

NN4ZZ CwSkimmer and SDR-Bridge setup – A quick start guide

Revision History

14-Jun-2014 - added Telnet screen
11-Aug-2014 - added additional notes about SmartCat and DAX control panel
20-Jan-2015 - update version numbers and added troubleshooting notes
21-Jan-2015 - Added troubleshooting note about BLIND mode
6-Feb-2015 - Added "contents", added screen shots, reorganized
9-Feb-2015 - Added notes about the Reverse Beacon Network
15-Feb-2015 - update SDR-Bridge version, additional troubleshooting notes
15-Mar-2015 - Added SDR-Bridge setup screen, note on skimmer audio tab setup and more troubleshooting tips.
17-Mar-2015 - Added notes for SDR V1.4 changes
11-Apr-2015 - Added "output sample rate" error note
18-Feb-2016 - Added new version info and more troubleshooting tips

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Document Overview

This goal for this document is to help you get started with the CW Skimmer and SDR-Bridge setup. The capabilities of each program are extensive, this document will not attempt to address all of them. It is recommended that you start by getting just one instance of CW skimmer running with SDR-Bridge and then explore the possibilities and capabilities of each program. The setup is not difficult but there are a number of minor things that can cause problems. In addition to the recommended settings for each program, there is a troubleshooting section that can help if you run into difficulty.

Regards, Al / NN4ZZ

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Version information for SDR-Bridge, DAX control panel and CWSkimmer.

- CW Skimmer – Version 1.8.3.350
- SDR-Bridge – Version 1.5.0.123

Note this version of SDR-Bridge will work with SDR Version V1.3 and later.

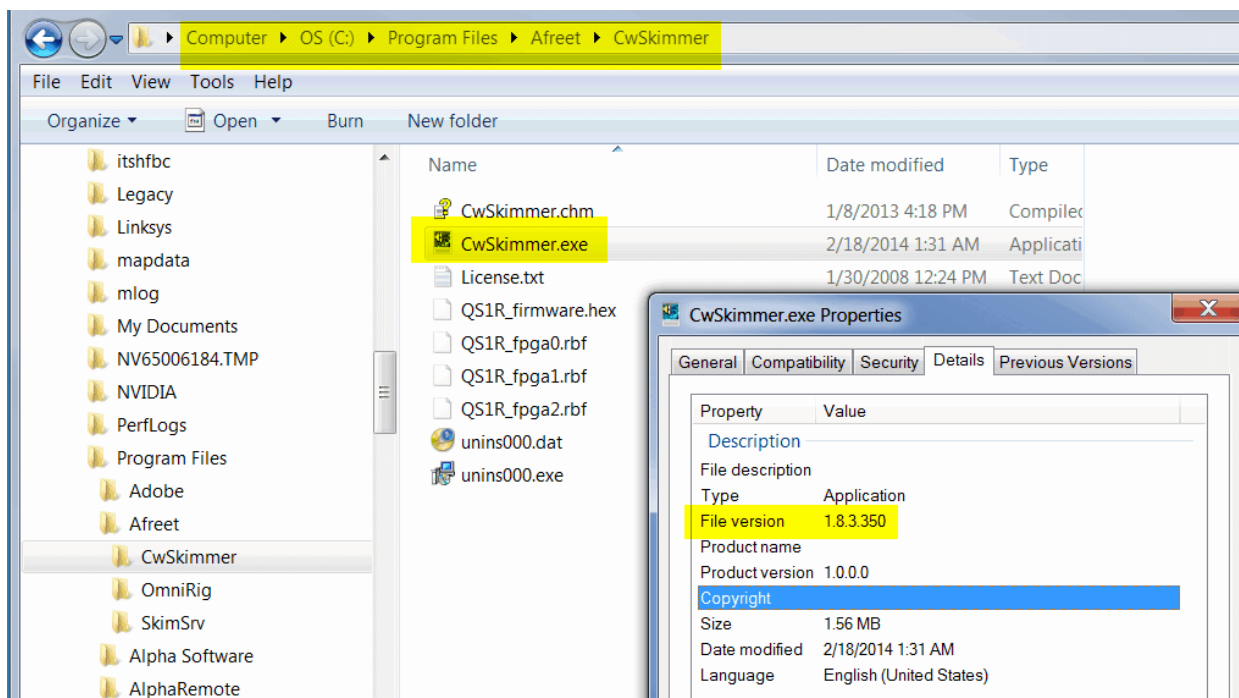
- SmartSDR - Version 1.3.8.126 or later
- DAX Control - Version 1.3.8.126 or later

CwSkimmer

Note: **check the version using the file properties**, it is not on the CWSkimmer screen. Navigate to the ProgramFiles/Afreet/CWSkimmer folder using file manager.

Down load and install the latest version of CwSkimmer into the default directory. This should be V1.8.3.350 or later.

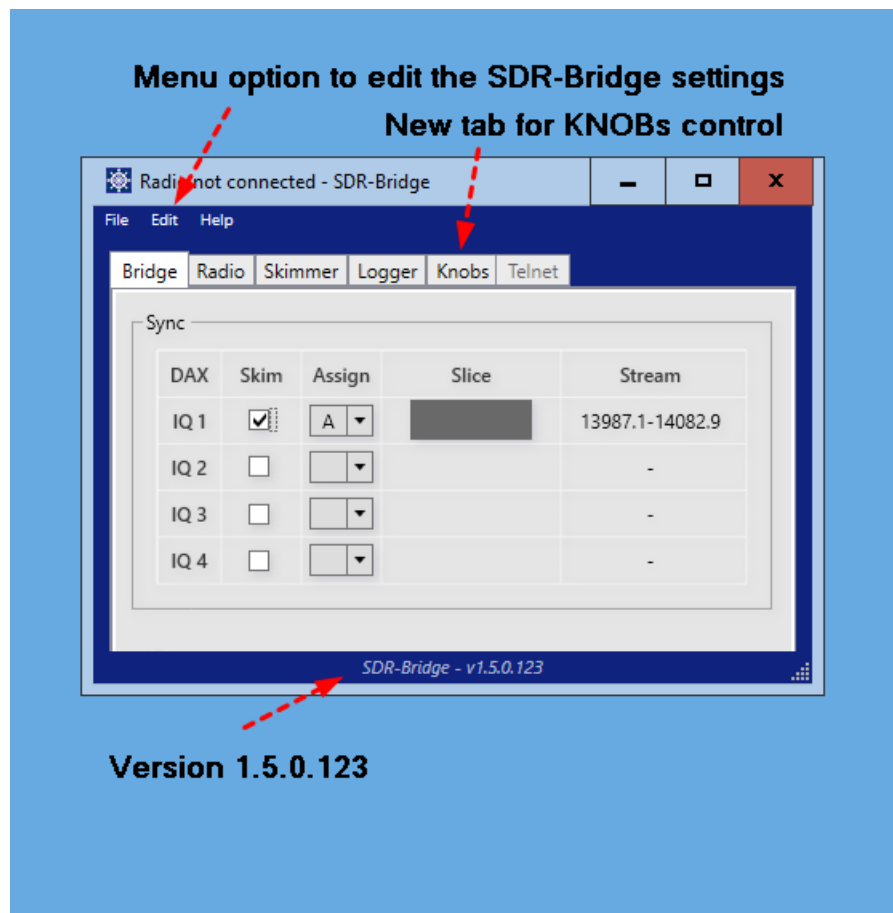
<http://www.dxatlas.com/CwSkimmer/>



SDR-Bridge

Down load and install SDR-Bridge from:

