



User's Guide to Setting Up and Using Othernet Dreamcatcher v 3.03 With Skylark 5.5 (As of January 14, 2019) by Ken Barbi @kenbarbi



This guide is designed for new users who ordered components from Othernet to set up their equipment using a **WiFi capable** Windows, Linux or Apple computer. **Section I - Purchase, Unpack, and Assemble** and **Section II - Energize Dreamcatcher Setup** can be done inside without looking at the sky. **Section III - Acquiring the Satellite** is performed outside looking at the satellite. **Section IV - Connecting the Dreamcatcher to Your Local Router by WiFi as a Client**, **Section V - Additional Storage**, and **Section VI - Printing and Othernet Satellite Radio** can be performed anywhere. *Please note that Othernet is a revision of the old name Outernet. Older versions of Skylark prior to Version 5.2 will no longer work with the Dreamcatcher v 3.03.*

Section I - Purchase, Unpack, and Assemble

Step 1. Purchase the necessary equipment from Othernet:

- a. **Dreamcatcher v 3.03 Board** (Fig. 1) which comes with a WiFi dongle (Fig. 2).

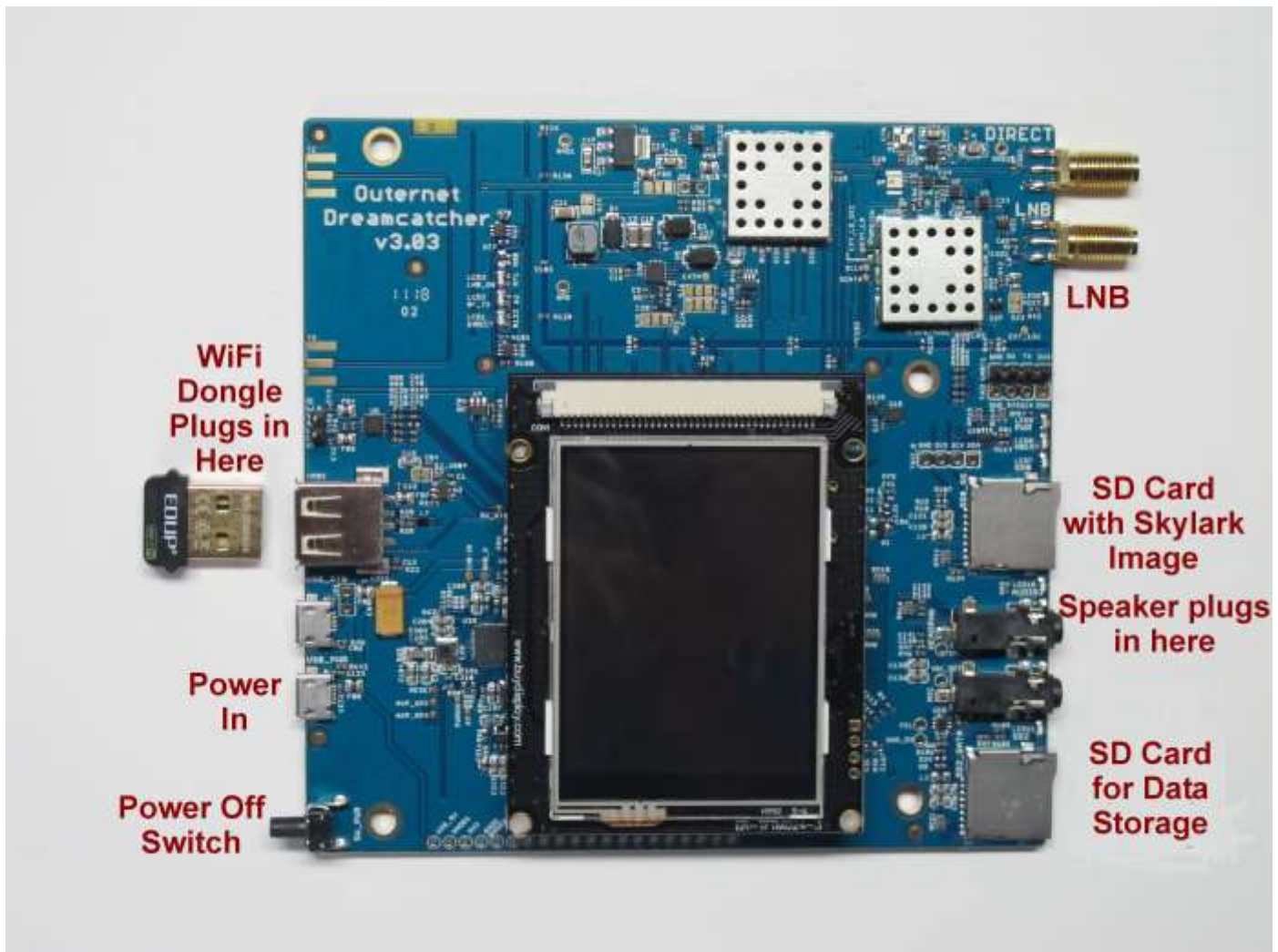


Fig. 1 Dreamcatcher v 3.03 Board



Fig. 2 EDUP WiFi Dongle

- b. **Maverick MK 1- PLL Phase Lock Loop Standard Linear KU LNB** (Fig. 3) which comes with the kit.



Fig. 3 Maverick MK 1-PLL

- c. You **don't need** anything else from Othernet. The kit comes with a 9 inch male SMA to male SMA cable, and an F-type Female Connector to SMA Female Connector.



Kit comes with these items



Male SMA Connector

Step 2. Purchase the following from an electronics store:

- a. **2 Amp (or more)** USB Power cube (the current rating is important)
- b. Short USB to micro USB **fast charging/sync** cable
- c. High quality fast micro SDHC card sized between 4 and 128 GB for the Skylark program - - a micro SD larger than 16 GB is unnecessary and not required, but can be used.
- d. 6 foot length of low-loss RG6 cable with male F-connectors at both ends. *(The Dreamcatcher v 3.03 Boards being shipped by Othernet are tested with 50 feet of RG6 cable, and some users have successfully sited their antennas up to 500 feet away from the Dreamcatcher.)*



Male F-connector with RG6 Cable

Step 3. Assemble the equipment.

- Connect the LNB to the LNB port (the second one down on the top right of the Fig. 1 picture) on the Dreamcatcher Board using the short length of RG6 cable, and the Othernet provided F-connector to the SMA adapter and the SMA cable to the female SMA jack on the Dreamcatcher. You do not need a software defined radio (SDR) or amplifier as you did before with CHIP or RaspberryPI configurations. You don't need to be outside pointing to a satellite.
- Mount the LNB on some sort of stand or tripod so it points toward the satellite when you take it outside - - see **Section III - Acquiring the Satellite** for information on how to find the satellite.
- Plug the WiFi Dongle into the standard USB plug on the left side of the Dreamcatcher Board.
- Connect the micro USB charging cord to the USB_PWR Plug on the lower left side of the Dreamcatcher Board.



Step 4. Download the latest version of the Skylark Program for Dreamcatcher which is located at: [https://archive.othernet.is/Dreamcatcher3 Skylark/](https://archive.othernet.is/Dreamcatcher3%20Skylark/) (Fig. 4)

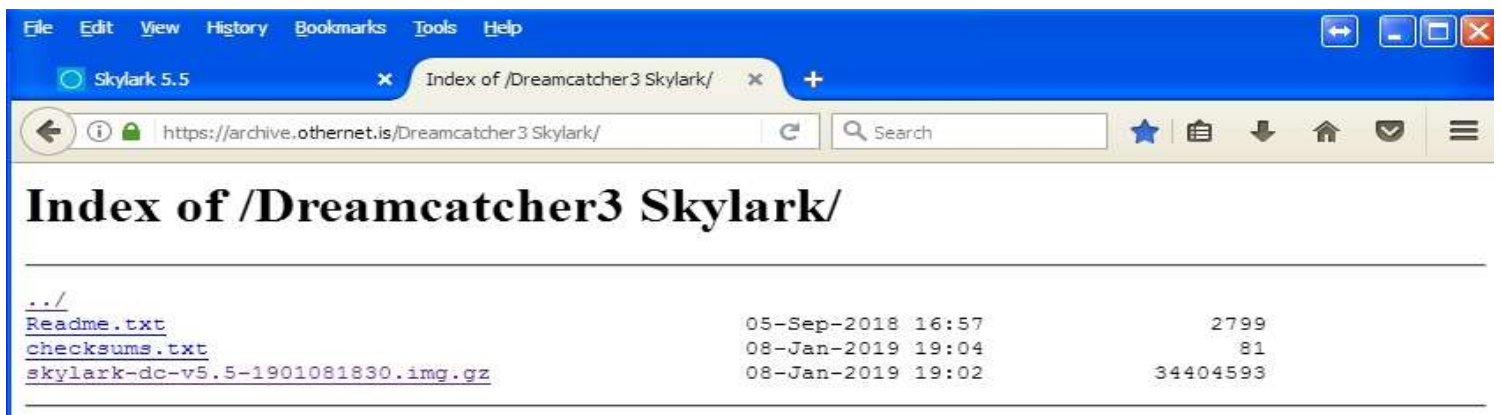


Fig. 4 Index of /Dreamcatcher3 Skylark/

Unzip the .gz file with any standard ZIP File program such as 7-Zip to extract the .img file.

Step 5: Make sure you use a high quality fast micro SD card sized between 4 and 128GB for the Skylark OS. Recommended size is 16GB since the Skylark OS automatically cleans old files, so never fills up. Don't skimp on quality here, as some users have discovered inexpensive micro SD cards don't last.

When you write the Skylark image on a micro SD card (either new, or previously used), the act of writing the image itself takes care of the partitioning and formatting the card correctly for Skylark. There is no need, ever, to try to partition or format the micro SD card manually, before or after writing the image. In the specific case where the micro SD card already had an older version of Skylark on it, writing a new image preserves the old configuration and old downloaded files.

Every once in a while though, this carrying-over of old configuration files may cause problems, **when upgrading from 5.3 to 5.4 or higher**. In such cases, you must do a **"Reset Configuration (reboot)"** from the Dreamcatcher Touch Screen (Figs. 5 & 6). This will reset all configuration file and bring up the Access Point mode, and you will need to reconfigure everything. It's a good idea to try this as the first step if you face problems connecting or logging-in to Skylark. It is important that you see IP 10.0.0.1 on the Touch Screen. If you don't see a screen like Fig. 5, reboot the Dreamcatcher until you see it.

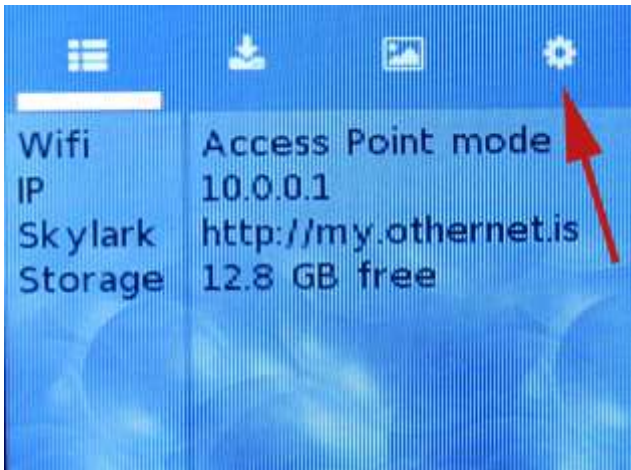


Fig. 5 Touch Screen Summary Page

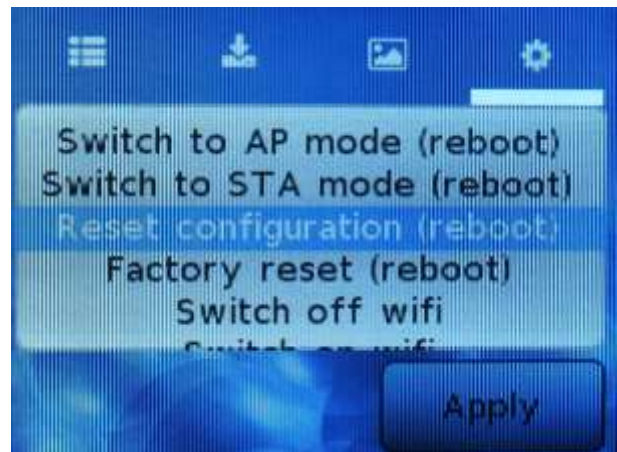


Fig. 6 Touch Screen to *Reset configuration (reboot)*

Step 6. Write the *skylark-dc-v5.5-901081830.img* image file to a micro SD card sized with a program such as Win32DiskImager (Fig. 7) available at: http://win32_disk_imager.en.lo4d.com/download

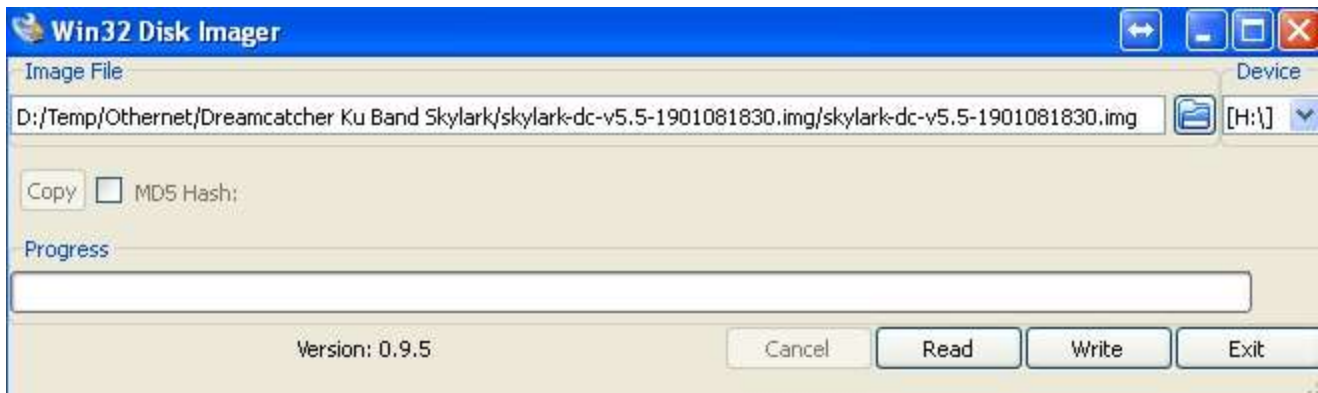


Fig. 7 Win32 Disk Imager

Step 7. **Insert the micro SD card** with the Dreamcatcher Skylark image into the Dreamcatcher Board's SD0_OS which is the micro SD card holder 1/3 of the way up on the right side of the board next to the blinking LEDs.

Optional Step 8. Over the Air (OTA) Update

Skylark has a feature to allow older Skylark versions to be updated by a preliminary test for OTA. The procedure is attached to this document as Annex A. Eventually, it should happen as an automatic satellite download. Upgrading to this Skylark version requires a re write of the micro SD card.

