ZhashOS for Linux Setup Guide in (hopefully) 3 easy steps (Rev 3.0)

Read all of this to get the process clear before you start.

You will need to use etcher to copy the downloaded image to your 2GB or larger USB flash drive.
FYI, You don't have to unzip it before using etcher. They will do it for you and clean up after themselves.
You will need to make sure BIOS is set to boot to USB "BEFORE" hard drive

After booting to the desktop, process these steps in sequential order.

This Linux will come out of the box ready to DHCP to a Ethernet port.
If it sees the connection you will see the Internet icon in the lower right corner go from black to to green within 15-30 seconds upon desktop display. If it does, hover your mouse pointer over the icon and you should see your local IP address. Probably something like 192.168.blah.blah.

Click on the SetupZhashWiz Icon. FYI, icons are always single click in Linux.

This program will detect if this is your 1st run of the Wizard. If it is, it will load this document. 1st Readme1st.doc . After you close this document, it will setup Nvidia GPU management access for your current arrangement automatically and then your Graphic Desktop will have to be restarted (not rebooted) to enable the Nvidia GPU management.

Once you restart, click on the SetupZhashWiz Icon again and the program will then proceed to confirm if you have Internet access ready by pinging google.com.

If it does see google, it will launch directly into the wizard screen. If it does, you can skip over the internet setup and go to the ZhashOS Setup Wizard section on page 10.

If it doesn't find google, it will launch the Internet Setup Wizard. Be sure and thoroughly read all the dialog boxes to setup Internet access. Should be pretty much self explanatory. But here are a few screen shots to give some hints.

This 1st pic is where you will select which interface to use. Your choices can be Ethernet, wlan (wifi) or USB if you are phone tethering or similar. We will discuss eth and wlan here as that is the most popular. USB tethering is similar to Ethernet. So read Ethernet Setup and then click the USB button. Note this wlan setup is via a USB wlan adapter. So don't confuse this with tethering.
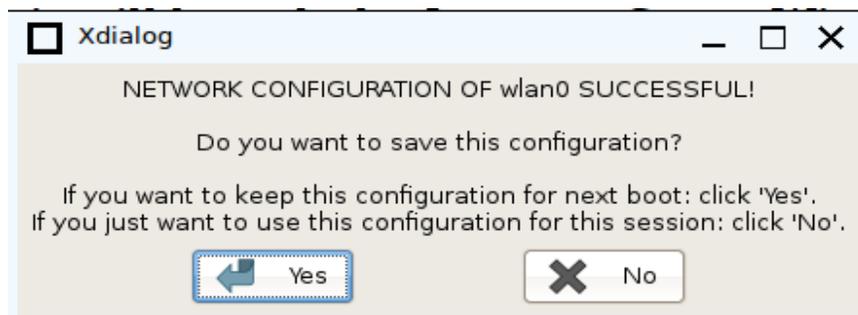
Ethernet Setup:

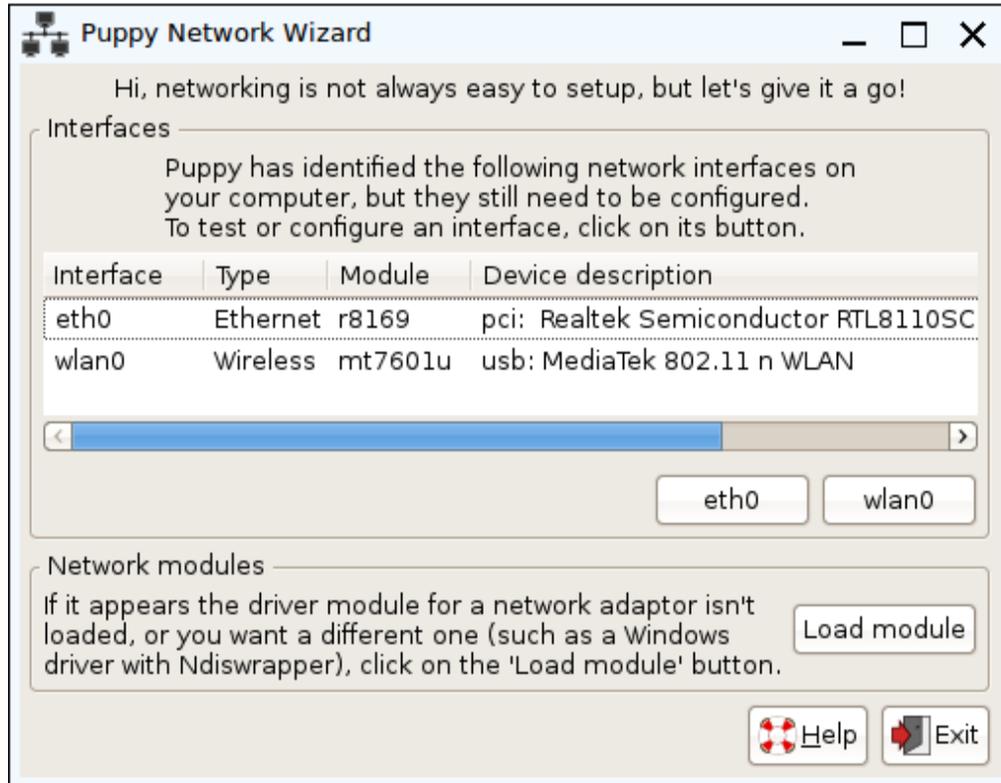If you are using eth0, click the eth0 button.
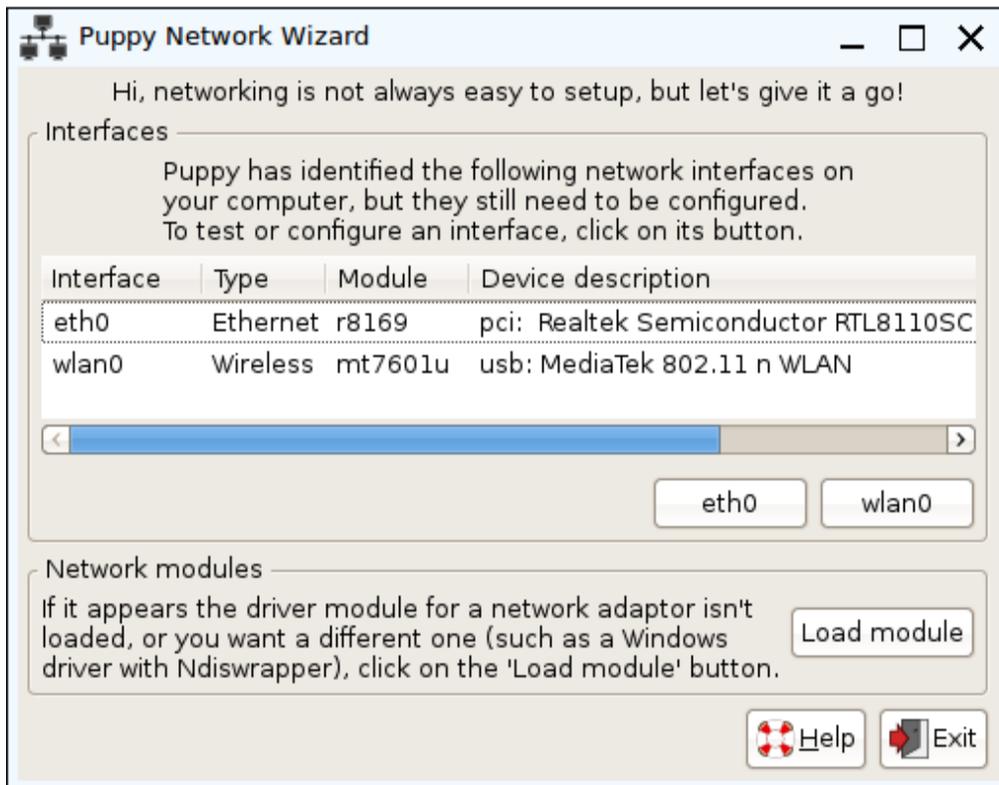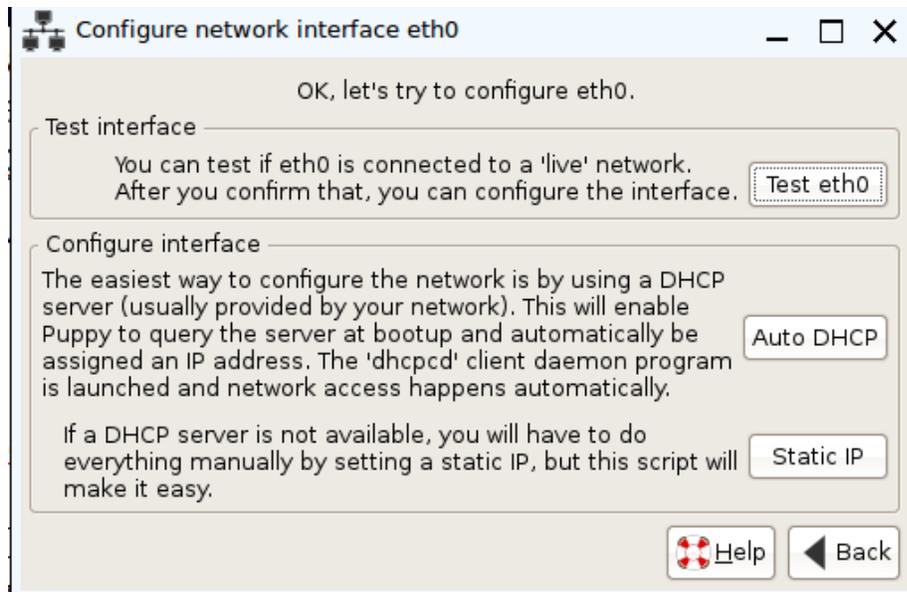
Once this dialog box displays, click Test eth0 first. It will perform