<http://www.qrv.com/sdrbridge.html>



Note: The **Telnet port in CW Skimmer** must match the port shown here. For example IQ1 is 7310. See the CW Skimmer telnet port setup later in the document.

If you need to reset the values in this screen to the defaults, the process is described in the troubleshooting section.

The screenshot shows the 'SDR-Bridge Settings' window. At the top, there are two checkboxes: 'Feature set: ☒ Full' and '☒ Always on top'. Below this is a section titled 'Skimmer assignment' which contains a table with four columns: 'DAX', 'Host', 'Port', and 'Call'. The table lists four entries: IQ 1, IQ 2, IQ 3, and IQ 4. Each entry has a corresponding 'Path' field below it. The 'Host' column for all entries is 'localhost'. The 'Port' column values are 7310, 7320, 7330, and 7340 respectively. The 'Call' column values are F1EX, F2EX, F3EX, and F4EX respectively. The 'Path' fields contain the following values: '%allusersprofile%\W2RF\IQ1.ini', '%allusersprofile%\W2RF\IQ2.ini', '%allusersprofile%\W2RF\IQ3.ini', and '%allusersprofile%\W2RF\IQ4.ini'. Below the 'Skimmer assignment' section is a section titled 'App paths' which contains two fields: 'Skimmer:' with the value '%programfiles%\Afreed' and 'WriteLog:' with the value '%programfiles%\WriteLog'.

DAX	Host	Port	Call
IQ 1	localhost	7310	F1EX
IQ 2	localhost	7320	F2EX
IQ 3	localhost	7330	F3EX
IQ 4	localhost	7340	F4EX

Path: %allusersprofile%\W2RF\IQ1.ini

Path: %allusersprofile%\W2RF\IQ2.ini

Path: %allusersprofile%\W2RF\IQ3.ini

Path: %allusersprofile%\W2RF\IQ4.ini

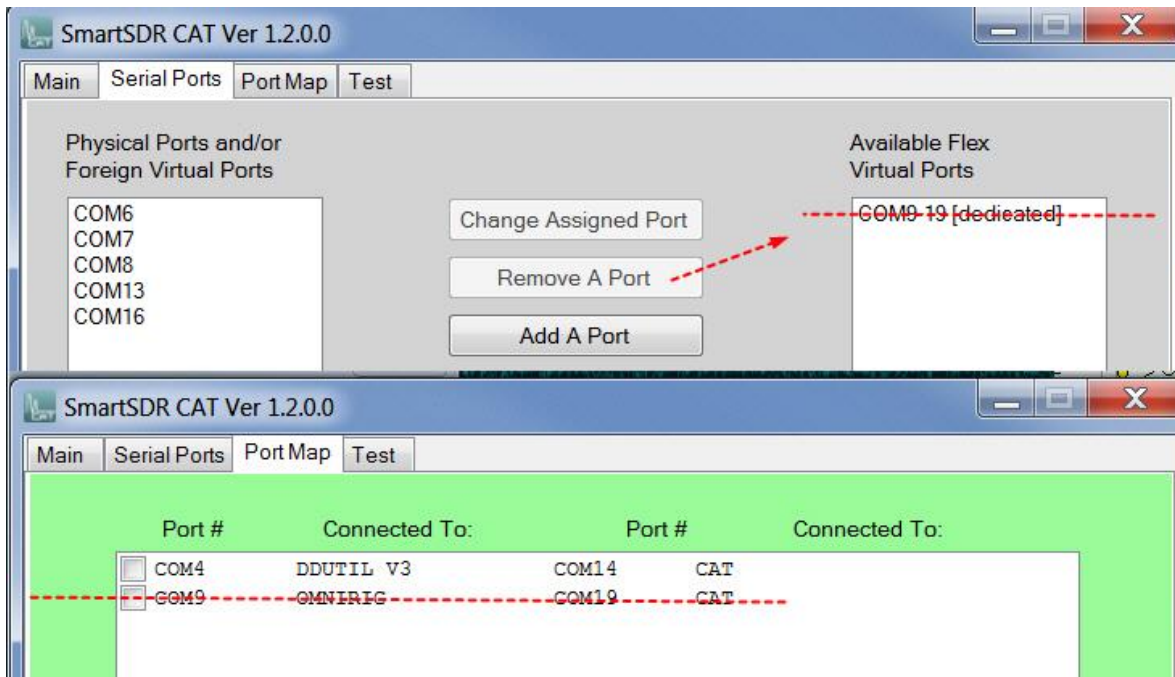
App paths

Skimmer: %programfiles%\Afreed

WriteLog: %programfiles%\WriteLog

SmartCat

SmartCat is **not needed any longer** for CW Skimmer when using SDR-Bridge. If you previously used it before SDR-Bridge, it is no longer necessary to setup a dedicated port for OmniRig. SDR-Bridge connects directly to the radio. If you have a port setup, you can delete it.



SmartSDR

Set the DAXIQ channel.

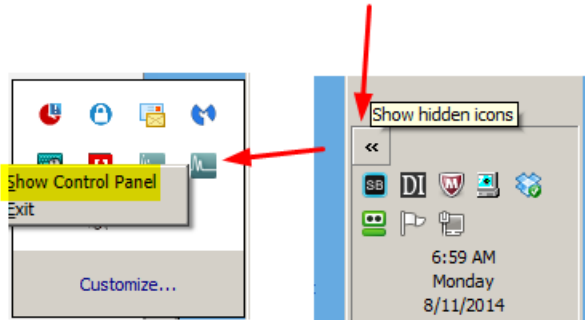
Note: in SDR V1.4 the IQ channel is not persisted. This has been corrected in later versions.