Section II - Energize Dreamcatcher Setup

Step 1. **Energize the Dreamcatcher** by plugging a **2 Amp (or more) USB power cube** into an AC outlet. Don't forget, if you are using too small a power cube or a computer USB connection, the board's lights will blink and look correct, but there won't be enough power to run the Dreamcatcher WiFi or its satellite receiver correctly. Forum members' experience varies with some USB power cubes, once the power required by the Dreamcatcher exceeds 1 amp dc, the voltage delivered to the Dreamcatcher Board by the USB power cube decreases below 5 vdc to a level not sufficient to provide the 13 - 14 vdc Bias-T the LNB requires.

The Dreamcatcher is an energy hungry device drawing 1.1 amps at 5 vdc, so don't be surprised if your gear doesn't work. A sure **(but expensive)** solution is to use an external power pack such as an EasyAcc 20000 mAh unit to power the Dreamcatcher.



Fig. 8 EasyAcc 20000 mAh



Fig. 9 IClever Charger

The EasyAcc 20000 mAh (Fig. 8) device has 2 micro plugs for charging on the upper surface in the picture, and 4 standard size USB plugs for running devices. It can run a device while charging, and be an uninterruptible power supply if the primary charging source goes away without causing the Dreamcatcher to reboot. Use two 6 foot IHome heavy duty charging/sync cables to power the EasyAcc from a 5 watt IClever dual 2.4 A charger (Fig. 9), and a single 6 inch heavy duty charging/sync cable to connect to the Dreamcatcher to the EasyAcc 20000 mAh.

Some Forum members have found just a single charging port from the IClever dual 2.4 A charger and a 6 foot IHome heavy duty charging/sync cable work fine.

Step 2. **Access the Skylark Program** by using your computer operating through its WiFi to connect to the Dreamcatcher's Othernet WiFi Hotspot also called an Access Point. At this point you can alternatively use a tablet or SMART Phone to continue the setup, but the procedure is illustrated with a Windows computer.

Step 3. To be able to access the Dreamcatcher's Othernet WiFi Hotspot, you need to be **within 10 feet** of the device because the Dreamcatcher's WiFi Hotspot is not very powerful. It is, however, much more capable if connected through a local WiFi to your router (which is covered in **Section IV – Connecting Dreamcatcher to Your Local Router by WiFi as a Client**).

Step 4. **Find the Othernet WiFi Hotspot** by going to your computer's WiFi tab; selecting and connecting to **Othernet**. For the rest of the Sections II & III of this procedure, you will be accessing the Dreamcatcher thru this Othernet WiFi Hotspot (Fig. 10).

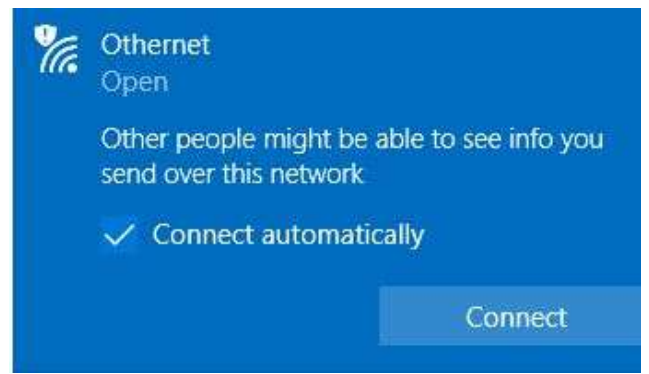


Fig. 10 Finding Othernet WiFi Hotspot on a Windows Computer

Step 5. **Open your Web Browser** and type (in the URL tab) 10.0.0.1 and you will see the Skylark Guest Logon Screen (Fig. 11). If not you don't see this screen, it probably because of a Captive Port bug in Skylark 5.5. A fix is in Step 5a below.

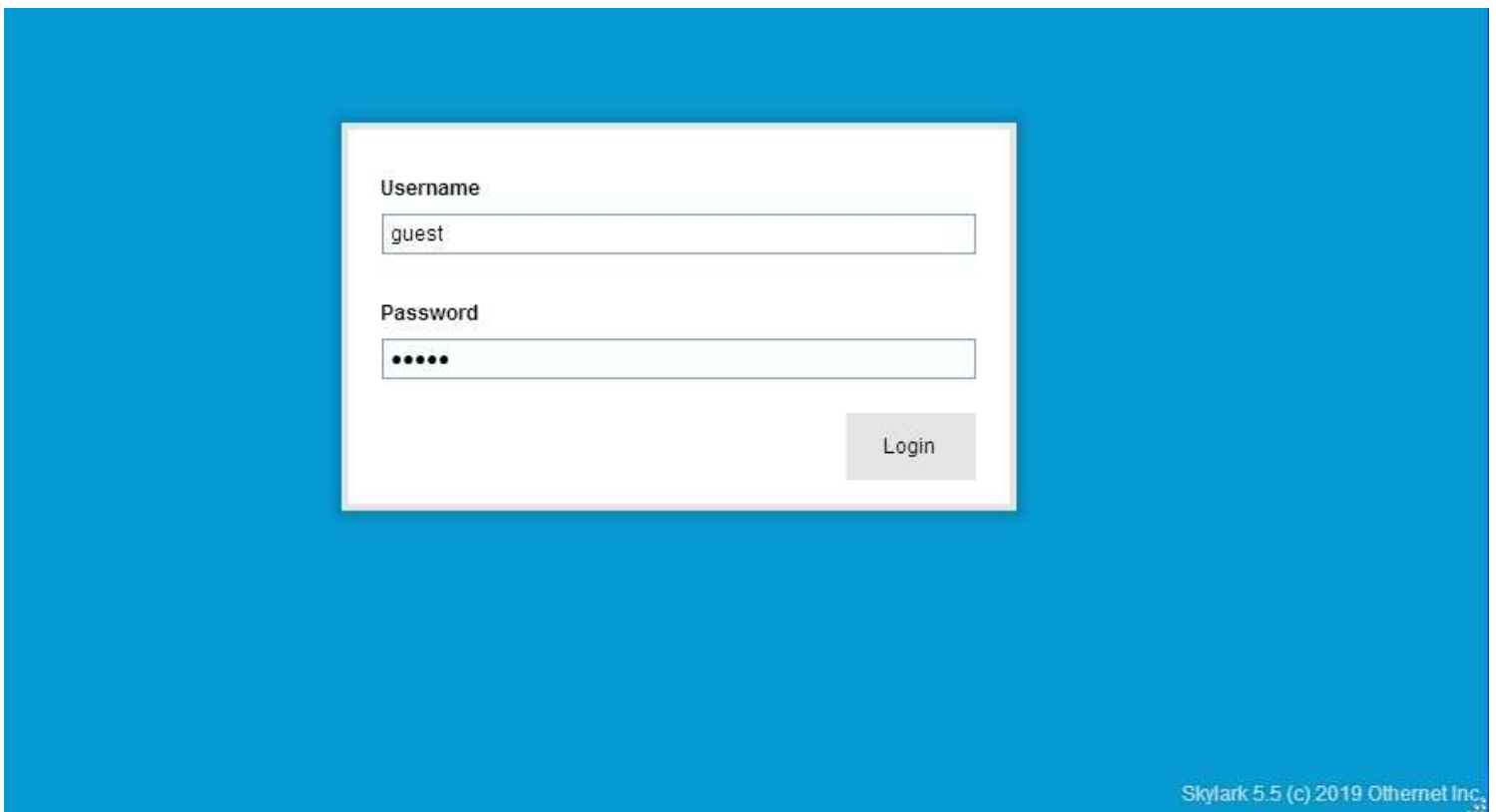
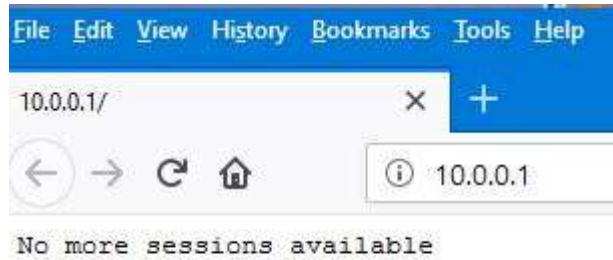
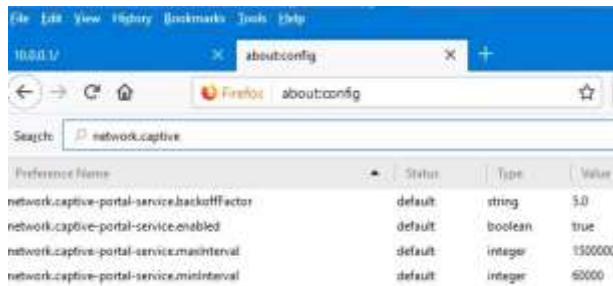


Fig. 11 Skylark Guest Logon Screen

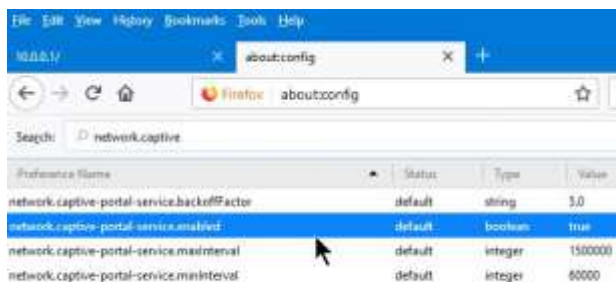
Step 5a. How to access Skylark Guest Logon Screen during Captive Port problem if Step 5 does not work. Some users are getting a *No more sessions available* error message



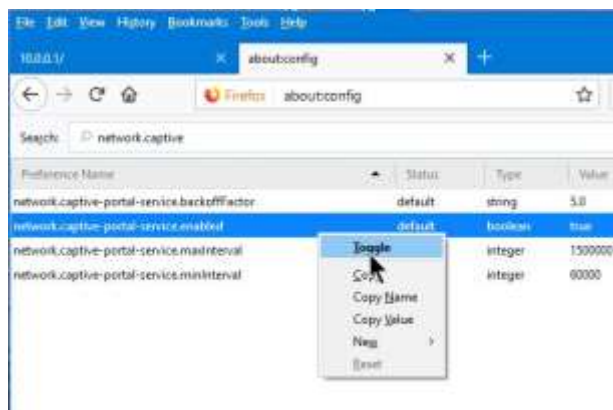
This is a bug in Skylark 5.5 which will be fixed in the next release, but in the mean time try the following: Using a Firefox Web Browser, go to **about:config** in the address bar, and search for **network.captive-portal-service.enabled** which will show **true**



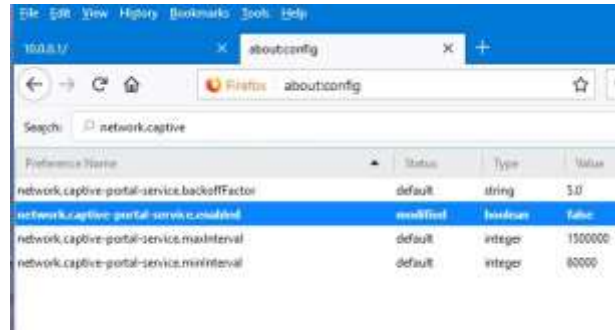
select that line -



then right click on the highlighted line to Toggle it **false** -



- toggle it to **false**



This will now allow you to access Skylark in Othernet WiFi Hotspot AP mode.

On the **Dreamcatcher Touch Screen (Fig 11a)**, you will also see this Welcome Screen showing operation in the *Access Point mode* with IP address 10.0.0.1 with 12.8 GB of free storage on the 16 GB micro SD card I am using for the Skylark OS. This is the same screen you started from before in Section I Step 5 to reset the micro SD card. If you don't see a screen like this, reboot until you do.

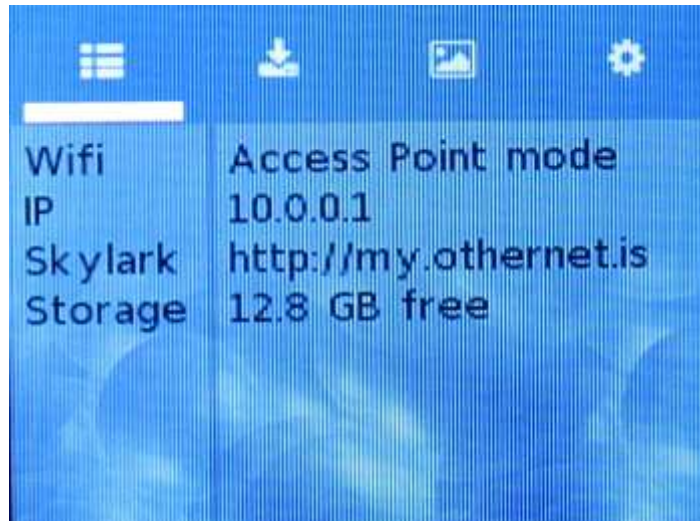


Fig. 11a Touch Screen Welcome After Successful Boot

If you don't see the Guest Logon screen (Fig. 11) on your computer, something else is wrong. Power the Dreamcatcher **OFF** then **ON** with 1 minute of rest in between. **If the problem persists, re write the Skylark image to the micro SD card as in Section I Steps 5 - 7.** The Dreamcatcher Board has a power button located on the bottom left side which you press for 10 seconds to activate a shutdown. It is not necessary to use it, as the Skylark image is read-only and can't be corrupted by a sudden power shut down.

Step 6. To access all the full features of Skylark, you will need to logon with Username **othernet** and Password **othernet** (Fig. 12) - - it is case sensitive. The Guest Logon will not allow you full access to the **Network or Tuner Apps**; or allow you to do an **Over the Air (OTA) update** (See Annex A).