a live connection test and report back good if it is. If it reports bad, check your cable connections and equipment power. If it reports good, click Auto DHCP to get a address from your router.
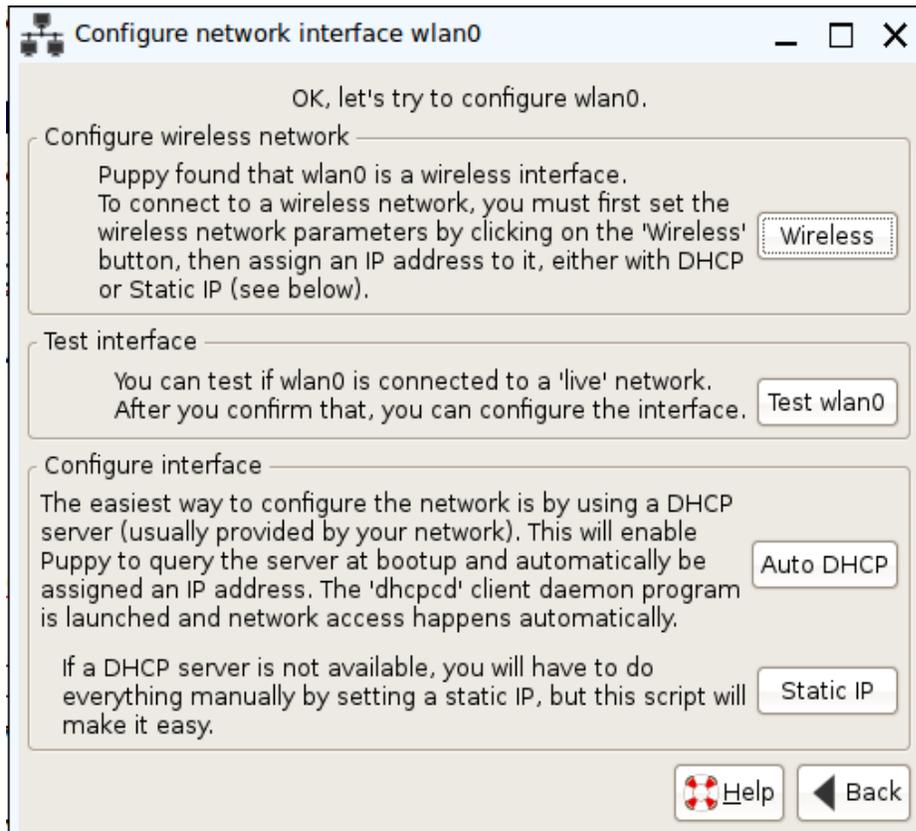