DAX control panel

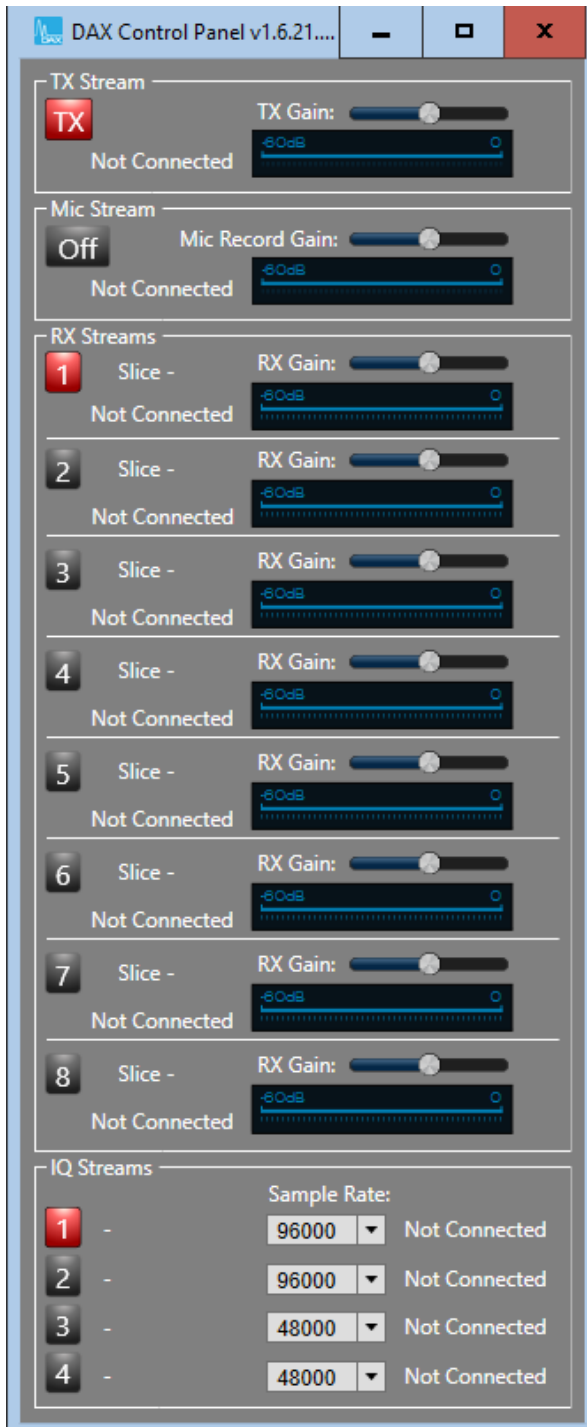
In the older versions of SSDR you may have problems locating the DAX control panel. When running it is minimized with the other Windows icons and it may not even be displayed unless you click on “show hidden icons.” Once you find the DAX icon, right click and select “show control panel” to bring it up.

Find the DAX icon and RIGHT click



This has been corrected in later versions of SSDR.

The control panel should look like this:

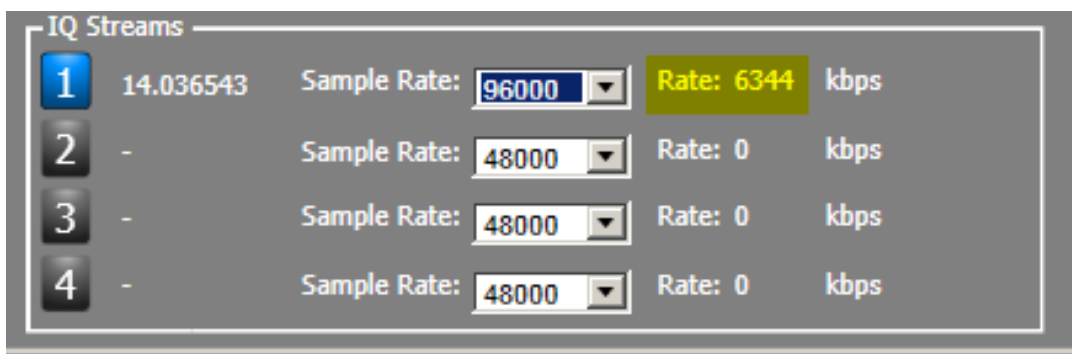


The only DAX setup needed for CW Skimmer is the IQ stream. To enable the DAXIQ channel, click the button for the channel you are using to **ENABLE** the channel, it should turn **BLUE**. Set the Sample rate to 96000. Note: in older versions of SDR the rate is not persisted.

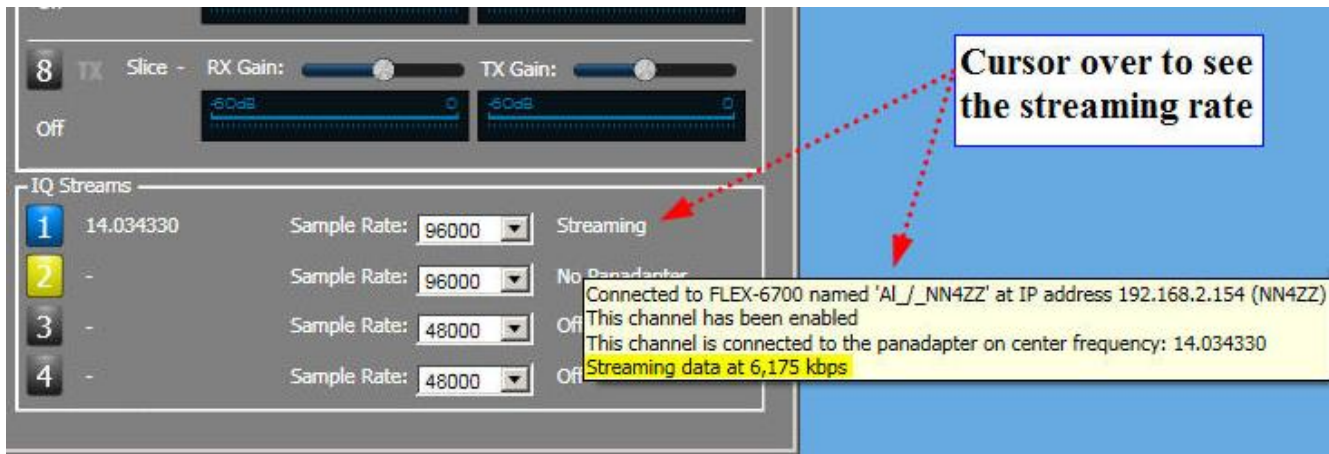
Note about the **FREQUENCY** displayed in the DAX control panel. It is the **center frequency of the PANADAPTER**, **not** the frequency of the slice receiver.



Note: Rate should display a value when running.....