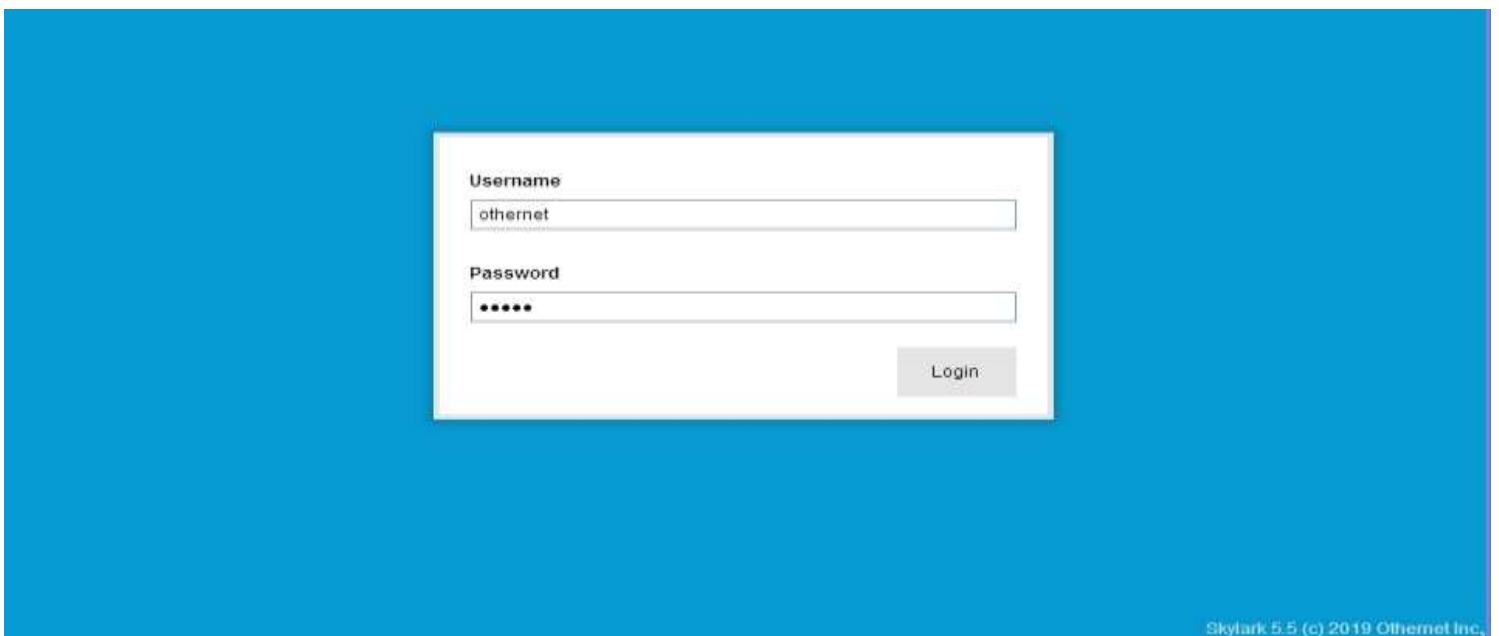


Fig. 12 Skylark Logon Screen for full feature control

Step 7. You will now see the Skylark Welcome Screen (Fig. 13). When it pops up, you may also hear a bell.

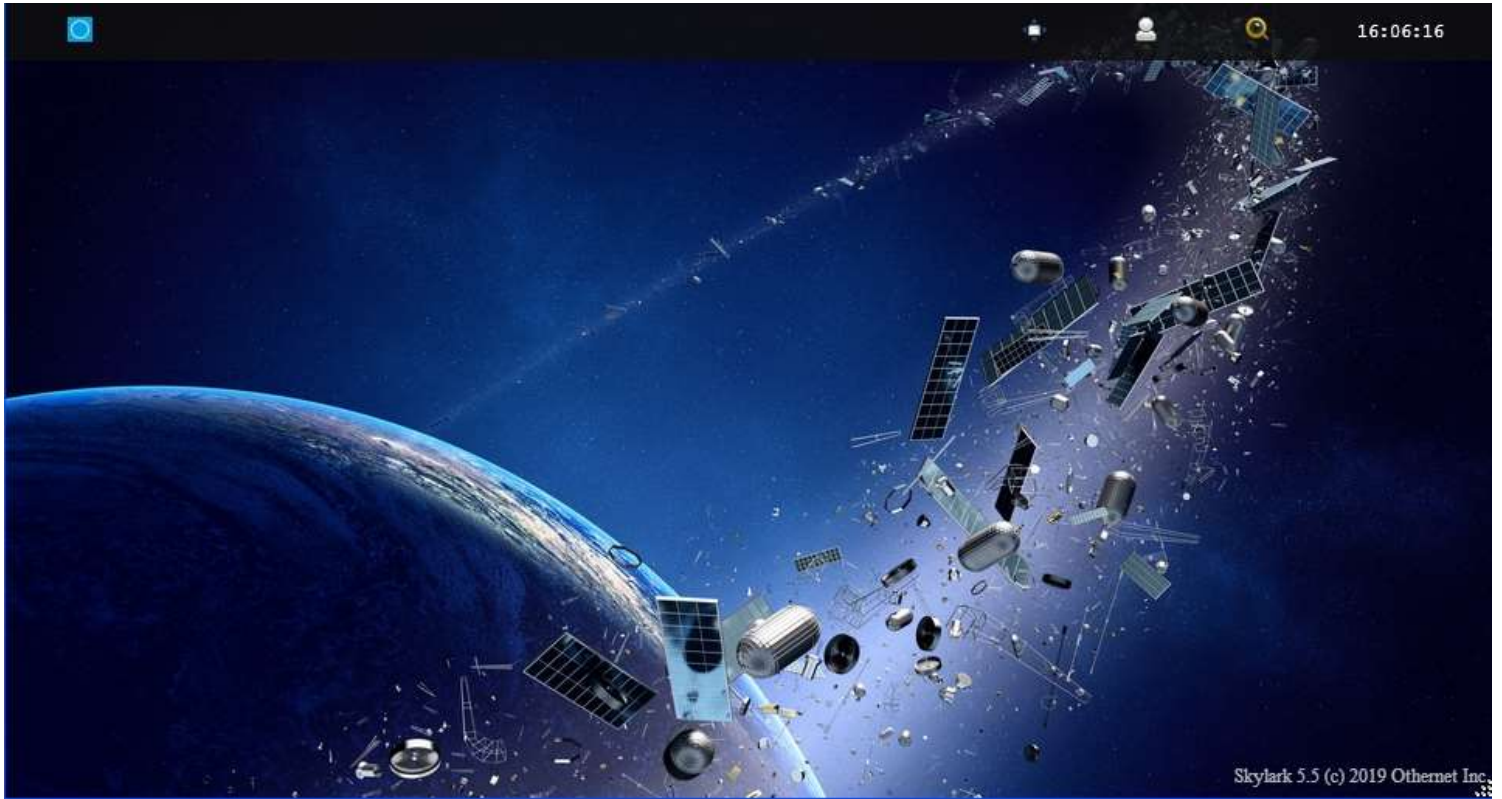


Fig. 13 Skylark Welcome Screen

Step 8. Open the Applications Icon (Fig. 14) on the top left to reveal Skylark Apps (Fig. 15).



Fig. 14 Click on the blue icon to bring up the Applications Icon

Open the **Tuner Icon** (Fig. 15) to run the **Tuner App** to begin the satellite setup process.



Fig. 15 Applications Icons showing **Tuner App**

The default tuner screen (Fig. 16) only has *Americas (SES-2)* (Coverage in Fig. 17) available at this time.

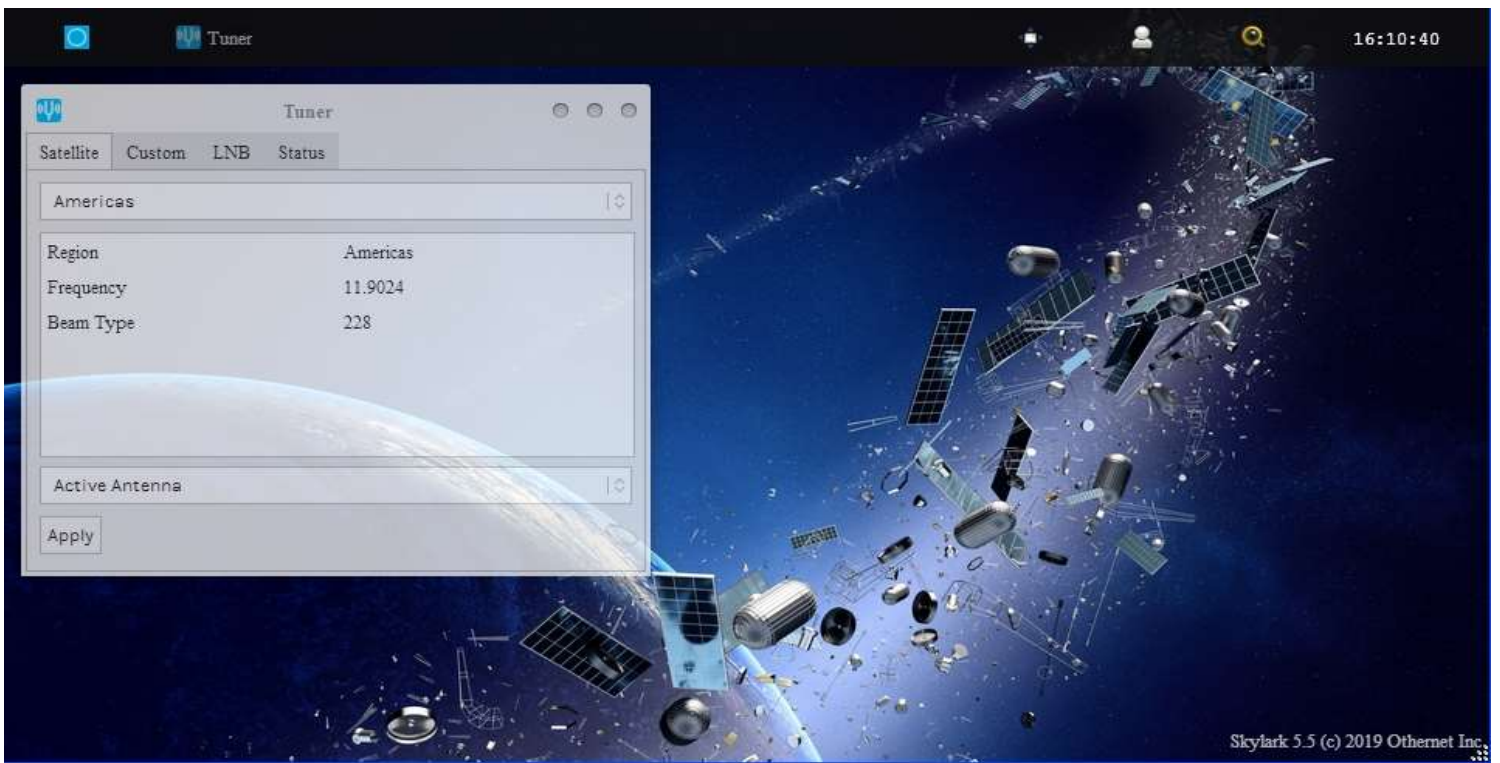


Fig. 16 Default Tuner Screen

You do not need to click the Apply Button at this time as there is only 1 satellite in the data base and it is already setup correctly. A blank Status Tab (Fig. 18) will appear when you go to the Status Tab because the LNB has not been pointed toward the satellite to receive a signal.

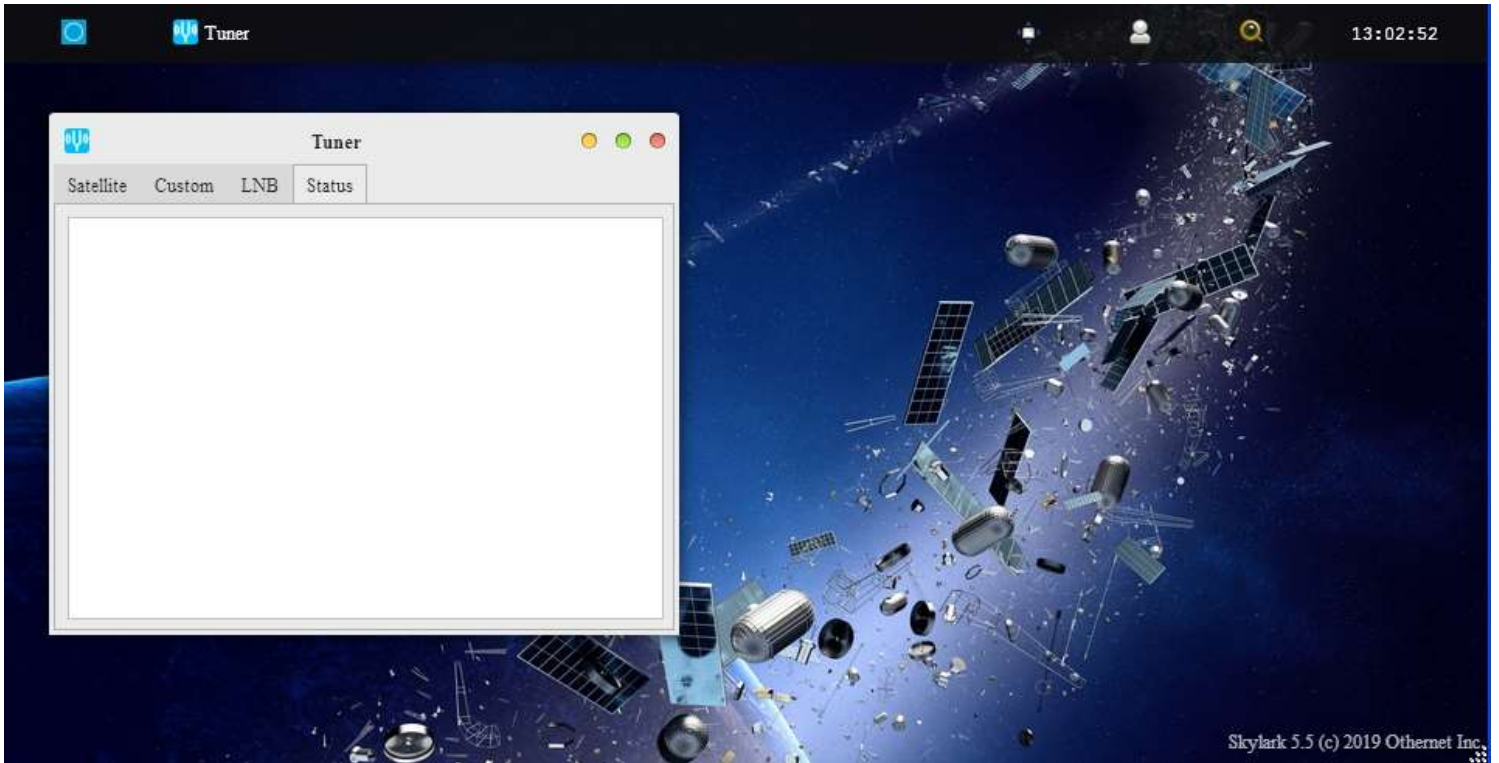


Fig. 18 Tuner Status Tab – Blank with no Signal

In the **Log Viewer App** (Fig. 21a) there is a tab called Diagnostics (Fig. 21b) which will confirm (at the very bottom of the screen the presence of your Bias-T voltage which powers the LNB).