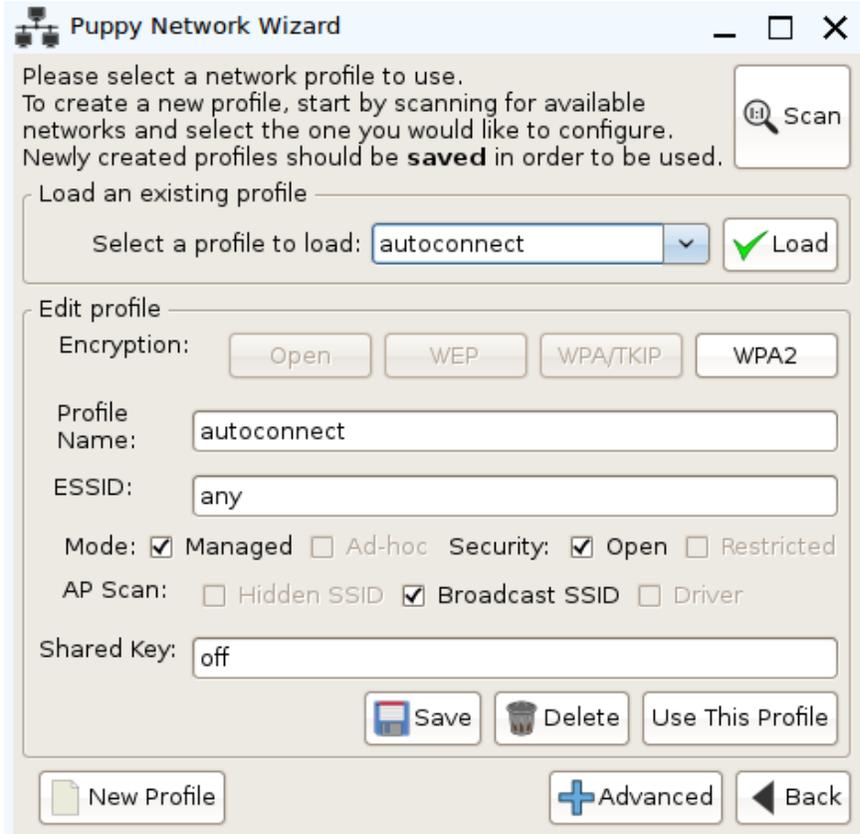Then click Yes to save the configuration.