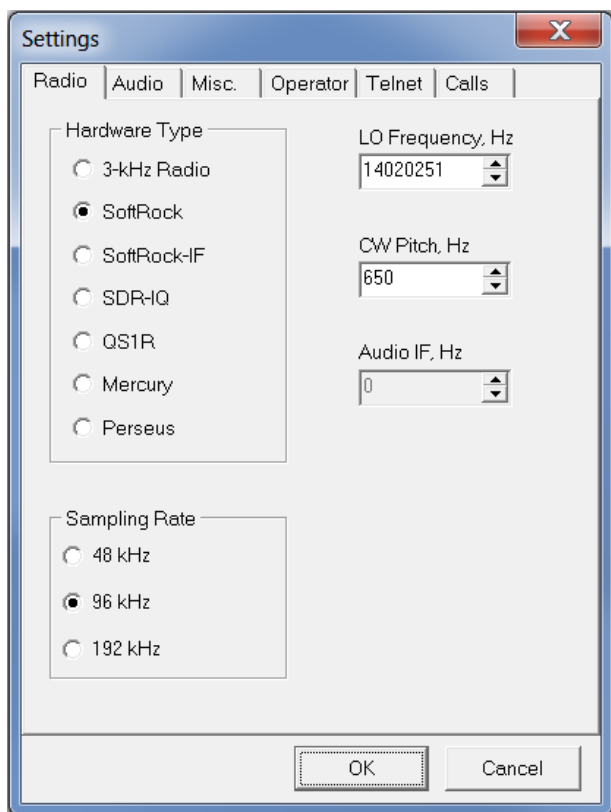


Starting in DAX V1.4 the RATE:value is replace with the word “Streaming” when running. You can see the rate by hovering the cursor.

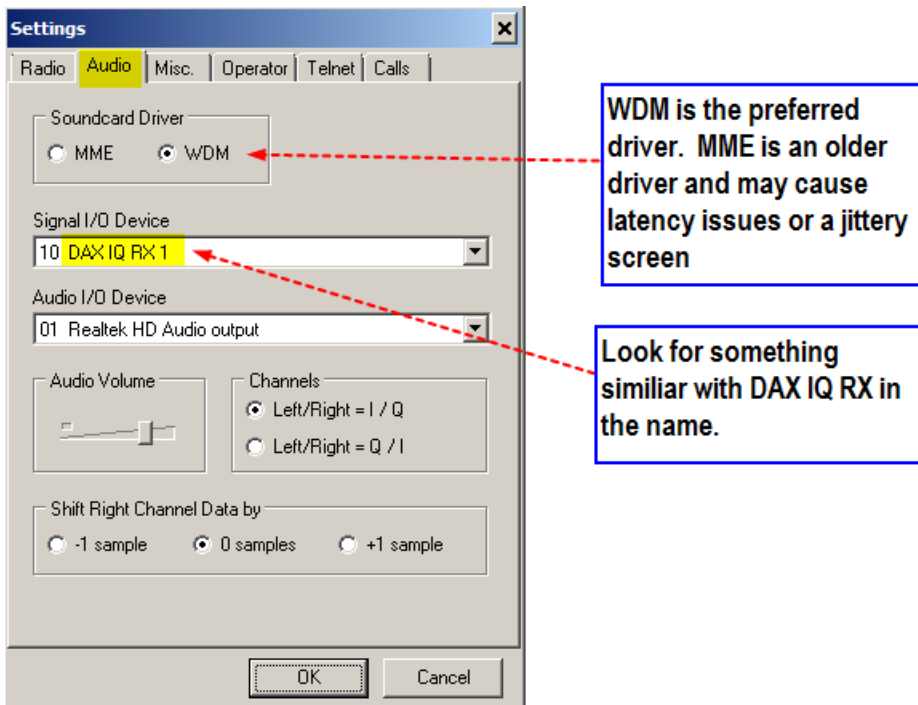


CW Skimmer Setup

Radio – SoftRock, Sampling 96KHZ, CW Pitch to match SmartSDR

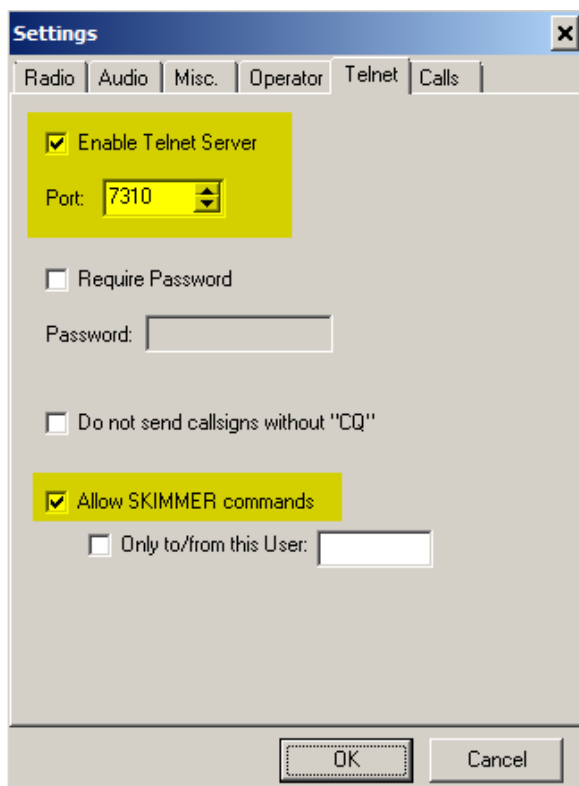


Audio settings – your DAX IQ device may be named slightly different.



Note: Do NOT set the Audio I/O device to the same device as the Signal I/O device. This will cause issues. It should be set to one of your PC audio playback devices.