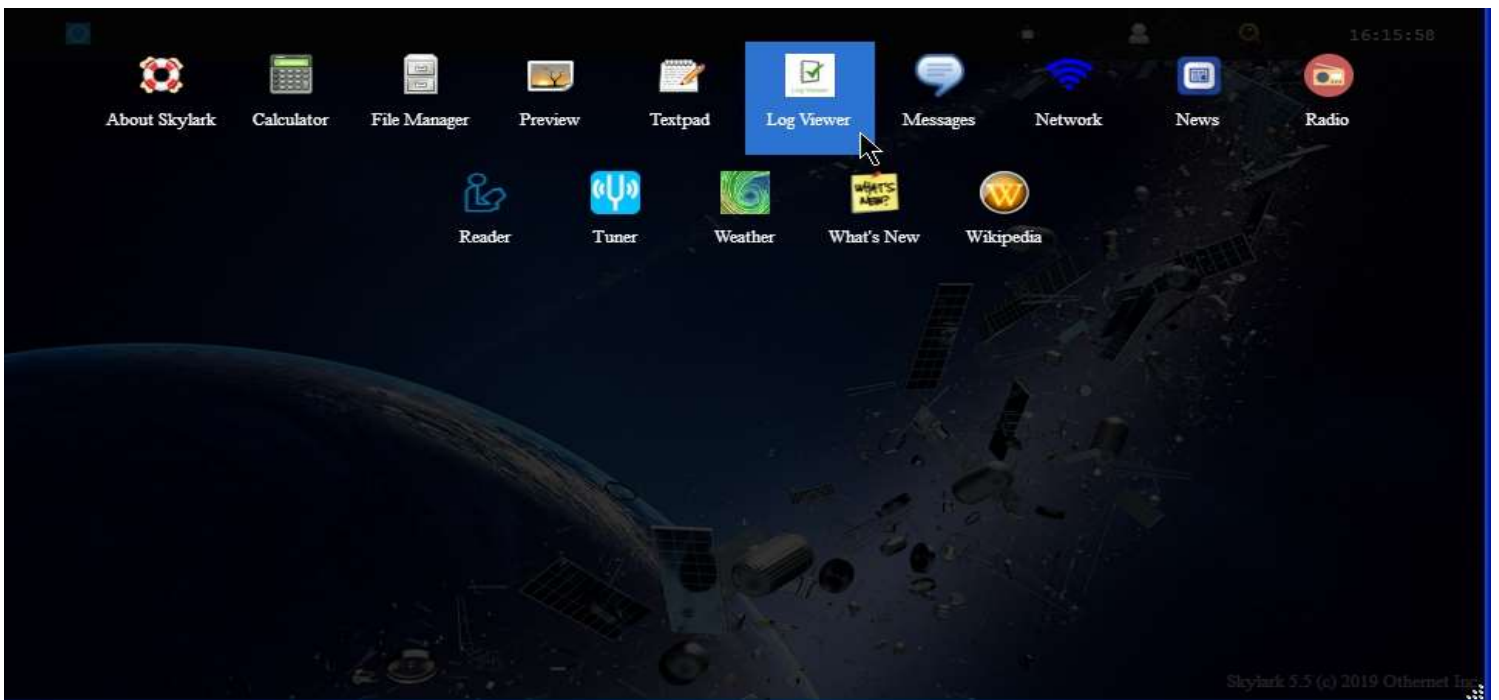


Fig. 21a Applications Screen showing **Log Viewer App**

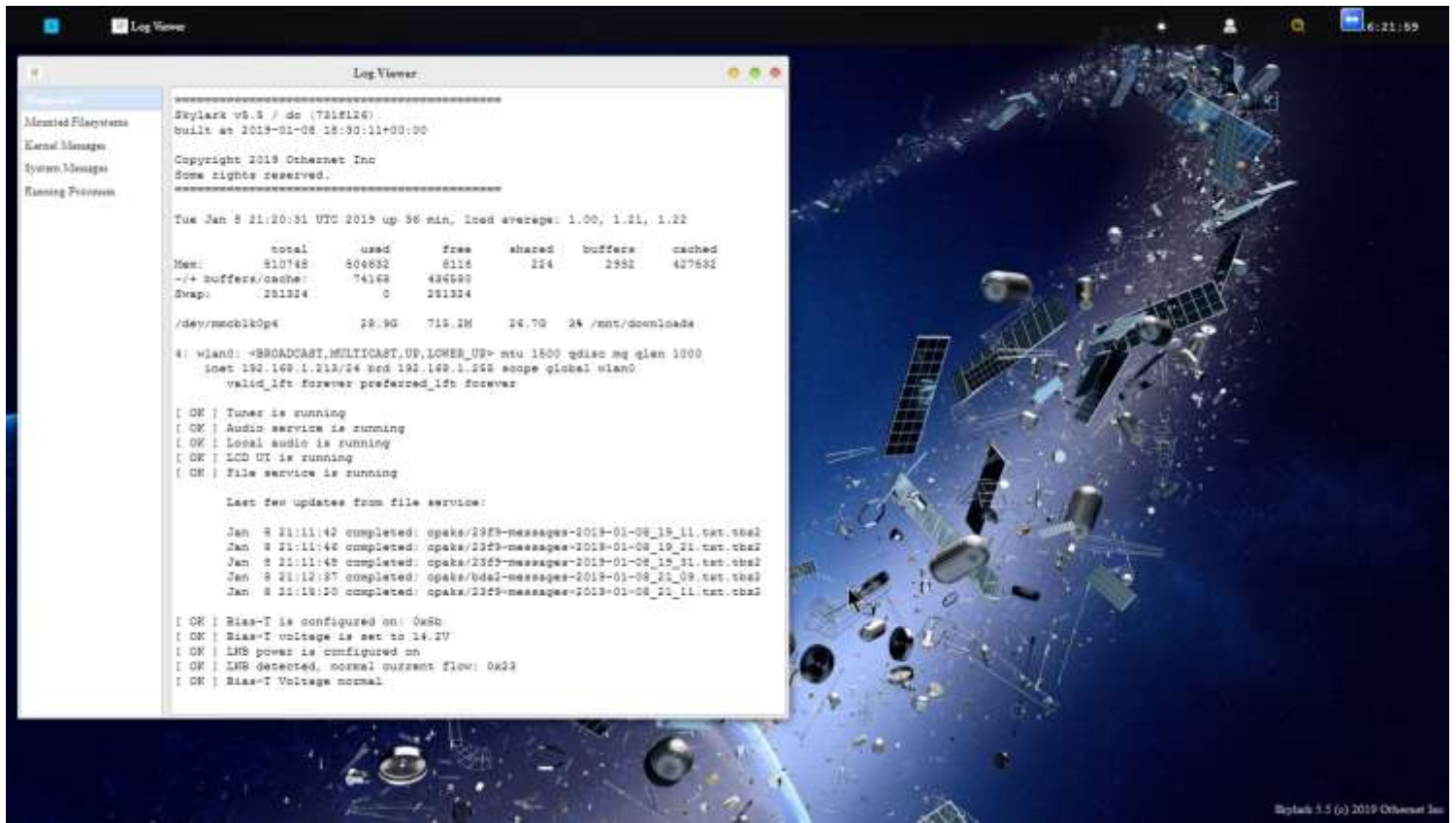


Fig. 21b Diagnostics Showing Normal Bias-T Operation

If you see any Bias-T error messages in Fig. 21b, you have a power problem to address before going any further. Your most likely problem is too small a USB power cube or too thin a USB to micro USB charging cable.



Fig. 17 Americas SES-2 Ku-band Coverage

If everything looks good, shut down the Dreamcatcher by unplugging it. You are now ready to take your device outside and point it toward the satellite.

Section III - Acquiring the Satellite

Step 1. Power up the Dreamcatcher/LNB outside, and point to the satellite. At this time, Othernet is only broadcasting on SES-2 over North America which lives in orbit at 87 degrees West.

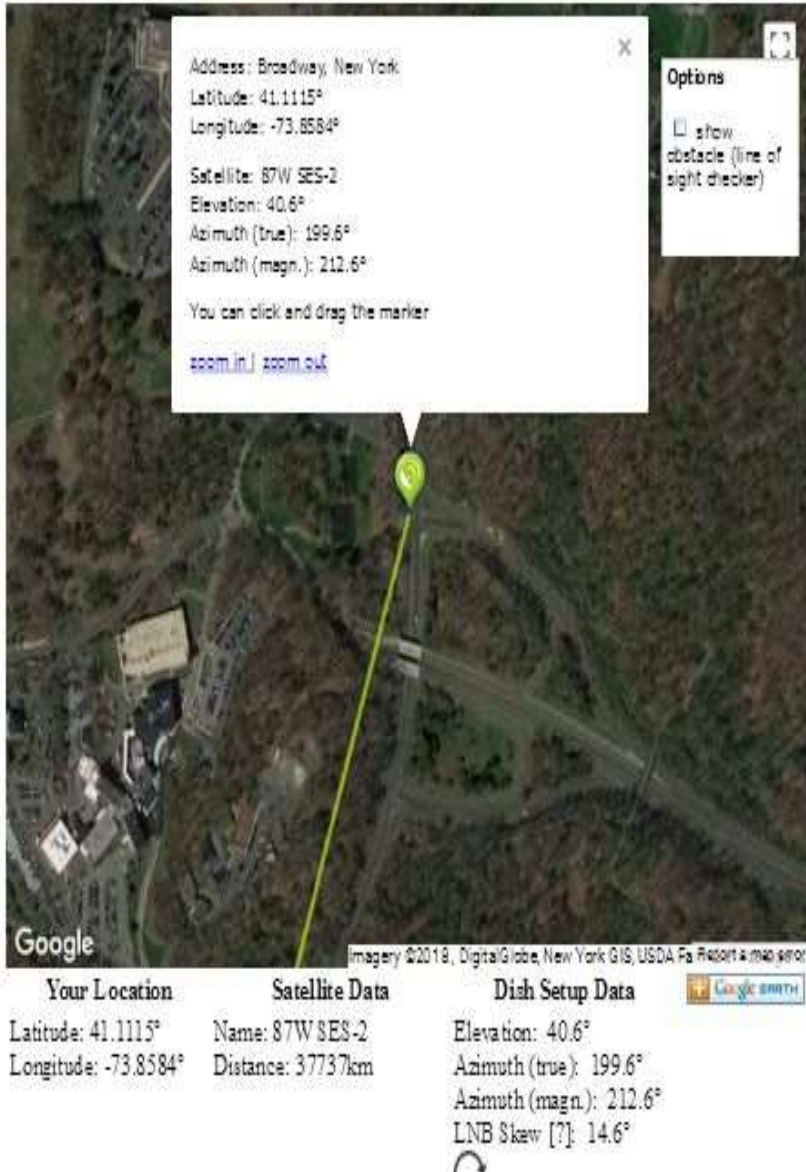


Fig. 19 Locating SES-2 from NYC using www.dishpointer.com

Step 2. Based on where you are, find your **elevation angle, skew, and magnetic azimuth** from a site such as www.dishpointer.com (Fig. 19).

For your first satellite acquisition effort, select a location with a **clear unobstructed view of the southern sky**. (Later, once you confirm your system is working, you can try to find a better more permanent location. Many people are able to operate thru windows or off balconies with partially obstructed views.)

Example: For NYC, mount the LNB on a camera tripod with the appropriate skew angle set to 14.6 degrees clockwise (more on skew below). Using a magnetic compass chose the *Azimuth (magn.)* to get a sight line on close in objects which you can use to point your LNB towards the satellite at 212.6 degrees magnetic. If you use a cellular phone, you may have to use *Azimuth (true)* to get the sight line. Use an Adjustable Sliding Bevel and a carpenter's level to get a precise elevation angle (EA) of 40.6 deg for NYC set on the LNB. In the picture below, the obtuse angle inside the Adjustable Sliding Bevel is *EA + 90 degrees or 40.6 + 90 = 130.6 degrees*, and the vertical side of the Adjustable Sliding Bevel is perfectly perpendicular to the ground.

Skew allows you to match your LNB's horizontal/vertical orientation with the satellite antennas' horizontal/vertical orientation to maximize signal strength.



When you set the skew, make sure you rotate the LNB so that skew angle is pointed directly overhead. Skew is given in degrees either clockwise or counterclockwise. If the reported LNB Skew direction for your location is shown clockwise, you stand behind the LNB looking at the satellite and rotate the LNB clockwise until you arrive at that number. For NYC, you set the skew to 14.6



degrees by turning the LNB in a clockwise direction. Viewing the same satellite on the same longitude, but from South of the equator, result in an opposite rotation skew angle.

Step 3. **Go back into your Tuner App** from your computer's WiFi which will be connected through the Dreamcatcher's Othernet WiFi Hotspot, and select the **Status Tab**. You should see information in the Status Tab as in Fig. 20 if you are correctly pointed at the satellite and everything is working. If you are not receiving packets or your Bias-T voltage is not present, the Status Tab will be empty as in Fig. 18. **Slowly move your LNB to maximize the SNR (dB) making it as large (less negative) as possible.**

The Tuner Status screen in Fig. 20 or the Touch Screen shown below, will show the *SNR (dB)* line fluctuating at a value **above -14 dB** (sometimes as high as + 10 dB), the Lock line saying **yes**, and the *Rssi (dBm)* line fluctuating at a value between **-60 and -120 dBm**. On the top of the Tuner Status Screen, you will see what type file is being downloaded at that moment - - either *audio* or *files*. At the very bottom of the screen you will see what file is being downloaded or just finished downloading at any time. This picture represents a successful connection at latitude 39 deg N longitude 76 deg W in mid morning with an accurately pointed LNB. Additionally from page 14, LED 5 will be **fast blinking green**, and LED 6 will also be **fast blinking green if data packets are detected**.