Wlan (wifi) Setup:

If you are using wlan0, click the wlan0 button.

Click the Wireless button

Configure network interface wlan0 — □ ✕

OK, let's try to configure wlan0.

Configure wireless network

Puppy found that wlan0 is a wireless interface.
To connect to a wireless network, you must first set the
wireless network parameters by clicking on the 'Wireless'
button, then assign an IP address to it, either with DHCP
or Static IP (see below).

[Wireless]

Test interface

You can test if wlan0 is connected to a 'live' network.
After you confirm that, you can configure the interface.

[Test wlan0]

Configure interface

The easiest way to configure the network is by using a DHCP
server (usually provided by your network). This will enable
Puppy to query the server at bootup and automatically be
assigned an IP address. The 'dhcpcd' client daemon program
is launched and network access happens automatically.

[Auto DHCP]

If a DHCP server is not available, you will have to do
everything manually by setting a static IP, but this script will
make it easy.

[Static IP]

[Help] [◀ Back]

Click the Scan Button

Select your network
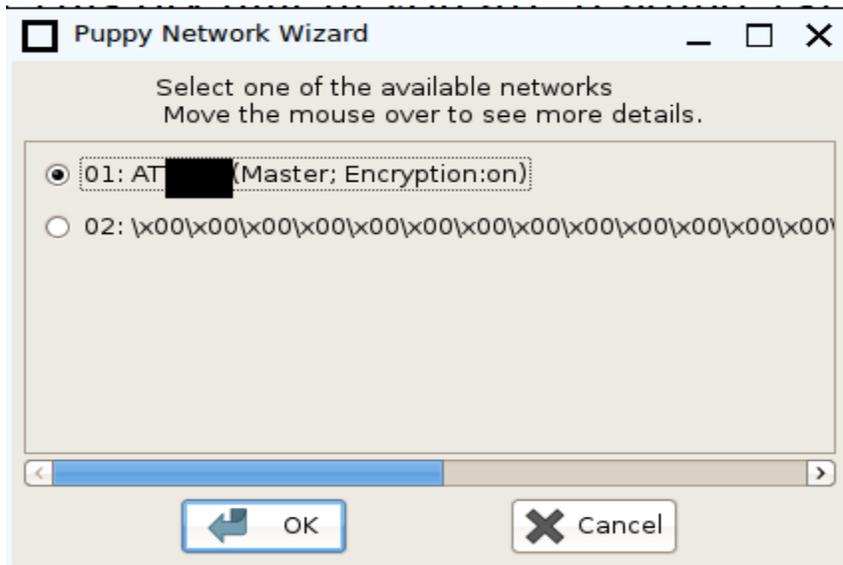
On this screen you will have select the correct Encryption type and fill in the Shared Key field. Then click "Save" and then click "Use This Profile"

Then it will try to link to the wlan network. Once it finds it, it will return to this screen. Except it will say "Puppy was able to find a live network" (2nd line). Now you can click AUTO DHCP to get a address.
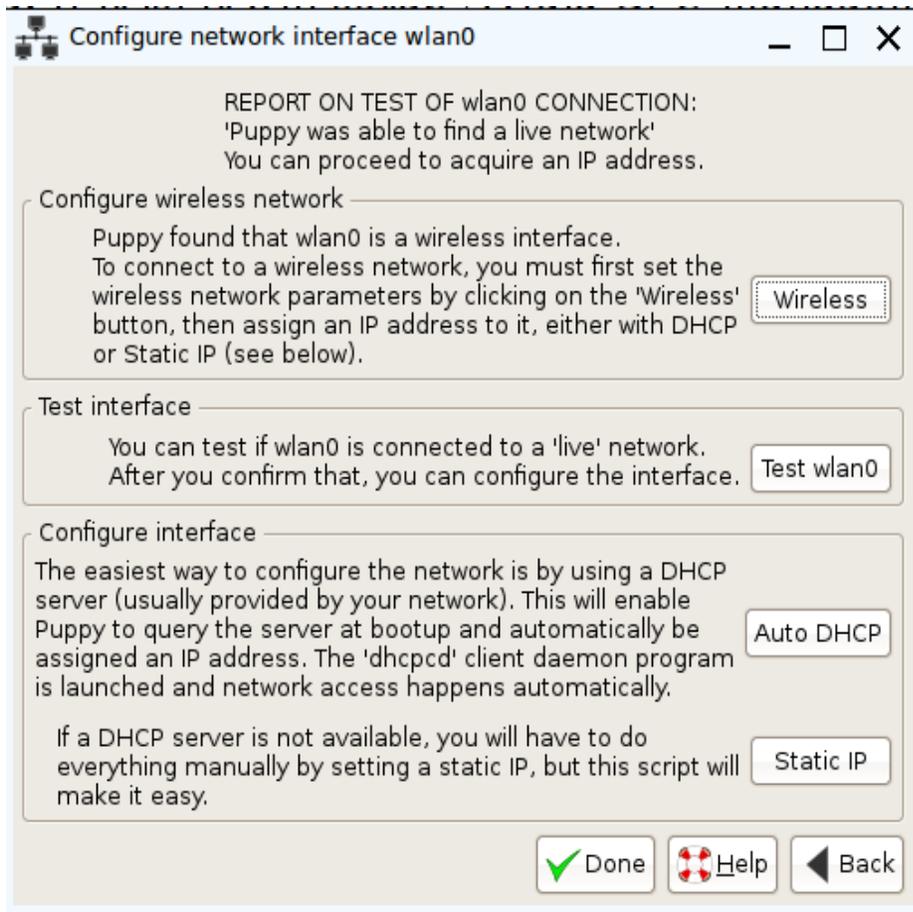
Once that is done, click Yes to save the configuration.
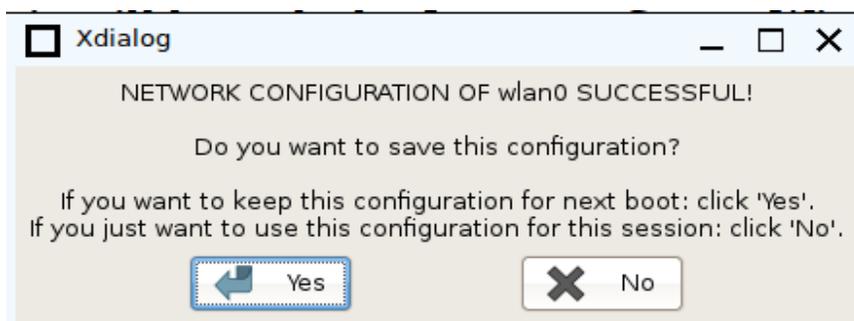
ZhashOS Setup Wizard