Telnet screen



The image shows a 'Settings' dialog box with a blue title bar and a close button (X) in the top right corner. The dialog has several tabs: 'Radio', 'Audio', 'Misc.', 'Operator', 'Telnet', and 'Calls'. The 'Telnet' tab is currently selected. The main area of the dialog is light gray. It contains several settings:

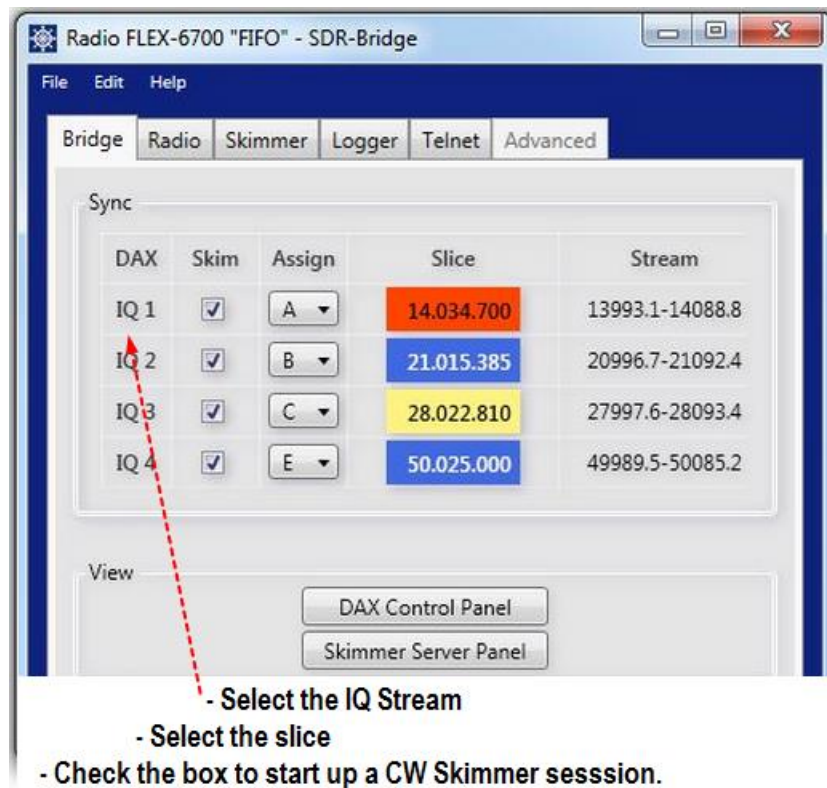
- ☒ Enable Telnet Server
- Port: 7310 (with a spin button)
- ☐ Require Password
- Password: (empty text field)
- ☐ Do not send callsigns without "CQ"
- ☒ Allow SKIMMER commands
- ☐ Only to/from this User: (empty text field)

At the bottom of the dialog are two buttons: 'OK' and 'Cancel'.

Using SDR-Bridge

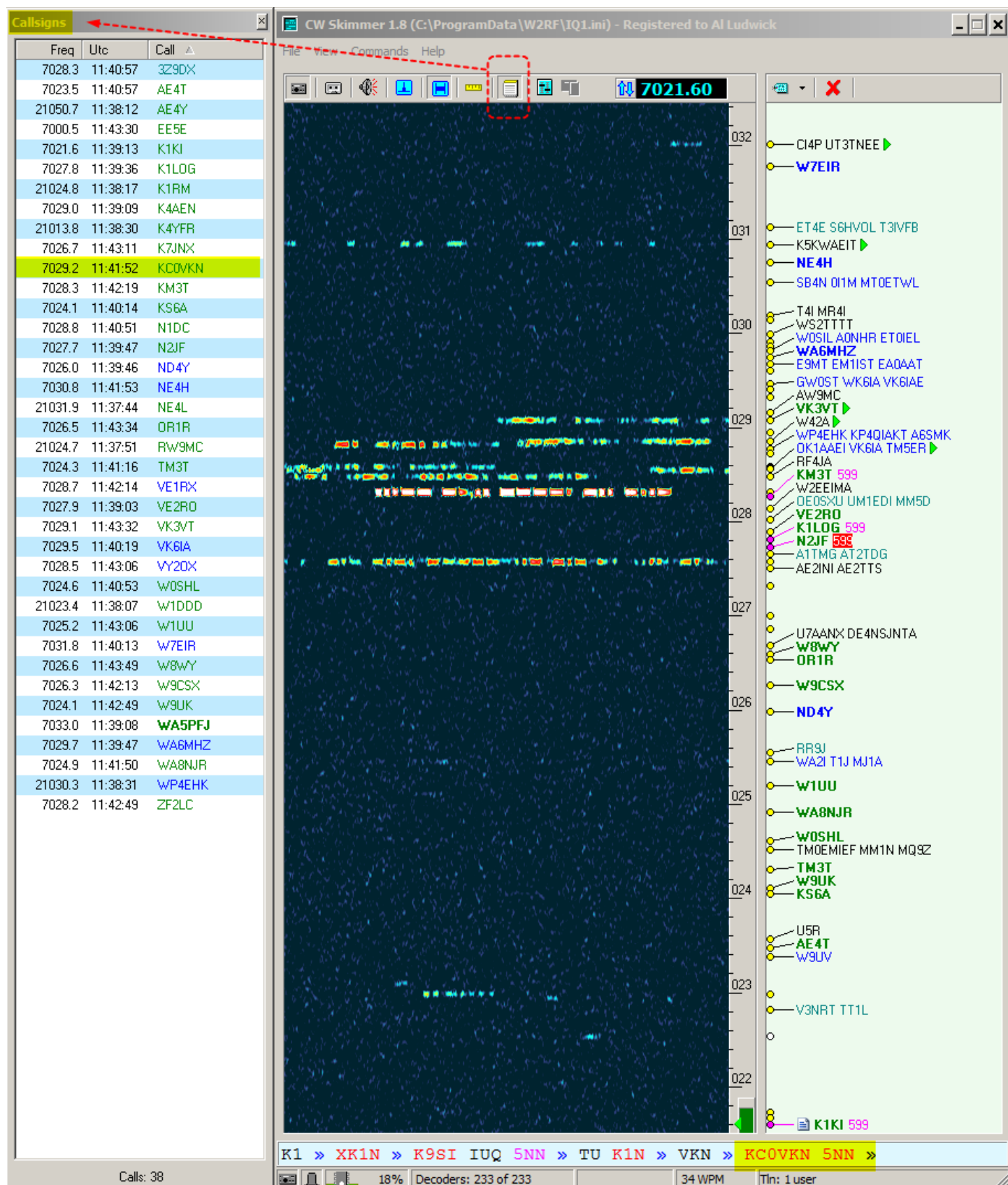
Snapshot shows 4 CW skimmers set up. Start your testing with just one.

Select IQ1, select a slice (e.g. Slice A), check the SKIM box to start up a skimmer session.



NOTE: There are options on the Radio and Skimmer tabs that affect how the program operates. Also starting V1.1.1 there are options you can set by RIGHT clicking on the frequency. To get started you can just use the defaults. Review the official SDR-Bridge documentation to see what works best for the way you operate.

CW Skimmer screen during K1N DXpedition.