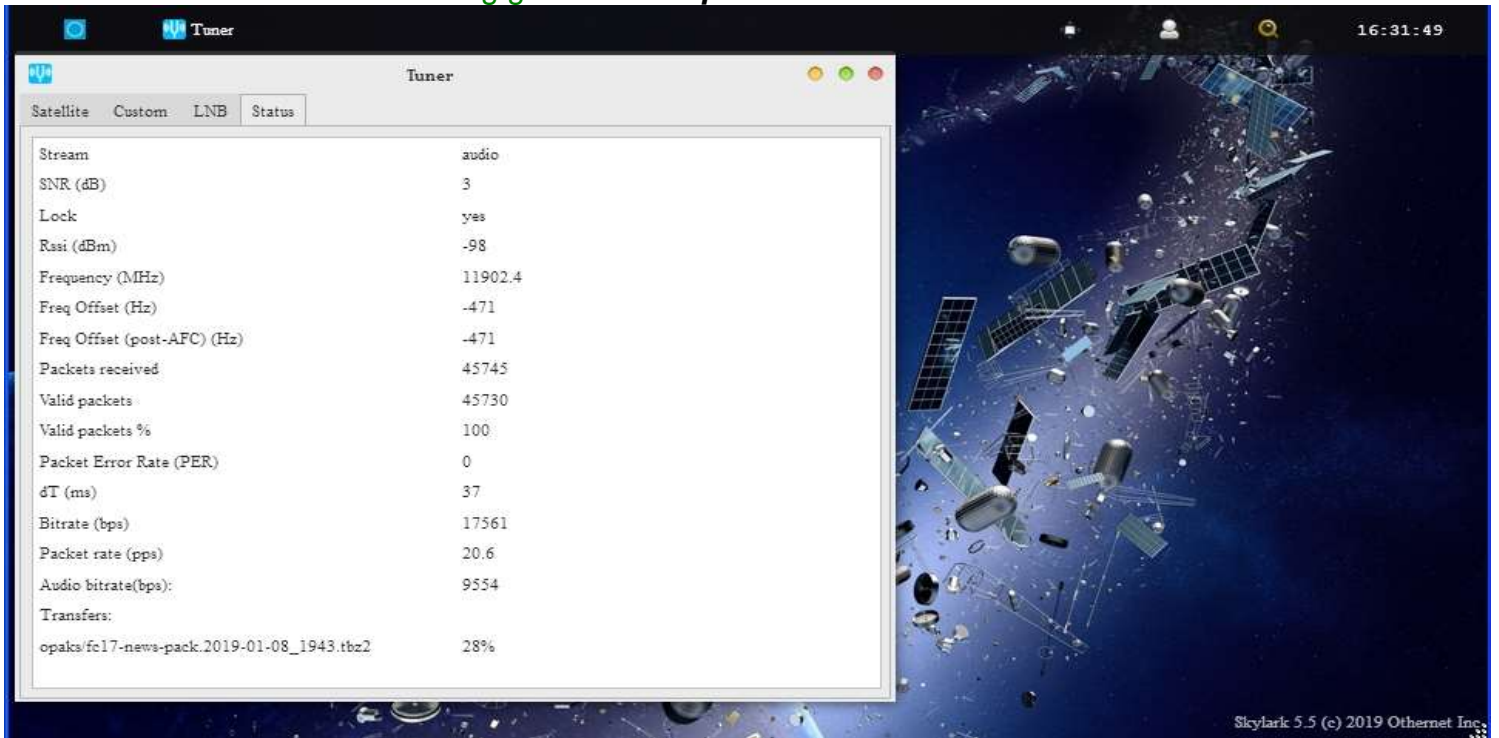


Fig. 20 Tuner Running Correctly on SES-2 at Latitude 39 degrees N

The **Dreamcatcher Touch Screen** has several other useful functions. When the Dreamcatcher is operating correctly, the 2nd panel on the Status Screen shows key parameters that are visible in Fig. 20 in Skylark, and on the 3rd panel does a long term Lock Status and SNR graph.

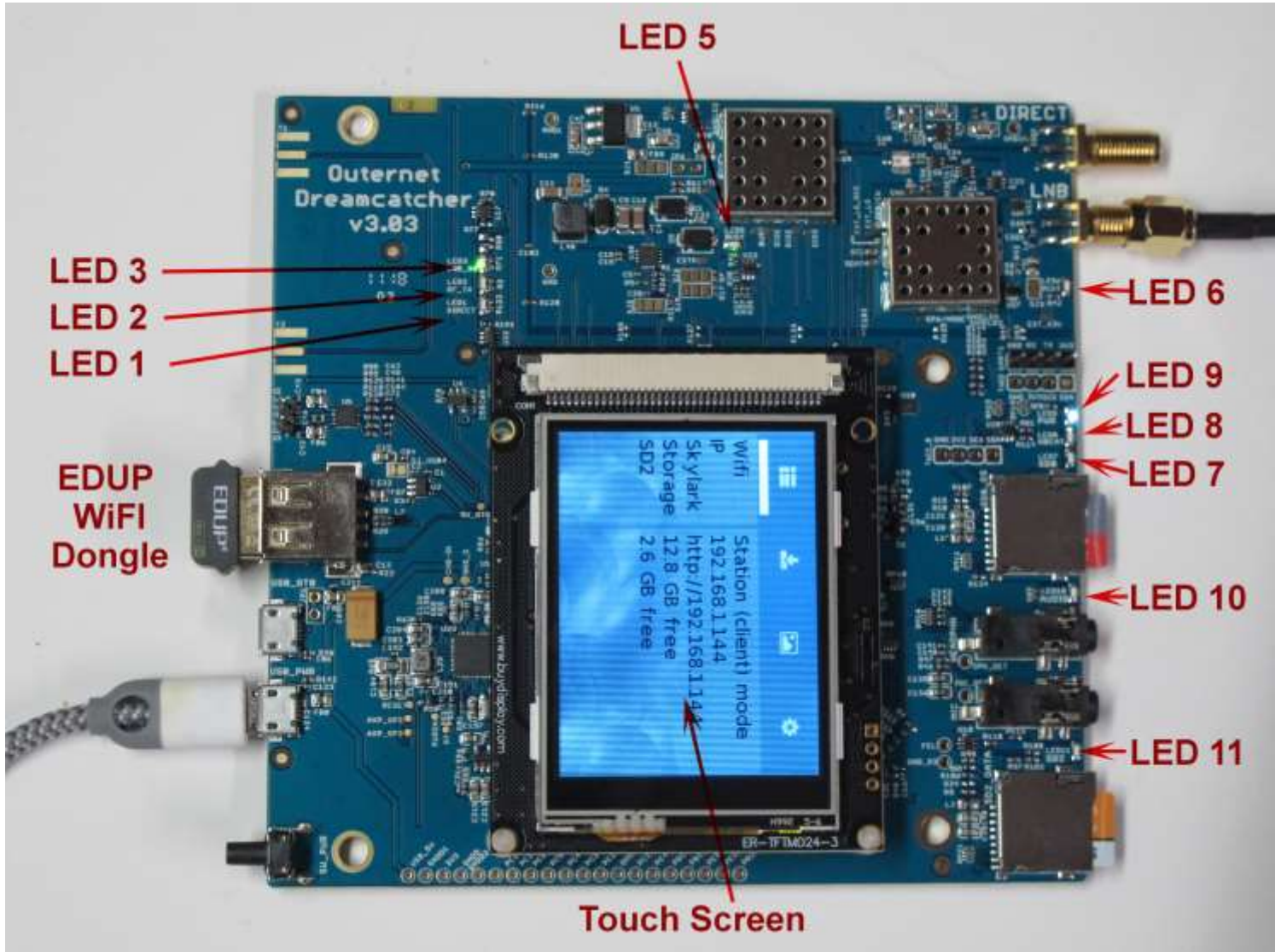


Status Screen



Long Term Lock Status and SNR Graph

Properly connected and operating, the Dreamcatcher v3.03 with an external micro SD card installed, will display the following LEDs:



Design	Color	Name	Function	Normal	Booting
LED 1	Green	Direct	Shows rf signal to Direct SMA	Off	Off
LED 2	Green	RF-TX	Shows radio in rx mode	Off	On solid green
LED 3	Green	LNB_ON	Bias T applied	On solid green	Off
LED 5	Green	Busy	Shows Dreamcatcher in use	On fast blinking green	On solid green
LED 6	Green	PCKT	Receiving packets	On fast blinking green	Off
LED 7	Green	SDO	Ongoing read/write activity	On blinking green (if SDO card is active)	On blinking green
LED 8	Green	HBeat	Reporting status	On blinking green	Off
LED 9	Blue	Power	OFF/ON indicator	On solid blue	On solid blue
LED 10	Green	Audio	Reports Presence of audio	On blinking green (with audio)	Off
LED 11	Green	SD2 Note 1	Micro SD Card Storage	On blinking green (if SD data card installed & active)	On blinking green
Touch Screen	Blue screen	tft	320x240 color	Ready, then Menu	Pls Wait
EDUP	Green Blinking	WiFi	Flash for broadcast	Slow blinking green	Slow blinking reen

LED Table

Note 1 – LED 10 blinks green if audio is being broadcast on **Othernet Satellite Radio**. A connection to the speaker port is not required.

Optional Step 5. Several users living on the fringe of SES-2's ERIP area have discovered using a cone or horn around the Maverick LNB improves SNR by as much as 6 dB in some cases being the only way to close the link. The cones and horns being used are 8 inches tall with an upper diameter of 4 inches (either in diameter, or 4 inches by 4 inches square), and a lower diameter of 2 inches (either in diameter, or 2 inches by 2 inches square). Both martini shakers, solid aluminum or garden mesh wires are being effectively used. Pringles tubes (which are aluminum lined) offer free potato chips while you site your LNB.



Optional Step 6. Connect your Dreamcatcher to an outside **free-to-air (FTA) Ku-Band LNB/dish antenna** instead of using the Othernet Stock Maverick LNB. The Dreamcatcher Board is powerful enough to operate over up to 500 feet of RG6 cable - maybe more! The only caveat is you **cannot use** a motor drive or DiSEqC switch in series with your outside LNB/dish.

Section IV - Connecting the Dreamcatcher to Your Local Router by WiFi as a Client

Step 1. On the Applications Screen (Fig. 22), open the Network Icon to run the **Network App**.



Fig. 22 Applications Icons showing **Network App**

Step 2. The default Network Screen (Fig. 23) is set to **Create a Hotspot** called **othernet** with no password.

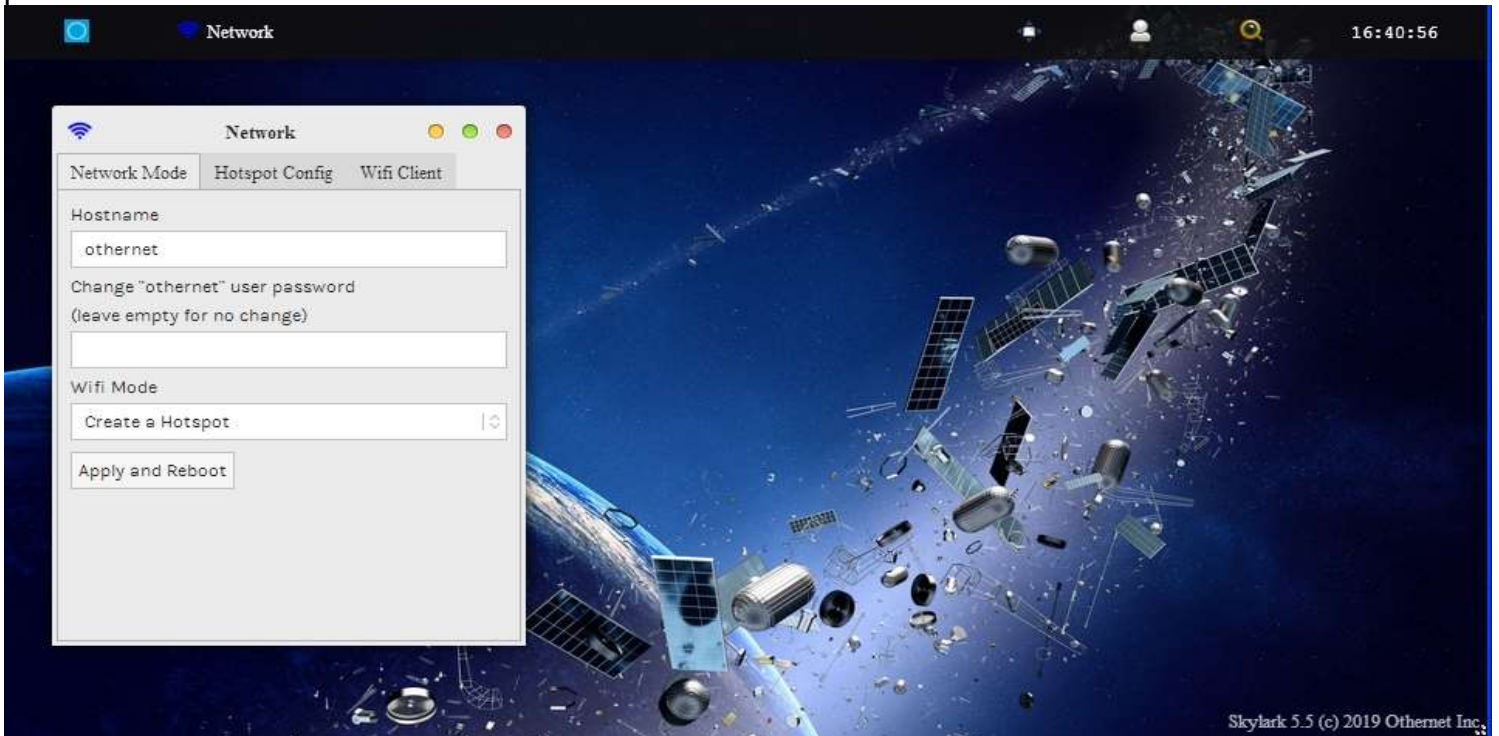


Fig. 23 Default Network Screen

Step 3. Open the **WiFi Client** tab (Fig. 24), and fill in your Access Point Name and Password. You cannot connect to a WiFi Client network that does **not broadcast a SSID** or which is **not connected to the internet**, but you can connect to a WiFi Client network with complex 8 or more element passwords such as *Uwp!820@*

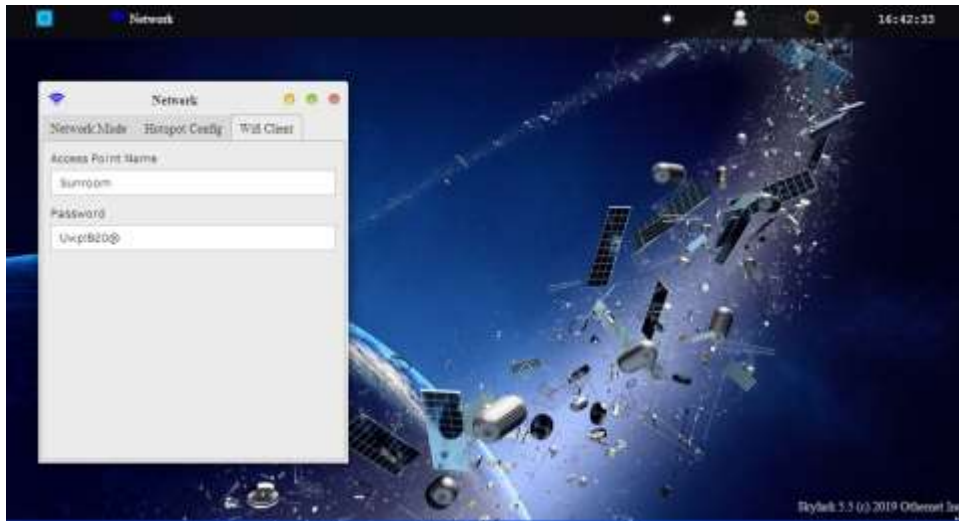


Fig. 24 WiFi Client Screen

After entering your Access Point Name and Password, go back to the Network Mode Tab (Fig. 25) and select **Connect to a WiFi router**. Then **Click Apply and Reboot**. At this time you will lose the WiFi connection between your computer and Othernet's WiFi Hotspot as the Dreamcatcher connects to your local WiFi as a client, and gets assigned an IP address by your router. Sometimes it could take up to 5 minutes for the changes to load, so be patient. If you **mistype** your Access Point Name or Password, the Dreamcatcher will connect, but you won't see it when you try to access it as in Step 4 below. To regain access to the Dreamcatcher, proceed as in Step 6 below to go back to the Hotspot mode, then redo this step.



