Eepe the first time

I am not going to cover installing Eepe since that has been covered else where, and there are many options with that. I am assuming that you have Eepe installed and the program will run without crashing.

A brief overview of what you are looking at when you open Eepe.

Like most programs there is a set of menus, and a set of buttons. Mostly you can click a button on the bar or find the function in one of the menus. I won't cover the menus too much they will work the same as the buttons do. The buttons are organized into groups. Starting at the left you have buttons for "new file", "open file", and "save file". And just like any other program these do what you expect. The next button we will cover later, and it is called "simulate". Then there is the "print" button. If you ever want a paper copy of your mixes you would use this button. "Cut", "Copy", and "Paste" we will see in use later. The next groups of button work with a programmer to program your radio. We will get to these later in the section on programming. The last 4 buttons are the Er9x user guide, about eepe, contributors, and "check for updates". The "Er9x user guide" button will pull up the user guide. The "About" button gives you a little bit of information on Eepe. Importantly it tells you what version of Eepe you are running, this might be helpful to know if you are having problems later. "Contributors" is a list of the nice people who have contributed to the project, many thanks to all involved. Finally "check for updates" will go on-line and check if there is a new version of Eepe or Er9x and download them for you. Eepe automatically checks when you start it, so you may never need this button.

Your first model:

I assume you have opened Eepe, and you are now staring at a large blank gray space. First go to File->Preferences. Check that "Default stick mode" is set to how you fly. Also check that "Default channel order" is the channel order you would like. The channel order is only used by the templates when one gets loaded. When you are done with that click "Ok".

Now go ahead and click the "New" button. What that did was opened a new eeprom file, called "document1.eepe". The eeprom file is where the models are stored in your radio. It is separate from the firmware that goes in your radio. Firmware files generally have the extension ".hex". You cannot open or edit firmware files with eepe. If you try to open one you will get an error message like "file wrong size". Typically this means that you have tried to open a ".hex" file. Now back to the new model file you created. In the first line you see "General Settings". Go ahead and double click that. That brought up a box for all of the general settings of the radio. I won't cover all of the options here, since this tutorial is geared for the beginner. You can enter your name in the owner field if you want. Check that "Stick mode" and "Channel order" are set to what you want. When you are done click the "X" button to close the window.

Next double-click where it says "01:". Congratulations you have successfully created your first model. The box that has popped up holds all of the settings for this model. You will see many options in here. Check out the Er9x manual for explanations of what each option does. We are going to skip to the tab that says "Mixes". Here is the mixer. In here you can add, delete, copy, and edit mixes. The output channels are in the column on the far left. If there is a mix set up you will see it displayed to the right of the output channel. Currently there is a very simple 4-channel model setup. It has controls for ailerons, elevator, throttle, and rudder. To edit a mixer you can either double-click on it, or right-click on it and select edit. This right-click menu also gives you the option to add a mixer which we will get to in a moment. So now you have another small window displayed. This is the mixer editor. The title of the window tells you what output channel this mix will be on.

Source is the input to the mixer. If you click and pull down the list of available sources you will find quite a few! Rud, Thr, Ail, and Ele are inputs from you sticks. P1, P2, and P3 are the 3 pots

on you radio. The CYC ones are for helicopters, check the heli tutorials to understand these. Then there are the PPM inputs. If you were using you radio as a master with a buddy box these inputs come from a slave radio. Then there are the Chx inputs. These are the outputs of other channels in the radio. This is one of the things that makes Er9x so powerful, is the ability to take the other channels and mix them back in. Finally you might have noticed I skipped the MAX and FULL inputs. These 2 are generally used with a switch. They each have only 2 values. MAX will have either 100 or 0. And FULL will have -100 or 100. When we learn to add mixes later we will set them both up so you can see what they do.

Weight is how much of this input is sent to the output. It can have any value between -125 and 125. This is a percent value and will have a strange effect on the next item.

Offset allows you to move the mixer control off center. When the weight is set to 100% the offset will be what you set it to. Now for that strange effect. Say you set the offset to 100, and the weight value to 50%. The offset in the channel will only be 50. This is because of how the mixer is calculated. The stick value is 0 plus the offset of 100 equals 100. Then 50% of that gets output from this mixer. That is why the channel would only be offset by 50.

Let's try out the simulator.