OK, Once the Internet is established, the ZhashOS Setup Wizard will display.

1. Miner Setup

In the 1st section you can select which Miner to use and set the Miner Parameters. New installs will be set to mine to the BitcoinZ Community Fund. You can use that for testing purposes if you wish. When you are ready, edit this field for your pool and wallet/account settings.

You must stop and restart Zhash for these above settings to take effect.

When you select **Enable Start Automine**, The wizard will activate Automine on Boot. Do not enable this UNTILL you have a confirmed stable working mining setup.

When you select **Enable Remote Desktop (RDP)** The wizard will activate Remote Desktop on Boot. Please read the FAQ.pdf for more information. And fully understand the risks involved if you are going to do this across the Internet. Personally, I only use this on my LOCAL network. And that network does not have access to any wallets. There have been a recent rash of break-ins and thefts via RDP and/or team viewer type setups. Be careful out

there. While we try to provide a solid stable OS that has a track record of working for well over a month between reboots, we are not responsible for any hacks or thefts from using this OS and/or RDP. It is up to YOU to secure your belongings and practice safe policies and procedures.

You must reboot ZhashOS for these above settings to take effect.

When you select **Enable Logging Current GPU Data, a** separate window will run when you are using the Zhash Manager. It will look like this:

The columns displayed are: GPU number, Date & Time, GPU Watts Used,Core frequency, Memory frequency (1/2 actual rate is displayed here), Fan % speed, GPU Core Utilization, Memory Utilization, GPU Temperature in Centigrade (c) .

This is a good data window to monitor your GPU's. You can also minimize the window and keep it available on the task bar to refer to when you need to.

When you select **Enable SmartFan**, the Zhash Manager will automatically monitor your GPU temperature and adjust the fan speed to maintain your Target GPU temperature. However, it will not allow the fan speed to go above your Target Fan Speed. If it can not currently keep the Target GPU Temperature at the max Target Fan Speed, it will temporarily lower the power consumption to make sure the GPU will stay at or below the Target Temperature. By doing this we can usually maintain GPU temperature +/- 1 degree of Target Temperature. With the majority of the time with +0/-1 degree range. When the room cools down in the evening and SmartFan