Fig. 25 Network Mode Tab ready to Connect to a WiFi router instead of Create a hotspot
Click Apply and Reboot

Step 4. You will be connected to Dreamcatcher's Skylark Program through your local WiFi from your router. You can go to any computer on your router's network, and use any Web Browser to access Skylark through its newly assigned IP address, or by typing my.othernet.is (which requires an internet connection to work). If for some reason, you can't access Skylark through your router using the command my.othernet.is or its IP address, your Dreamcatcher did not get connected to your router - - the application of the Connect to a WiFi router command **may have failed**. You can look at the *Touch Screen Summary Page* (Fig. 25a) to see if you are in the AP *Hotspot* or *Station (client) mode*. If you are connected in the Station (client) mode, you will see the assigned IP address on the second and third lines. If those lines are blank, reboot your Dreamcatcher and try this step again. If you still show a connection to the Hotspot, start **Section IV – Connecting the Dreamcatcher to Your Local Router by WiFi as a Client** over again.

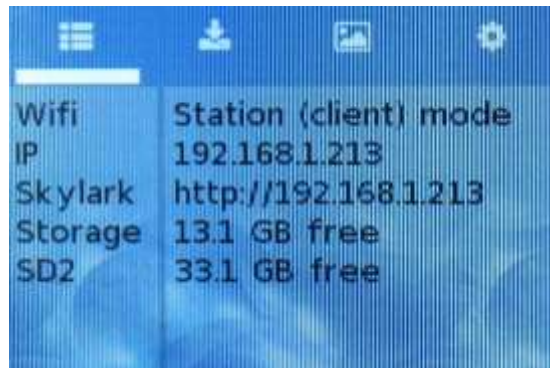


Fig. 25a Touch Screen Summary Page Showing Connection Mode, [Station (client) mode], Free Space on Skylark OS Micro SD Card of 13.1GB, and Free Space on the Additional Data Storage Micro SD Card of 33.1 GB

Another update in Skylark 5.5 is that of receiver IP lookup: For those on Linux, Android, MacOS or iOS, you should also be able to access the receiver on you LAN by going to <http://othernet.local> For Windows users, this may work if you already have Bonjour Services installed; if not, Bonjour Services can be installed using this installer from Apple:

https://support.apple.com/kb/DL999?viewlocale=en_US&locale=en_US

Worldwide Status Display - - Once your Dreamcatcher is running and connected to your local area network, Skylark has a sub-routine that reports the program's "heartbeat" via the internet (if you have an internet connection) to Othernet's Chicago, Illinois, USA, headquarters on a world map with colored balloons. Both SNR (-16dB or less = red, -13dB or less = yellow, higher = green) and Frame Lock (95% lock = green, 89% or more = yellow, less = red) are reported every 5 minutes. The status screen can be viewed at <https://status.othernet.is> and is shown here in Fig. 25c.

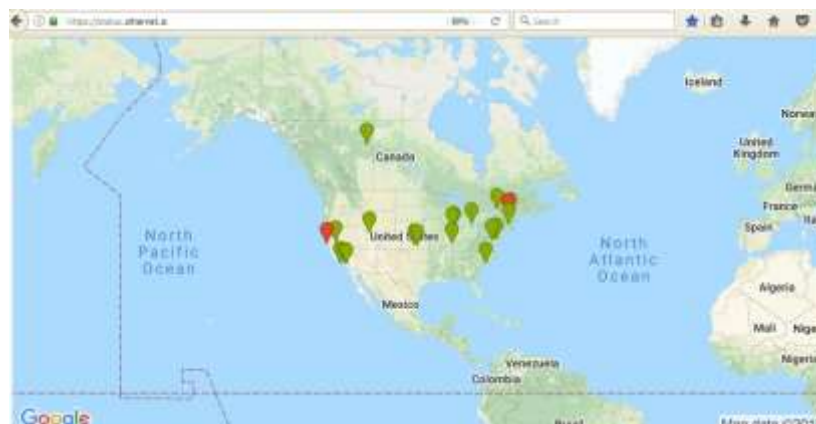


Fig. 25c On-line Network Status Display at <https://status.othernet.is>

Step 5. **Changing the administrator user name password** is sometimes required if you are sharing your Client connection, and don't want anyone to gain administrative access to your Skylark program. Go back to the Network Mode Tab and enter a new password as shown in Fig. 25b. Once the password is changed, everywhere where you used to enter "othernet" as a password you will use the newly established password.

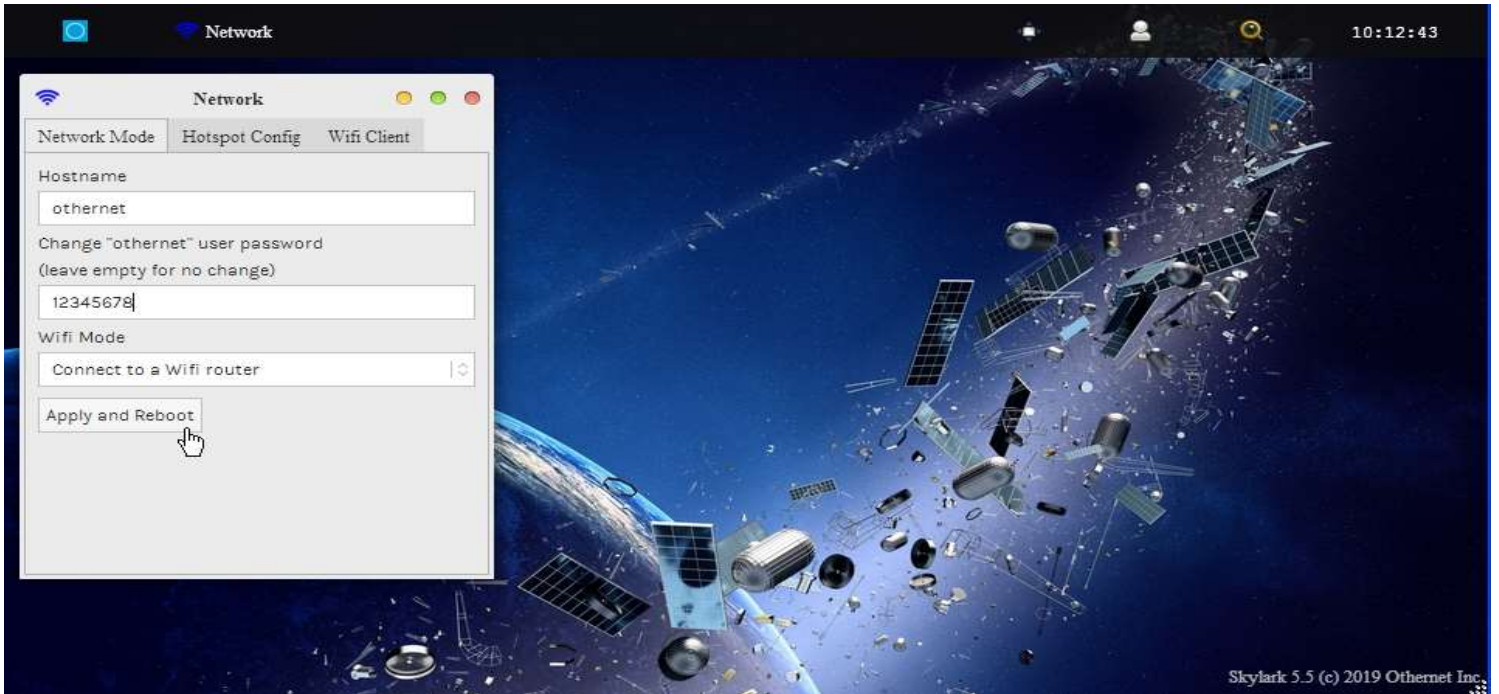
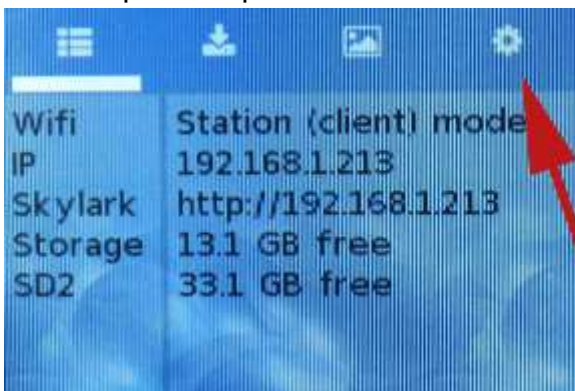
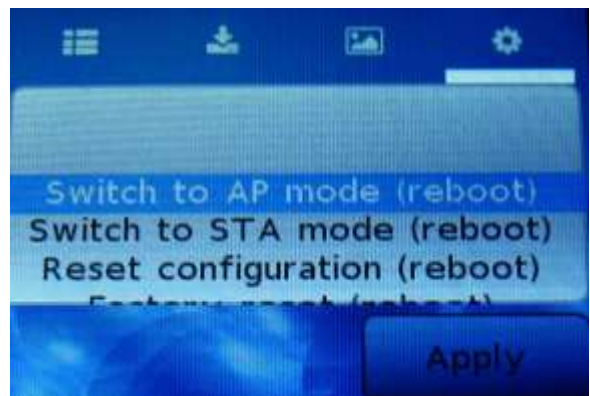


Fig. 25b Network Mode Tab Showing Method for Changing Othernet administrative Logon Password
Click Apply and Reboot when Finished

Step 6. Unlike the Skylark program for the Chip computer, Skylark **will not automatically** return to the Othernet WiFi Hotspot mode if it detects a loss of its existing WiFi connection to a router. If you **move from one WiFi location to another** (for example moving from one hotel to another where you connected to an Access Point WiFi), you must reset the Dreamcatcher to the Othernet WiFi Hotspot mode while you are connected as a client to a router using your browser then enter the new Access Point Name and Password. Skylark has an **option using the Touch Screen** to return to the Hotspot mode after you leave a network. Illustrated here on the *Touch Screen Summary Page* is the old WiFi network information. If you click on the far right wheel icon, you will be able to go back to the Othernet Hotspot mode by selecting **Switch to AP mode (reboot)**. You will not be able to re enter a new WiFi network name or password from the Touch Screen. To do that, you have to use the browser with Skylark and repeat Step 3 above.



Touch Screen Summary Page



Touch Screen Return to Hotspot

Step 7. In some installations, a **WiFi repeater** is desirable. Most Dreamcatcher installations can reliably connect with your existing WiFi device to your router, however, low WiFi signal levels do cause unexpected disconnects requiring you to manually reboot the Dreamcatcher. Many users install their Othenet gear outside their residence in open area such as gazebos, decks, sheds, garages, etc. In these situation a WiFi repeater assures reliability of Othenet reception. Install the repeater as **far as possible from your WiFi**, and **as close as possible to your Dreamcatcher**.

Step 8. Alternate Connectivity Approach is to use a **USB to Ethernet Network Adapter** instead of going through the Othenet WiFi Hotspot or Network Client approach. Be careful, **NOT ALL** USB to Ethernet Network Adapters work both natively under Skylark and Armbian. Specifically a TP-Link TL-UE300 works properly.

This Ethernet Dongle is natively supported, so works out of the box. Just replace the EDUP WiFi Dongle (Fig. 2) with the Ethernet Dongle. The downside of this approach is you need to determine the actual IP address as the Ethernet IP will not shown in the Dreamcatcher LCD Touch Screen. Use your router to look at all your client IP addresses, and find the one labeled "skylark", or use a program such as FING at <https://www.fing.io/fingkit-sdk-downloads/>

Section V - Additional Storage

Step 1. A micro SD data card **of any size** can act as additional storage. Make sure to use a fast high quality micro SD card formatted **FAT32**. Plug it into the Dreamcatcher Board's SD1_DATA which is the SD card holder on the bottom right of the board. You should **not plug and unplug** the micro SD card while the Dreamcatcher is writing to the micro SD card as it may cause a writing error. You can tell if the micro SD card is being written to by observing LED 11 on the Dreamcatcher Board (page 14) which will be blinking green. In Skylark, you cannot upload files from your computer to the additional storage device - - you have to remove the micro SD card and copy the file on your computer. If you use a micro SD card larger than 32 GB, make sure it is **FAT32** formatted - - 64 and 128 GB micro SD cards come exFAT formatted which **will not work**.

Step 2. It has been randomly observed that - - no boot occurs if a micro SD card is installed in the data slot. Some boards work and others don't. If this occurs in your setup, (with the power on) temporarily remove the second micro SD card in the data slot while Skylark boots, then push it back in.

Step 3. Additional storage can also be provided by installing a FAT32 formatted USB Flash Drive or hard drive plugged into a passive hub (Fig. 26) along with the EDUP WiFi Dongle (Fig. 2). Both a micro SD card and an external storage device can be used simultaneously under Skylark. Again, make sure the USB Flash Drive and hard drive are FAT32 formatted. I suggest you use Rufus 2.17 to FAT32 format large *micro SD cards and USB Flash Drives* at <https://rufus.akeo.ie/downloads/rufus-2.17.exe> For FAT32 formatting of hard drives, I suggest you use AOMEI Partition Assistant found at <https://www.disk-partition.com/download-home.html>



Fig. 26 I-tec Passive Hub

By adding additional storage, the Dreamcatcher's Skylark program will be able to periodically write downloaded files to one of the storage devices so you won't lose them when you re format the SD_OS card, or update Skylark to a newer version. Keep in mind you will be storing approximately 2 GB of data per month, so a large micro SD card or flash drive is desirable. *(The micro SD card used with the Skylark operating system automatically gets cleaned of old files hourly, so it never fills up. That is why I recommend only a 16 GB micro SD card for the Skylark program.)*

You can see how much storage is left on your micro SD card by going to the Touch Screen Summary Page (Fig. 25a) gives just free space for each micro SD card.