You should still have the mixer editor window open. Set the weight value to 50, and the offset to 100. Click ok when you are done. Now you are back to the model editor, look to the very bottom of the window and click the simulate button. The window that has appeared is the simulator. The top half is any input available on your radio. The dials at the top are the pots. The large squares with the dot in the center represent your sticks. To the sides of the 'sticks' are the switches. And the sliders represent the trims. There are some extra button that are labeled fix and hold. Clicking a fix button will fix that stick value. Clicking hold will allow you to move the stick dot and have it stay where you left it. Otherwise it returns to center. Currently one hold is enabled, and this should be on your throttle stick. All of the outputs are shown in the bottom half of the window. All of the Swx buttons correspond to the virtual switches. This is another thing to read the manual for. Also it is a good idea to check examples and other tutorials to gain a good understanding of how they work. The channel sliders show you what value each of the output channels would have. Remember we talked about the offset on channel 1. If you look now channel 1's output is at 50, just where we expected it to be. So now moving your rudder stick will also make the channel 1 output move between 0 and 100. To exit the simulator, just click the little "X" at the top of the window to close it.

Now back to the mixer editor. You remember the little box that lets you select the source and weight? Go back to editing the one for CH01. The next thing down the list in the box is include trim. Having this checked will include the trim from the input stick assigned as a source. If one of the sticks is not the source this will have no effect.

Next down is a spot to set a **curve**. The curves are set on a different page, but there are some special ones that I will cover here. x>0 will only take input values if they are on the positive side of the input. Negative values will be set to 0. x<0 works the same but for negative values. |x| turns any input value positive. It takes the absolute value of the input. f>0 gives full output if the input is greater than 0. f<0 just does the opposite. And |f| gives you full value to whatever side the input is on, positive or negative. Use the simulator to test out what each of these curves does. Sometimes seeing it work is better than a written explanation.

Now moving on to the **switch** pull-down. Here you can select any of the available switches or it's inverse. The options with "!" in front indicate that the switch will work backwards. Again the Swx options are virtual switches that can be set up in the switches menu. Again look for examples of how other people have used the virtual switches to gain a better understanding.

Warning gives you an audio clue that a certain mix is enabled. Generally these are used to alert you if your throttle cut is on (for a nitro motor, it would suck trying to start you motor only to find it

has been in cut off the whole time), or for planes with flaps and retracts.

Multiplex tells the main mixer how you want this mix applied with any other mix you have controlling the channel. You have 3 options. ADD simply causes this mixer value to be added to the others. Multiply, this mixer value will be multiplied with the others. And finally Replace. When enabled this mixer will take over, and the channel output will equal this mixer output.

The last options are **Delay and slow**. Read more in the manual, or check examples of what delay and slow will do to the mixer values. Also you can try the simulator.

More simulator practice:

Let's go try some things in the simulator. If you changed anything for the CH1 mixer put it back to RUD (Or what it was before, my channel order is Rudder, elevator, throttle, aileron) 100% and no offset, no switches, curves, or slow and delay values. To add a mix to the throttle channel, right-click on +100%THR and select add. We are going to add a throttle hold/kill switch. If you use electrics these are a very good idea. Once set up you could bump your throttle stick and the motor won't start. So set the source to MAX. Then the weight to -100, because we want the throttle held in the lowest position. The select switch THR. You can select any switch, I'm just using the one marked throttle. Now click ok and simulate. So clicking the THR button forces channel 3 (the throttle channel) to -100. But wait! You say when I move the throttle stick above half way the throttle channel starts moving up! Let's examine what is happening here. We forgot to change multiplex to 'replace' on the throttle hold mix. So with the throttle at 0 (where it started), the channel mixer had 0 from the stick input + -100 from the throttle hold input. This equals -100 and is why the channel output went to -100. But moving the stick up the value no longer equals -100. So why doesn't the value go below -100 if I move the stick down?? The limits set through the limits tab are like walls. The value can get to that point but can't get past it. So go back and change the throttle hold mixer to replace. In the channel mixer list you will now see a little R out in front. This stands for replace, and is how you can tell what multiplexer the mixer has. The last thing I will cover. What if you have to mixers in a channel that are set to replace?? The mixer lowest on the list takes priority. Right-click the throttle-hold mixer and select add. Wherever you select add the new mixer will go on the line directly below. Keep that in mind when adding new mixers. For this mixer set the source to MAX, leave the weight at 100%, set the switch to RUD, and the multiplexer to replace. Go back into the simulator and observe how the throttle channel now works. With neither switch selected to stick has control of the channel. Clicking THR the throttle channel output is set to -100, and moving the stick has no effect. Finally clicking the RED switch will set the throttle channel to 100. So you can see that whatever replace mix is lowest in the list takes priority. How about we switch them to make sure. Go back to the channel mixer. Right-click the last mixer you added, the one with the rudder switch, and select cut. The mixer will be moved to the clipboard. Now highlight the mixer for 100%THR, right-click and select paste. See how it drops the mixer on the next line down? Try the simulator again, and you will see that now the THR switch has priority.

Hopefully you have found this to be a quick and easy to follow introduction to Eepe and the mixer system used in Er9x. Anytime you want you can open Eepe and setup an airplane or just set up mixers to test ideas you have about making something work.

-Gohst