finds it can lower fan speed to 9 percentage points below Target Fan Speed, it will automatically restore power back to target if it had to previously lower it. This is a great way to protect the GPU's from excessive temperatures and fan speeds. Both of which may shorten a GPU's lifespan. I usually set both my temperature and fan Targets at 65. I find most GPU's will work well with this setting. Also, understand SmartFan has to "learn" what the best speed will be. So it will run the fans at your target speed for 2-3 minutes when you first start the Zhash Manager and your GPU's get into operating temperature. Then it will start adjusting the fan speed down but still maintain your GPU Temperature Target. Some GPU's will just need a slightly higher temperature. I have about 10% of my GPU's need 67-69 temperature settings. On those I find the temperature sensing circuitry is usually not in good calibration. The GPU is running at 65 with a laser temperature sensor, but the circuitry is saying 69. Again, this is 10% of my GPU's. The other 90% are fine with the 65 setting. Of coarse all this presumes you are providing plenty of external air flow to the rigs to help the GPU's stay cool. In my humble opinion, it is a lot easier to replace external fans then RMA dead GPU's or GPU Fans. With sufficient external airflow, I find my GPU fan speeds will operate in the 30-58% range through most of the year. SmartFan will constantly seek the lowest possible fan speed while still maintaining the target temperature. Also my mining room is fairly quiet with the sub 65% fan speeds. It barely registers 40db on a decibel meter. The loudest fans in the room are the department store box fans set on low. I created SmartFan well over a year ago and really like the thought I may be helping my GPU fans live longer. And now it is incorporated into the Zhash Manager program. Just make sure you use realistic settings for SmartFan to work with. Meaning don't try to set 30% Fan speed and 100% power and 27c Temperature. It will try it's hardest, but will likely fail in the end. For those of you who prefer to have a fixed fan speed and let the GPU temperature change throughout the day, just don't select SmartFan and the program will keep the fan speed fixed at your Max Fan Speed setting.

2. Power/Fan/Overclock Setup.

In the next section you will set the GPU profile plus the power,fan,core overclock,memory overclock and temperature Targets.

You must select the checkbox of each GPU in your rig for Zhash Manager to manage the overclock, power, fan and temperature settings.

We will need to know the correct GPU type for Zhash Manager to be able to correctly apply the the overclock, power, fan and temperature settings. You have several choices with the GPU profile:

GTX1050 2GB,ti: This for GTX 1050's both 2GB and 4GB versions.

GTX1060 3GB: This is for the GTX 1060's with 3 GB only

GTX1060-80,ti: This is for GTX 1060's,1070's,1080's and ti's with 6GB or more.

P106 6GB: This is for the P106 monitor less type mining GPU. If you have these, It is best to use these for other slots besides GPU0. Otherwise you have to hack the xorg.conf file to make them work as GPU0.

P104 or P102: This is for the P104 or P102 monitor less type mining GPU. If you have these, It is best to use these for other slots besides GPU0. Otherwise you have to hack the xorg.conf file to make them work as GPU0.

GTX9XX 3GB: This is for the GTX 9XX's with 3 GB only. Note: We don't currently support 9XX GPU's over clock function. Only power, fan and temperature. SmartFan has not been tested but should work on them.

GTX9XX 4GB: This is for the GTX 9XX's with 4 GB only. Note: We don't currently support 9XX GPU's over clock function. Only power, fan and temperature. SmartFan has not been tested but should work on them.

GTX9XX 6GB+: This is for the GTX 9XX's with 6 GB or more. Note: We don't currently support 9XX GPU's over clock function. Just leave a zero in those fields. Only power, fan and temperature. SmartFan has not been tested but should work on them.

Once you have selected the checkbox and profile for the GPU, Next enter the Target Power for this GPU. This field is to be used for Watts. Not percent of TDP. If you are coming from windows, you can calculate this by multiplying your usual Windows percent by the GPU's TDP. For example most GTX 1070ti's are 180 Watts TDP. I usually run them on Zhash at 120 watts as a good compromise between peak efficiency(Sol/w) and peak hashrate (Sol/s). If I were in windows that would be 66% TDP.

180 watts TDP x 66% TDP = 120 watts

Just find your GPU's factory TDP in Watts and calculate from there. Or ask in one of the mining forums for your Model number TDP.

I hear most:

1050ti are 75 Watts
1060's are 120 Watts (though I do also have a 180 Watt MSI Gaming model)
1070's are 150 Watts
1070ti's are 180 Watts
1080's are 180 Watts

1080ti's are 250 Watts.

These are typical 100% TDP power numbers. YMMV. If you can't easily find any TDP information on your GPU, you can try these.