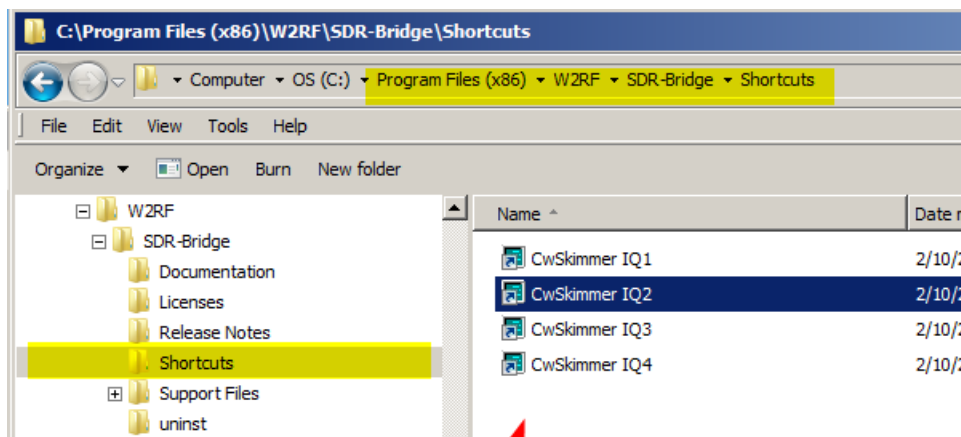


Troubleshooting notes:

- Verify the versions of SDR-Bridge, CW Skimmer, and DAX control panel. It is easy to get an older copy loaded that will probably not work. It's also easy to launch an older copy since you may have multiple versions on your PC. Reminder, once V1.5 of SmartSDR is released the older versions of SDR-Bridge will not work, be sure you have the latest version of SDR-Bridge running.
- The DAX control panel settings can be flaky. You may have to un-click and re-click the IQ Stream BLUE button to get data flowing. If there is no data being sent to CW Skimmer, the DAX control panel is the first place to look. The "signal device" in the CW Skimmer Audio tab is another place to check. The source should say DAX IQ RX1 or similar.
- Sometimes the CW Skimmer instance needs to be manually closed and re-opened to start working. It may even be hard to close (give errors) and have to be stopped with the task manager. Usually after closing the skimmer it will start up normally from the check box in SDR-Bridge.
- Win 10 users – it has been reported in one case SDR-Bridge and CWS were working fine but stopped transferring IQ data on just one of the IQ channels. After much checking no cause was found but a PC reboot corrected the issue.

- Sometimes CW Skimmer will not start from the check box in SSDR. Or the skimmer may come up with a black screen or otherwise error out. In this case you can manually start one (or more instances) of CW Skimmer before launching SDR-Bridge by using one of the shortcuts provided here:

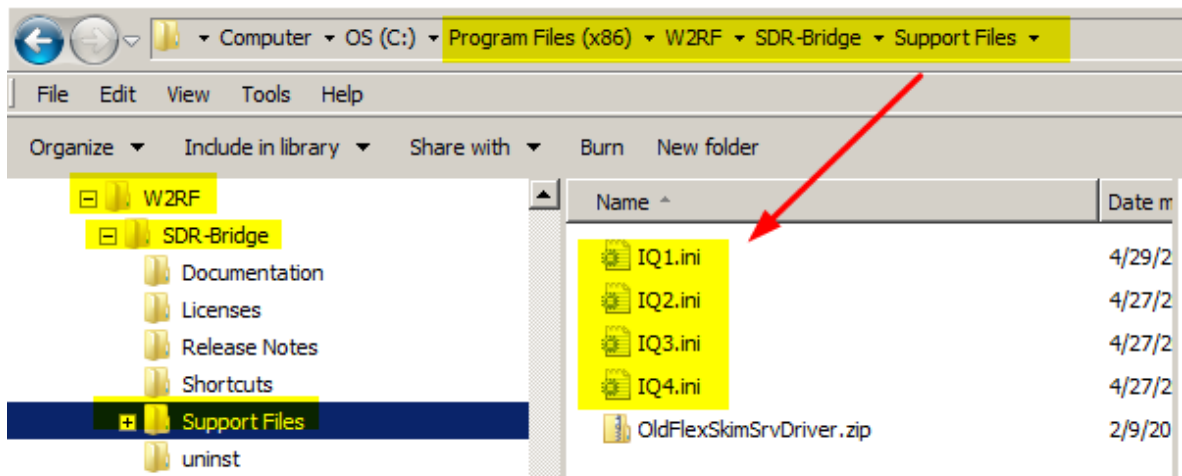
By using one of the shortcuts Ed provides it will start up using the correct IQx.ini file. Here is where they are located. You can copy and paste them to the desktop for quick access.



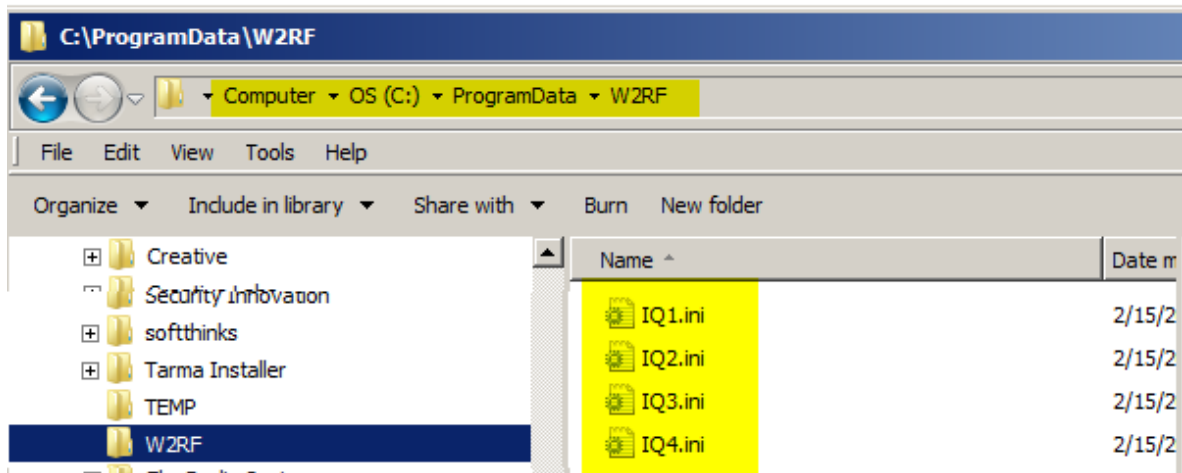
You can use these shortcuts to start up copies CW Skimmer even before starting SDR-Bridge if CW Skimmer instance won't start from SDR-Bridge.

