Black Cat HF Weather Fax
Version 1.0.0 March 26, 2019

Black Cat HF Weather Fax is an app to receive weather fax transmission sent over shortwave radio. The emphasis of this app is good reception of even weak signals received under marginal conditions.

Requirements:

Macintosh: macOS 10.9.5 or later.

Windows: Windows 7, 8, 10.

Installation:

Presumably you've gotten this far, and have downloaded and unzipped the .zip file.

If you are running on macOS, move the application anywhere you wish.

If you are running Windows, you can move the entire download directory/folder wherever you wish, but you must keep the Libs and Resources directories with the EXE file, or the app will not run.

First Things First:

Run the program by double clicking on the app's icon. You'll see the main window.

You need to set a few things up.

First, the directory where saved images will be stored. Select Set Image Save Directory from the File menu to do this.

Second, select the correct sound input device. This is done via the Sound Input popup menu. Also set the input gain appropriately (note that not all sound input devices let you change the gain).

The Basics:

I'd strong suggest reading the entire documentation below, so you know how to use the app. But here are the basics, to receive weather fax images.

Make sure you have selected the correct sound input device and set the gain appropriately.

Feed sound into that device from your radio, set the volume of the radio appropriately. The volume indicator should be showing activity, but not pegged to the right.

Tune to a radio fax frequency, using USB mode on your radio. Most guides list the carrier frequency, you should tune your receiver 1.9 kHz lower than this.

For a first test, make sure the Free Run box is checked. This will allow the program to continuously display received fax data, even without receiving the start of fax signal. This will let you make sure things are working correctly, and allow you to set the slant.

You should see activity in the spectrum display, with most of the audio between the two darker ticks on the X axis, representing 1500 Hz (black) and 2300 Hz (white) audio. You should also see a picture start to form on the display, updating at to lines per second. Hopefully it looks like something recognizable, but it might be slanted.

You can set the colors of the spectrum display by right clicking on it.

Fax software requires the audio sample rate to be precisely calibrated. Unfortunately it varies from computer to computer. So it needs to be configured, usually just once.

While the fax is being received, check to see if the black line on the edge is running straight up and down the page (it will probably not be at the edge like it should be, that is OK for this test), or if it slants to the left or right. Use the six slant buttons to adjust the slant to make it vertical. The buttons with just one arrow > or < adjust the slant a little bit, with two arrows more, and three arrows even more per step. Just iterate back and forth until it is straight up and down. That's it. The slant value will be saved, and you most likely will not need to change it again, unless the fax station in question has timing that is off, then you may need to slightly adjust it.

You can then use the offset buttons to adjust the received image to the left or right, to align the edge of the transmitted "paper' with the edge of the display. Normally you will be receiving in Auto mode, and this is not necessary, but you can do it manually if needed, such as if you tuned in to a fax transmission already underway, and had to manually start it.

Check the Auto box, and the software will listen for the special start and stop tones sent at the beginning and end of faxes, and use that to trigger reception. Note that you need a good quality signal from the radio, if there is a lot of static or noise, they may not be properly detected. Normally you would want the Free Run box unchecked when using Auto mode.

If the Auto Save box is checked, the end of fax tone will be used to automatically save the image, the filename will be a timestamp. You can also click the Save button to save an image, this can be done even when the image is only partially received. The popup menu selects whether JPG or PNG format is used for saved images.

The invert checkbox will reverse the audio tones, it can be used if your radio only receives in LSB, and not USB mode.

The 576/288 popup menu is used to set the IOC for the fax image, 576 is standard and should always be used, unless you know the station uses 288.

The 60/120 popup menu is used to select the lines per minute (LPM). Virtually all fax sent today is 120 LPM, the exception being Kyodo Japan which uses 60 LPM.

There is another popup to switch between grayscale and black and white images, normally grayscale is used, B&W can be selected if you know the transmitted image is B&W, it will sometimes improve legibility.

The Zoom In and Out buttons can be used a expected to make the image larger or smaller.

Start and Stop can be used to manually start or stop reception, and Clear will clear the received image and restart reception.

Software License Agreement

This is a legal agreement between you and Black Cat Systems. covering your use of Black Cat HF Weather Fax (the "Software"). Be sure to read the following agreement before using the Software. BY USING THE SOFTWARE (REGARDLESS IF YOU HAVE REGISTERED THE SOFTWARE OR NOT), YOU ARE AGREEING TO BE BOUND BY THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, DO NOT USE THE SOFTWARE AND DESTROY ALL COPIES IN YOUR POSSESSION.

The Software is owned by Black Cat Systems and is protected by United States copyright laws and international treaty provisions. Therefore, you must treat the Software like any other copyrighted material (e.g., a book or musical recording). Paying the license fee allows you the right to use one copy of the Software on a single computer. You may not network the Software or otherwise use it or make it available for use on more than one computer at the same time. You may not rent or lease the Software, nor may you modify, adapt, translate, reverse engineer, decompile, or disassemble the Software. If you violate any part of this agreement, your right to use this Software terminates automatically and you must then destroy all copies of the Software in your possession.

The Software and its related documentation are provided "AS IS" and without warranty of any kind and Black Cat Systems expressly disclaims all other warranties, expressed or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Under no circumstances shall Black Cat Systems be liable for any incidental, special, or consequential damages that result from the use or inability to use the Software or related documentation, even if Black Cat Systems has been advised of the possibility of such damages. In no event shall Black Cat Systems's liability exceed the license fee paid, if any.

This Agreement shall be governed by the laws of the State of Maryland. If for any reason a court of competent jurisdiction finds any provision of the Agreement, or portion thereof, to be unenforceable, that provision of the Agreement shall be enforced to the maximum extent permissible so as to effect the intent of the parties, and the remainder of this Agreement shall continue in full force and effect.

The Software and documentation is provided with RESTRICTED RIGHTS. Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subdivision (b)(3)(ii) of the Rights in Technical Data and Computer Software clause as 252.227-7013. Manufacturer is Black Cat Systems., 4708 Trail Court, Westminster, MD 21158, United States of America.

The name "Black Cat Systems", and "Black Cat SSTV" are trademarks of Black Cat Systems.

Black Cat Weather Fax is ©2019 by Black Cat Systems. All rights reserved worldwide.