Step 4. Access to files on additional storage devices is done by going to the **File Manager App** (Fig. 28) on the Applications Screen. *Skylark does not allow you to upload files to the external storage when the micro SD card is plugged into the Dreamcatcher. To add files to the external storage device, you must remove it from the Dreamcatcher and upload the files on a separate computer.*

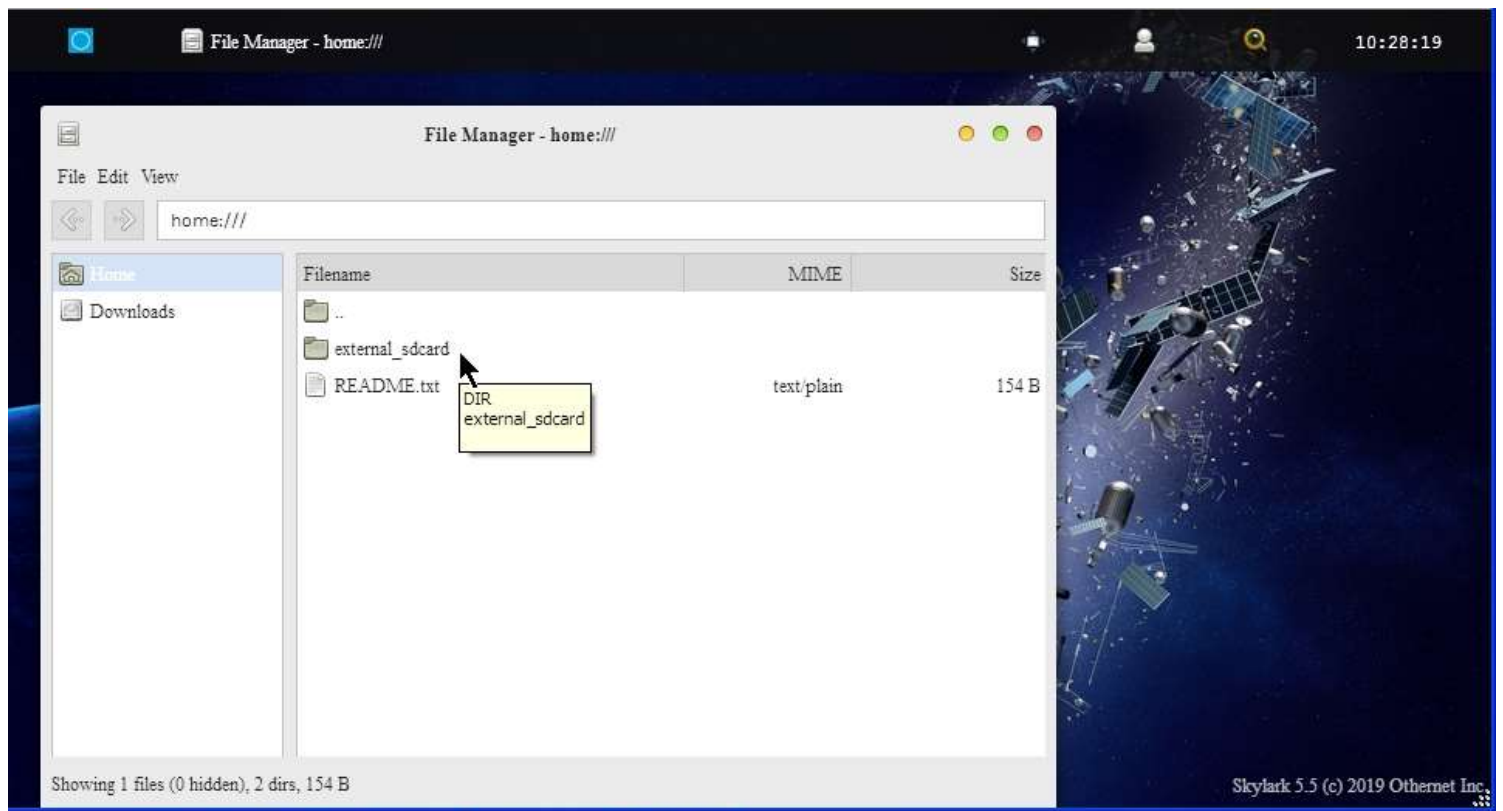


Fig. 28 Accessing Files on Additional Storage

Access the **External_sdcard** folder (Fig. 29) and go to the file you want to run in Skylark. Several Forum Members run the Rachel Data Base, videos, music, and pictures. When you select a file to access, choose Skylark's Reader program (Fig. 30) to view it as Rachel is shown in Fig. 31. You can alternately select the file, and *Download it to your computer* (Fig. 32) to view it.