- If skimmer is up but not displaying the calls and other data, be sure to check the TELNET settings tab on CW Skimmer. Be sure they match the telnet settings in SDR-Bridge. Also check program versions.
- If the SDR-Bridge settings are wrong, or get set wrong, you can reset them to the defaults by doing the following. **To restore default settings, delete the contents of [user]\appdata\local\w2rf.**

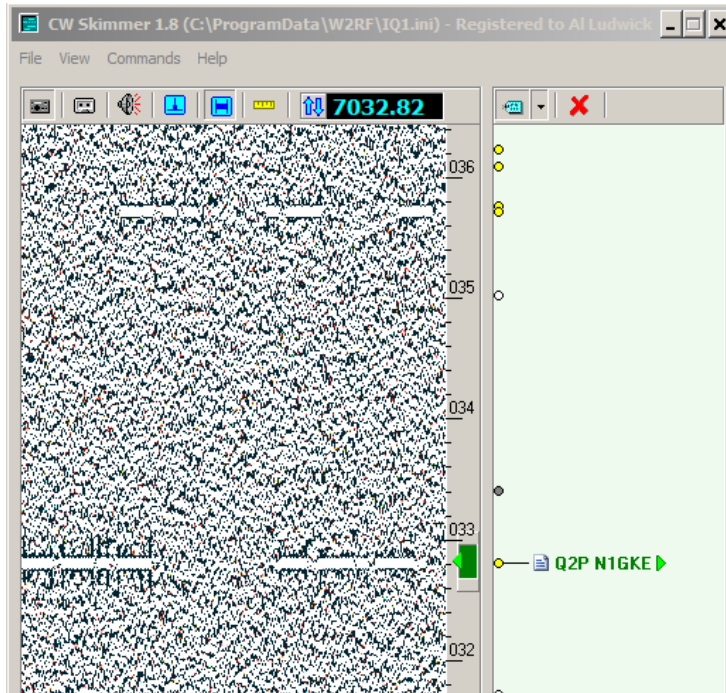
- If the skimmer frequency is slightly off from the slice receiver, check to see if your CW Skimmer CW Pitch matches the pitch setting in SmartSDR. Be aware that Skimmer currently may be off a bit due to the granularity for synching. This will be corrected in a future version of CW Skimmer.
- Sometime the Skimmer does not display the same frequency data as your slice receiver. You can often re-synch them by shaking the slice receiver. (click and hold in the panadapter and move side to side)
- Sometime the Skimmer .ini file get corrupted by changing settings. If you suspect this is the problem you can overwrite them with a fresh copy the Ed provides. See the snapshot below to show where to get the fresh copy and where to paste it to overwrite the corrupted copy.



Copy to the "program data" folder.

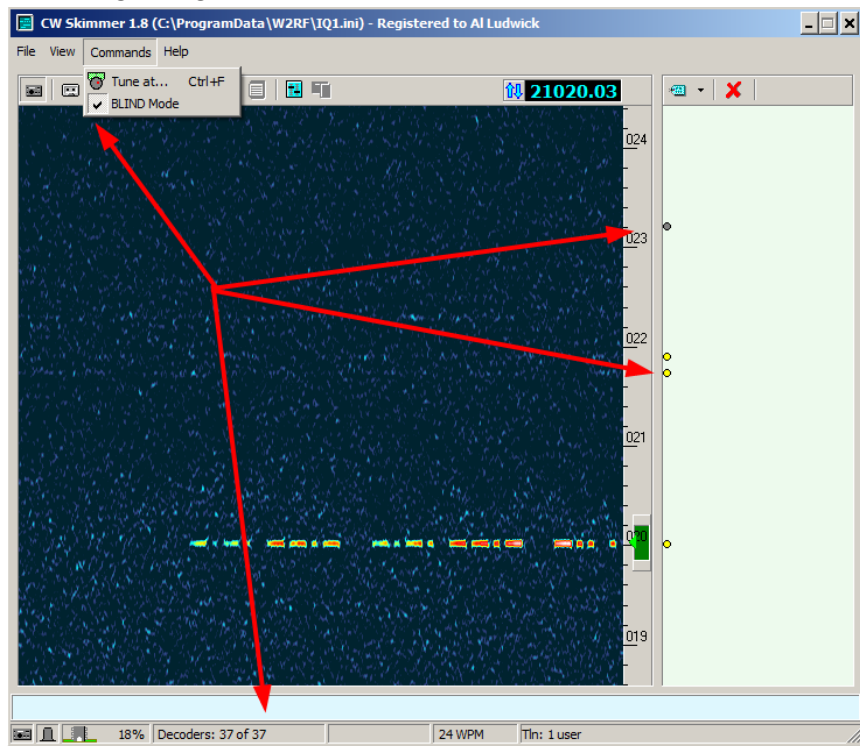


- If CW Skimmer is displaying but it looks bad, check to verify that the sample rate in the DAX Control panel isn't set to 48,000.

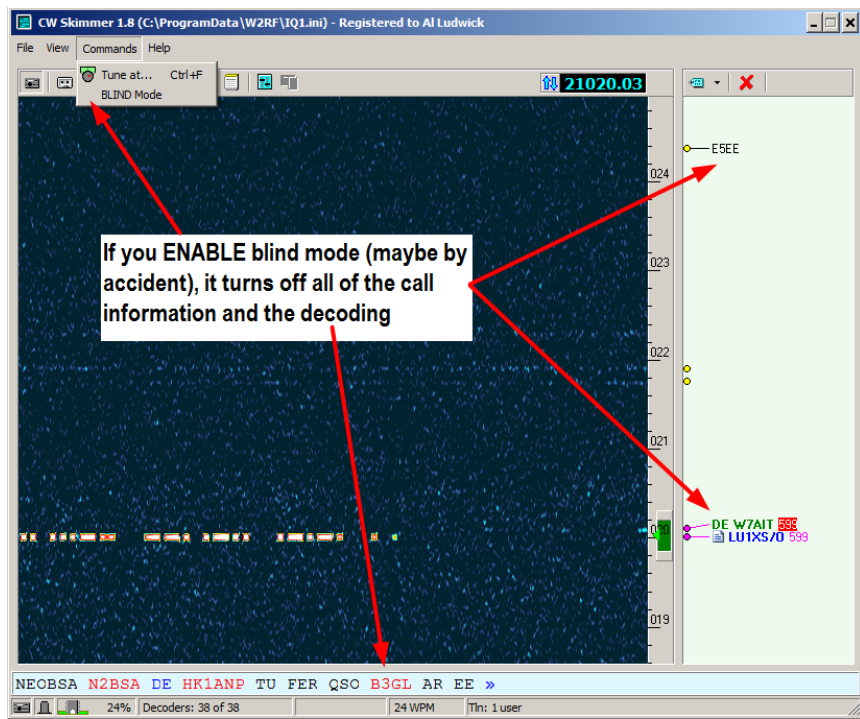


- If your CW Skimmer screen doesn't show the call information or decoded text you may have accidentally ENABLED BLIND mode. You will see the frequency displayed, the code steam, and the "dots" but NO text.

