A whole new pathway of building will be opened to you. You can do it. All it requires is the willingness try something new or different. If you've read this, you must know that I'm willing to help. I wouldn't have spent 40+ hours putting this primer together if I wasn't. If you have questions, don't be afraid to ask. Thanks for reading and good luck. I'll see you all at April's meeting.