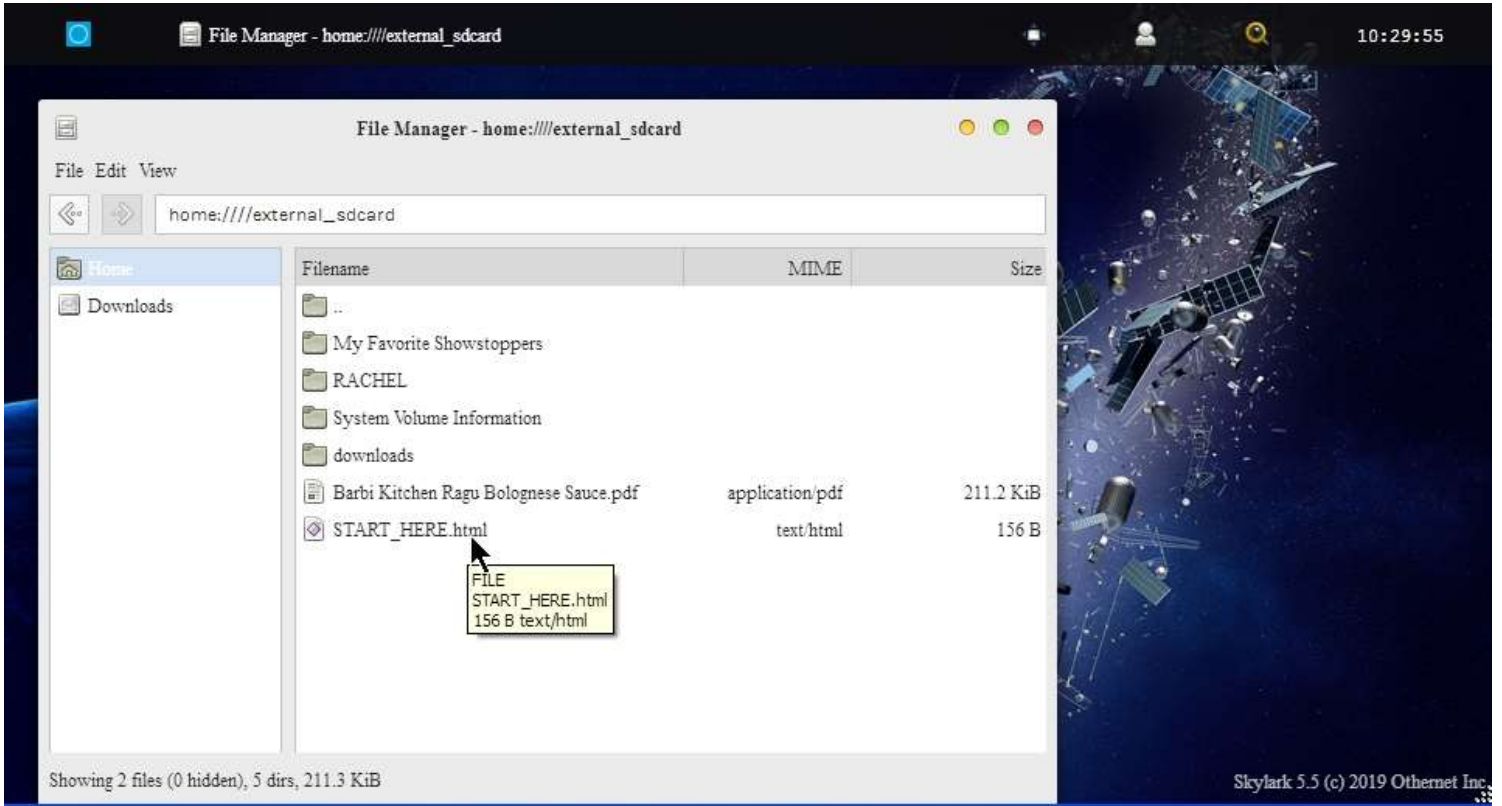


Fig. 29 Select the file you want to run e.g. *START_HERE.html*

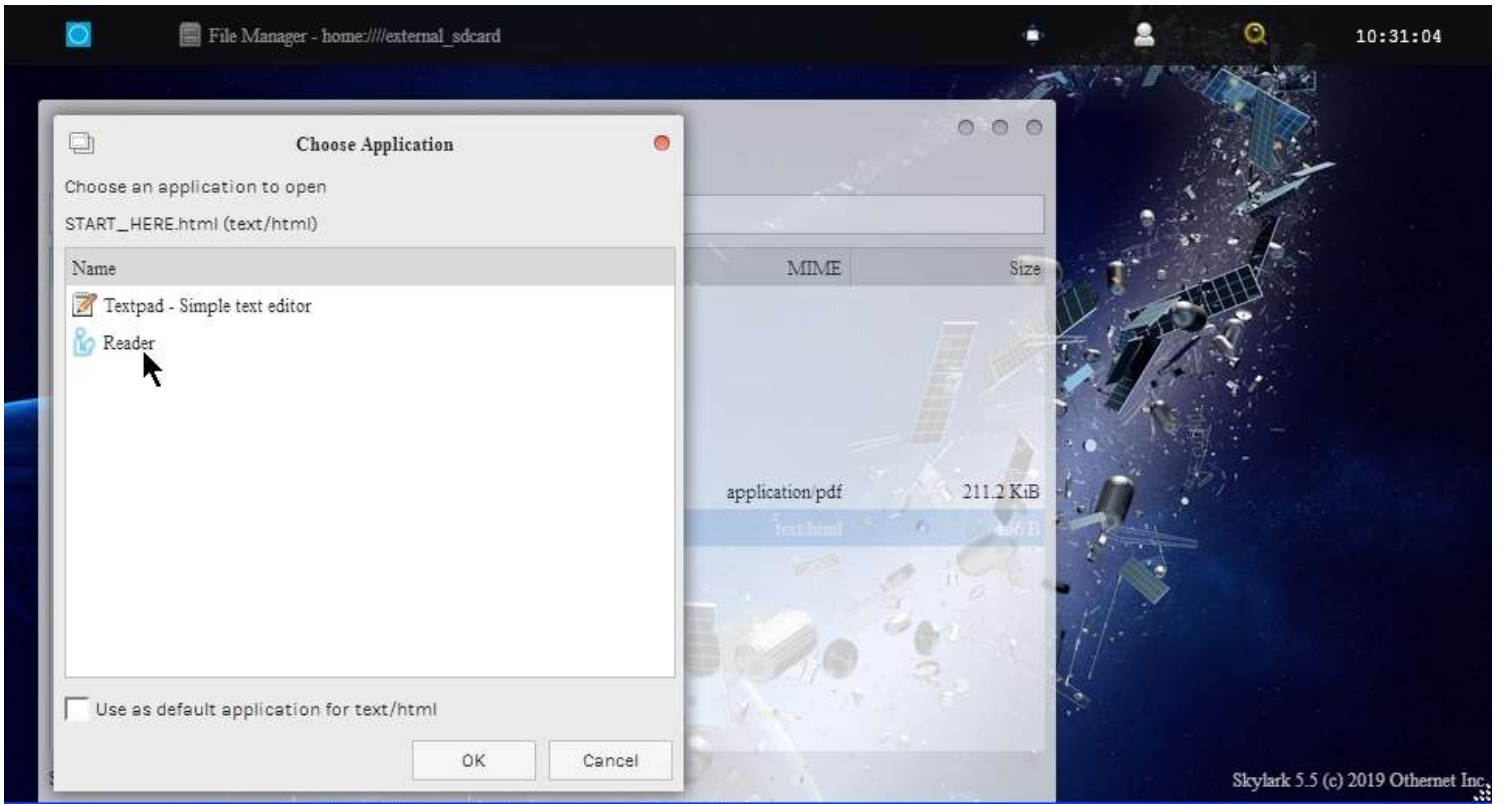


Fig. 30 Choose Skylark's Reader Program

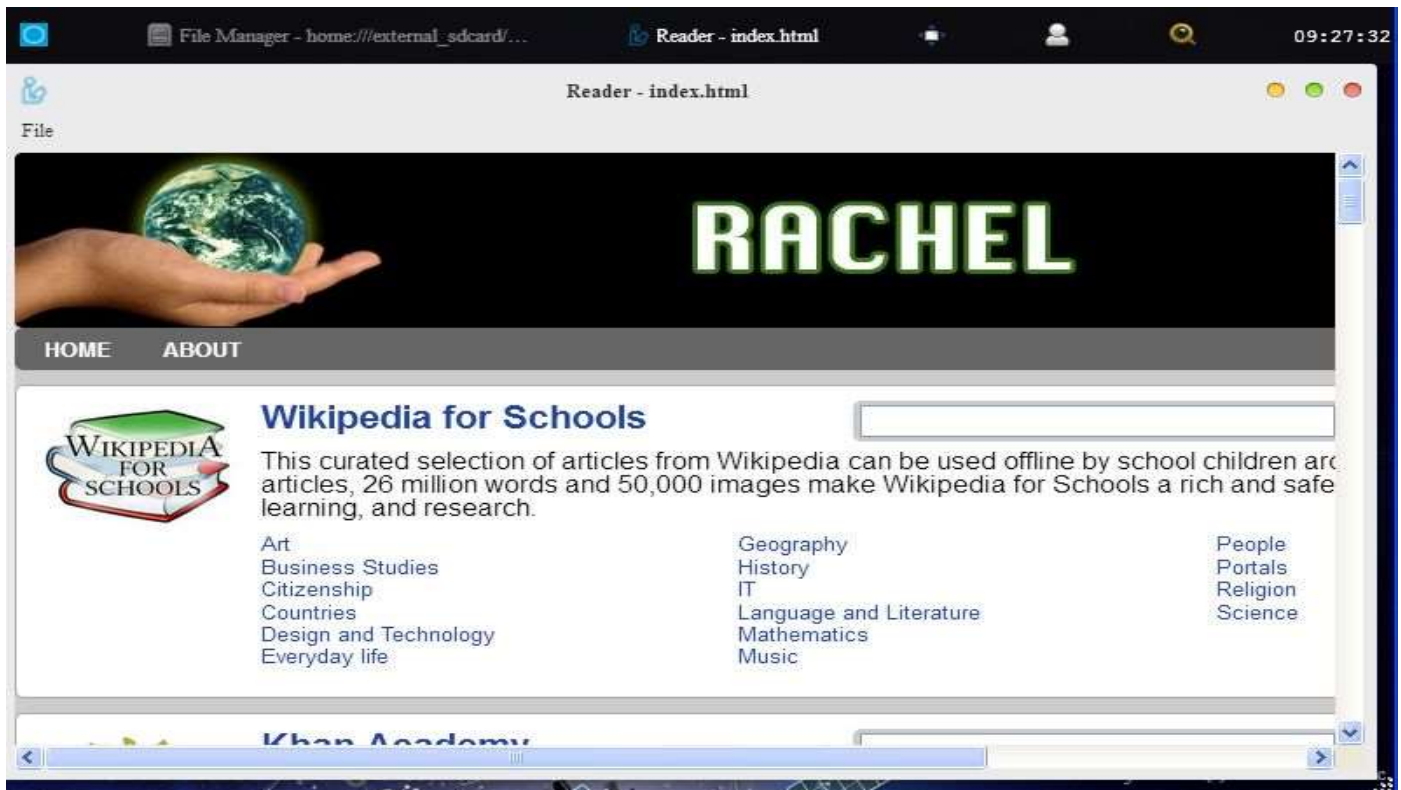


Fig. 31 Rachel's *START_HERE.html* file viewed in Skylark's Reader Program

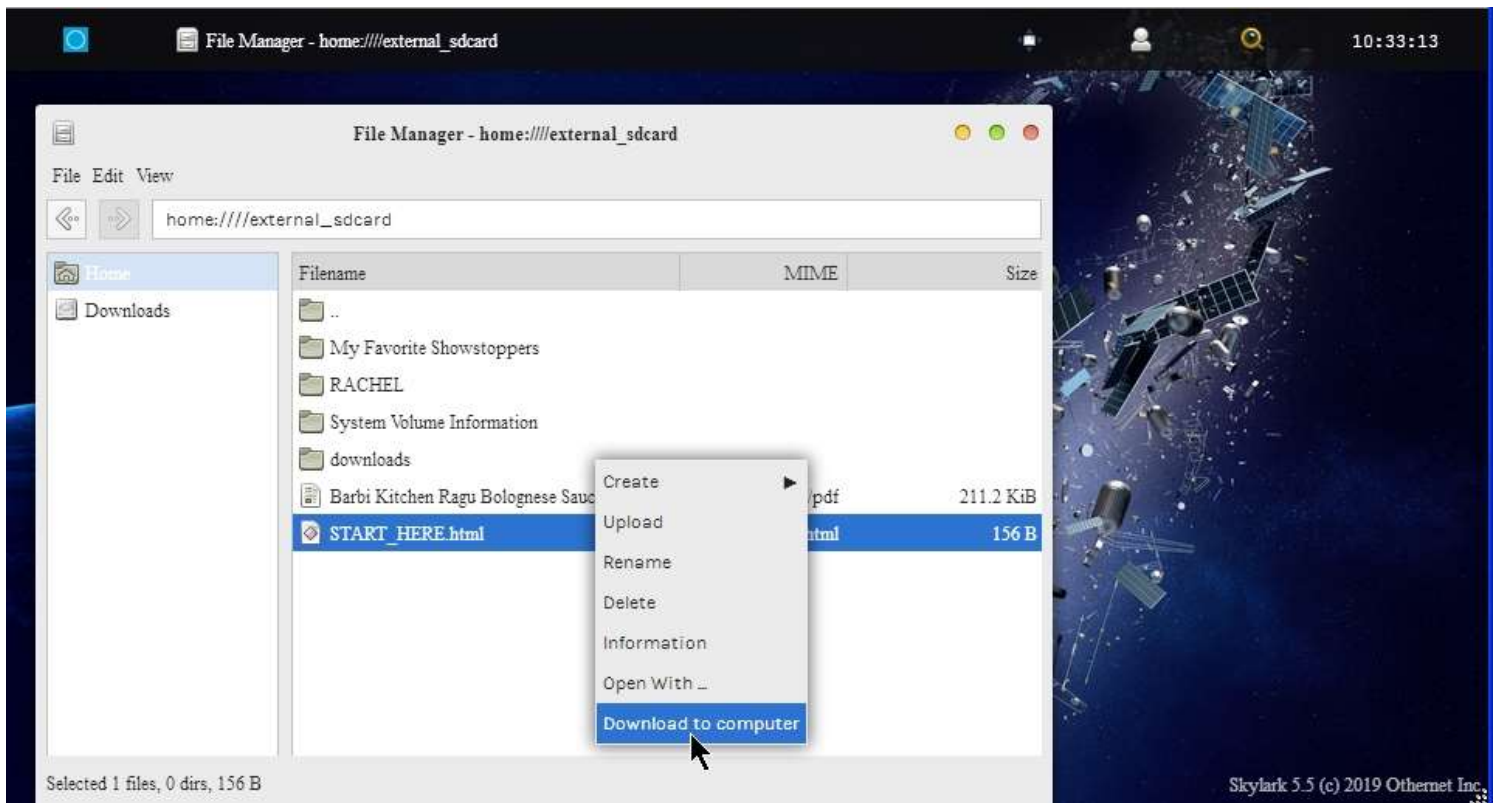


Fig. 32 Download to Computer

Section VI – Printing and Othernet Satellite Radio

Step 1. **Printing** frames from the Skylark data is possible if you use a **Firefox Browser**. *MS Explorer, Opera, and Chrome don't work in the Windows world.* The technique is very simple. Right click on the frame you want to print, as in Fig. 33, select *This Frame* to pop up the *Print Frame* drop down, and then select *Print Frame*. It will print fully in as many pages that are necessary.



Fig. 33 Printing Frames Using Firefox Browser

Step 2. **Othernet Satellite Radio** is available by either use of the native Skylark App, or plugging a standard 3.5 mm stereo speaker into the speaker output plug on the Dreamcatcher Board. Audio is not stored in Skylark - - it is a live event. **Othernet Satellite Radio** is broadcasting continuous Voice of America (VOA) News at this time. If new content is added, it is reported on the Forum at <https://forums.othernet.is>

Method 1 - - Native audio/sound in found in the Radio App. Select this mode by going to *About Skylark* on the Applications Icons Screen (Fig. 34)



Fig. 34 Radio Application Icon



Fig. 35 *Radio Icon* Screen with MP3 Player selected for listening to **Othernet Satellite Radio**

Play **Othernet Satellite Radio** directly here as in Fig. 35, or select [Othernet Satellite Radio](#) and open it in a new browser window. You can also run it with VLC (<https://www.videolan.org/vlc/>) RealPlayer or Windows Media Player if you copy your network URL to the player.

Method 2 - - Use of a speaker plugged into the standard 3.5 mm stereo output plug. Some users connect the speaker output to an *FM MP3 Player transmitter* so they can tune to **Othernet Satellite Radio** on a standard FM radio. If you use a device that requires external power from a USB cord, make sure to power it from a separate power source. The Dreamcatcher power budget **cannot** support it.



In order to increase the volume of the audio/sound for the Dreamcatcher speaker plug, it is necessary to make an “on the fly” software modification to Skylark that *only remains in effect as long as you do not reboot the Dreamcatcher*. This change will have **no effect** on the Native audio/sound mentioned in Method 1.

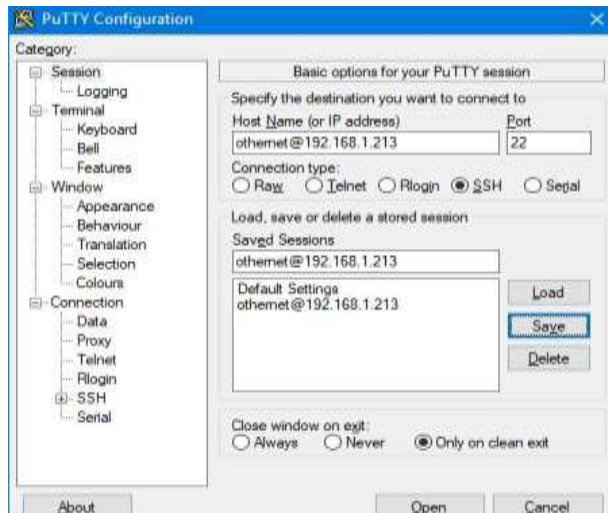
There are 2 ways make this adjustment. The **first method** is by using the Dreamcatcher Touch Screen to Increase/Decrease the volume at the audio output plug or Mute it. (Fig. 37).



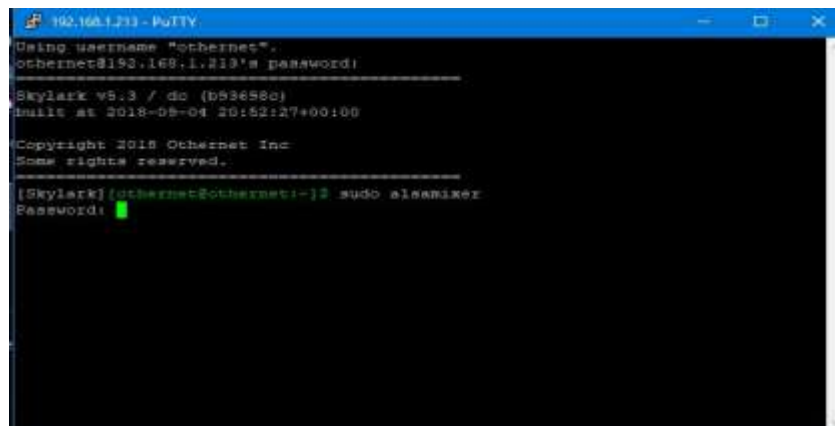
Fig. 37 Touch Screen for Adjusting Audio Levels

Since the Touch Screen is very sensitive to the touch, I have included a second method for making this adjustment.

The **second method** is by using a program like PuTTY (available from <https://putty.org>) to gain access to Skylark through its Secure Socket Shell (SSH) by entering your IP Client address into PuTTY. You can do this from an Othernet WiFi Hotpot or as a Client (as I am doing) - -



Login with Password: *othernet*
Then type *sudo alsamixer*
Then enter Password: *othernet*

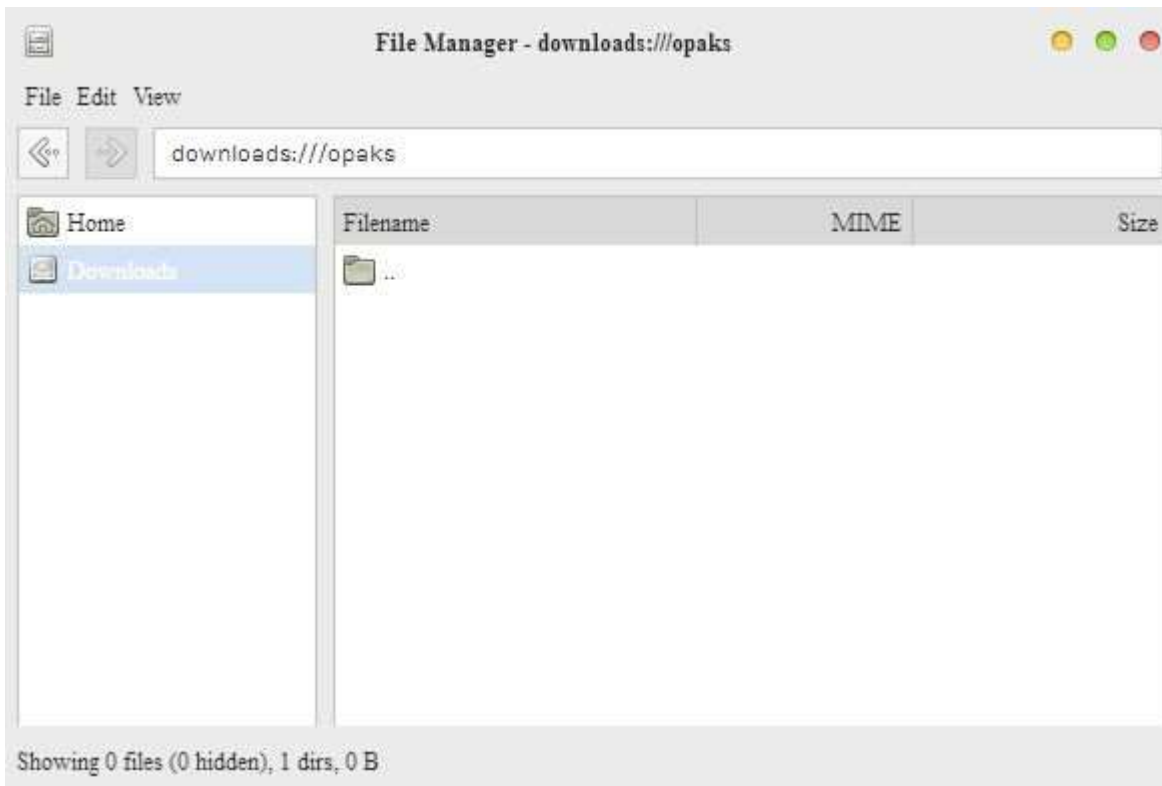


ANNEX A Preliminary Test for OTA

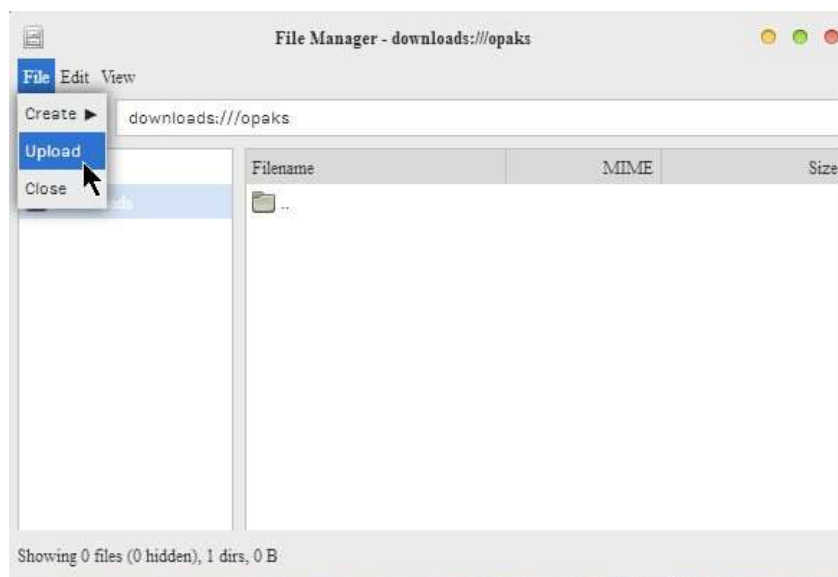
You can use an Over the Air (OTA) file to update your via the Web User Interface (webUI) – here is no need to remove the micro SD card from the Dreamcatcher.

To use this method:

- a. Download the update file that looked like this for the Skylark 5.3 to 5.4 upgrade [skylark-dc-1809042052.to.1810251245.psop.tbz2](https://www.othernet.com/achievements/skylark-dc-1809042052.to.1810251245.psop.tbz2) from Othernet's Achieves to your computer. DO NOT extract it or process it in any way.
- b. Login to Skylark as the "othernet" user (logging-in as "guest" WILL NOT WORK).
- c. Open File Manager App.
- d. In File Manager, in the left-most pane, select "Downloads" and then in the right-side pane, double-click the "opaks" folder to enter it.



e. In the File Manager app menu bar, select “File” -> “Upload”. This will open up the file upload dialog, and your normal OS file selection dialog; select the update file you downloaded to your computer in step “a”. Click Ok/Open etc (as per your OS) to begin the upload.



Then select the .tbz2 file to upload, and just click **Open** - - nothing else needs to be clicked.



f. The update file will be uploaded to the “opaks” folder, and from there, Skylark OS will automatically start processing the update.

g. **Be patient.** The update process will take 15 - 20 minutes to complete! **Do NOT reboot** your Dreamcatcher during this process **or change any other settings.** During this process, it will appear as though nothing is happening, but don't despair - - **it is working.**

h. After the update process is complete, the Dreamcatcher will automatically reboot into the new version of Skylark. You will need to refresh your WEB browser to see the new Skylark version.

i. If the process fails, just use the normal micro SD card burning process **Section I Step 4** as before to fix things.