After you have set your power, the next field is (Target) **Max Fan Speed** percent. You can set this to whatever percent number you want between 30 and 100. Most GPU's won't allow a manual fan speed setting below 30 or above 100. As you have read, I usually set mine at 65 and SmartFan them. And let SmartFan hunt for the lowest workable fan speed for the moment. Again, if you prefer fixed fan speeds, Just set this to your favorite speed and make sure SmartFan is unchecked.

Next you will set your **Core Overclock** (GTX10XX series only). If you are coming from windows, you can usually use the same Core Overclock setting on that GPU. For most GPU's and starting from scratch, I would recommend setting to 150 and bumping it up by 10 every couple minutes. Once you get unstable or stop seeing any hashrate improvement, decrease it by 20 from your peak. I find for most GPU's that decrease will keep it stable for 24 hour operation. Again YMMV. If you change your power setting later on, you may want to "Re-Tune" this.

Next you will set your **Memory Overclock** (GTX10XX series only). If you are coming from windows, you can usually use **double** (yes, 2x) the windows Memory Overclock setting on that GPU. For most GPU's and starting from scratch, I would recommend setting to 700 and bumping it up by 100 every couple minutes. Once you get unstable or stop seeing any hashrate improvement, decrease it by 150-200 from your peak. I find for most GPU's that decrease will keep it stable for 24 hour operation. Again YMMV. If you change your power setting later on, you may want to "Re-Tune" this.

Next you will set your (target) **Max GPU Temp (c)**. As you have read, I usually set mine at 65 and SmartFan them. There can be a "slight" hashrate improvement when set at 59, if your external rig ventilation can support it. I usually run that during the 5 coldest months of the year when the room is much colder. I will also set it to 67-69 during the hottest 2 months of the year as well when the room is much hotter and SmartFan is having to lower power to much. If you find you have to run 67-69 during normal months, then you are not ventilating the heat away from the GPU's enough. External ventilation is important for most mining rooms. Unless you are mining in the Artic poles. LOL! Also, if you are using a Miner "Temperature Limit" setting, set it 3 degrees above your highest Max GPU Temp setting. We should rarely ever hit that unless something is wrong. Like a fan stoppage or a unrealistic setting.

Once you have everything set go ahead and click the OK button. This will save and preserve the settings between reboots. There will be a few brief messages displayed about saving the files. If you click cancel or close the window instead, none of the changes will be saved.

Now you go ahead and do a test mining session. Click StartZhash

If everything is set correctly, it will start mining. Let it run for about 5-10 minutes to make sure your settings are stable. When you are satisfied that it is stable you can click StopZhash

Then click on the SetupZhashWiz Icon and select "Enable Start Automine". And then reboot the rig and it will start mining about 20 seconds after the desktop appears. And from this point in time it will always start mining after reboots should something causes it to crash.

Also, If for some reason it crashes and goes into a restart loop. Click StopZhash. Confirm your internet is working by clicking the browser and going to your familiar website. If you can, then click on the SetupZhashWiz Icon and try more conservative overclock and/or power settings until you get to stability. Remember, this is a "endurance race" not a drag race.

Zhash Manager now has a "Watchdog" feature built into it. It will monitor for certain GPU parameters for not normal values. If it finds something it will notate the GPU and the parameter in the zhash.log file and either restart the miner app or the window manager depending on what is required at the moment. Some miner apps will detect issues on their own and close themselves. The Zhash Manager will not interfere with that and it will restart the mining app for you.

NOTE: You would be well advised to read the FAQ.PDF as well. It will have more details about some of the common issues you may encounter.

Welcome to the world of Linux where YOU are in control of your rig. Where you are allowed and actually encouraged to look under the hood and tinker. No more stupid updates! No more wondering what the heck Windows Bloated Garbage is needlessly stuffing into the swapfile and slowing the PC down. Why the hardrive light is on constantly? This Micro Linux *doesn't* even need a swapfile and it loads the ENTIRE O/S into ram with plenty of room left over for mining. All my rigs don't even need nor *have* a hard drive. I lost my love for Microsoft after windows 95 came out and completely left after XP expired. Linux is much more blissful to me. It turns my PC into an productive appliance. It allows me to focus on making money and not on stupid non-productive issues. OK, I'm getting off my rant box now. LOL!