BLIND MODE = ON

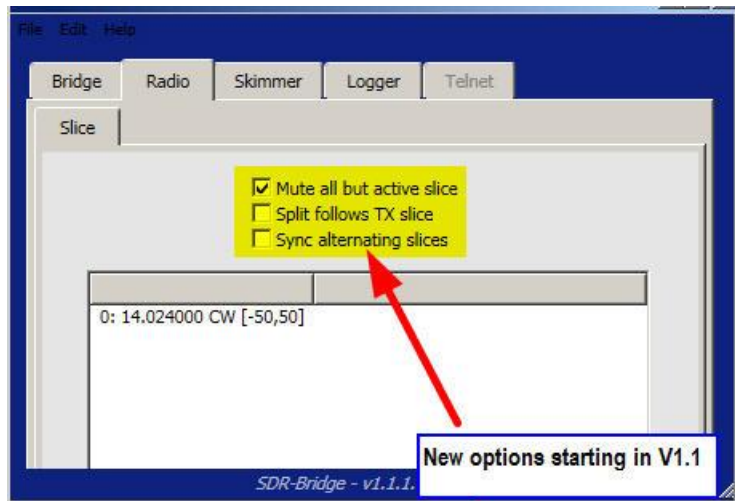


BLIND MODE = OFF

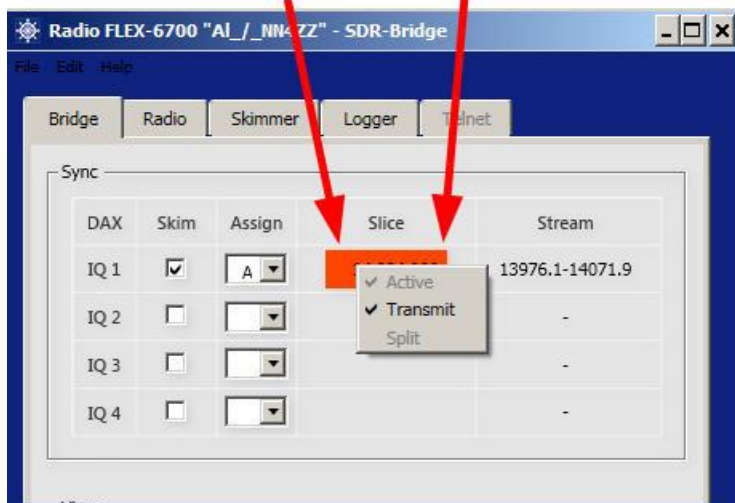


- There are some new options for working split on SDR-Bridge starting in V1.1.1. If you notice some things like muting or TX Active working differently, take a look at the new options to see if you need to make changes for your operating style.

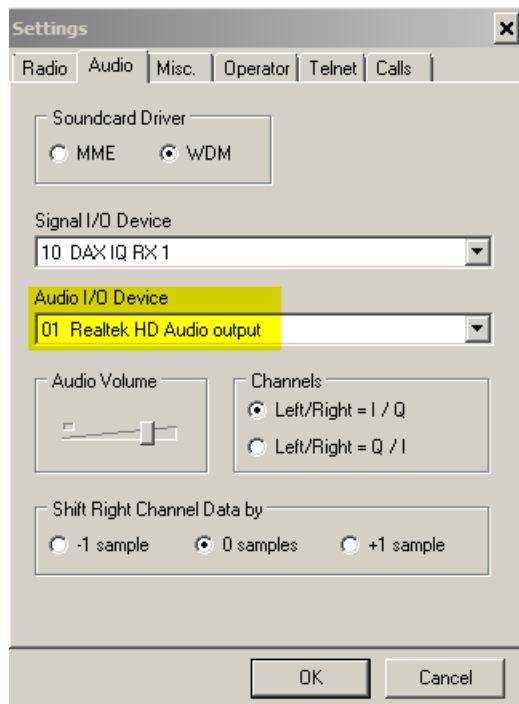
The changes are on the BRIDGE tab and the RADIO tab.



Right click on Frequency to bring these options up



- When CW Skimmer starts up you get this continuously repeating error: **Output sample rate out of range.** Check the CW Skimmer **Audio I/O Device** on the Audio tab of the CW Skimmer settings. It should **NOT** be set to the same device as listed in the **Signal I/O Device**. Typically it is set to your audio output device but you may have to try some other settings.



- Several users of CW Skimmer have reported that the following error message appears on program startup:

"Access violation at address 00404DD3 in module CwSkimmer.exe. Read of address 00000000."

The error occurs only on those systems where the Skimmer was installed using a regular user account on Windows, with standard privileges. The installer has to put some executable files in the Program Files folder, and some data files in the user data folder. Since the regular users are not allowed to write to Program Files, the installer runs as Administrator. As a result, the data files are placed in the administrator's data folder, not in the user's folder. This is how MS designed their security system, and this cannot be bypassed.

To fix the problem, log in as Administrator and copy the data files from admin's folder to your user's folder. For example, if your admin name is AlexAdmin, and your regular user name is AlexUser, then you copy all files from this directory

C:\Users\AlexAdmin\AppData\Roaming\Afrete\Reference

to this one:

C:\Users\AlexUser\AppData\Roaming\Afrete\Reference

Reverse Beacon Network – works with SDR-Bridge

If you aren't familiar with the Reverse Beacon Network see the link on the next page for a short history.

The aggregator software

This software receives spots from CW Skimmer or Skimmer Server's telnet port, and sends the spots to the Reverse Beacon Network.

[rbn aggregator v3.0.exe](#)

Microsoft .NET framework version 4 must be installed

For more information about using the RBN aggregator, please read:

[Using Aggregator 10.pdf](#)

The following notes provided by Tom WQ5O and he reports that it is working fine.

- Load the SDR-Bridge first, and setup 4 slices. Then started the aggregator. In the Secondary Skimmer box in the aggregator insure the ports in the aggregator match the ports for the different slices in Bridge. Click "connect skimmer" for each slice and it will connect. The primary skimmer also connected when I started aggregator.
- You have to check the DAX control panel to insure you're running 96K for the IQs. A - 96K, IQ1; B - 96K, IQ2, etc.
- There is a place in the aggregator to add your call sign for each skimmer so that it'll show correctly in the RBnetwork. It also seems to adjust the frequency offset automatically when you get the entire thing set up.

It's not hard to set up but there are several steps that you have to make sure are correct or the skimmers won't display the correct info. The DAX IQs have to match the correct slices in the different skimmers. The DAX IQs have to be set at 96K or the skimmers won't display the correct info.

They SDR-Bridge and Reverse Beacon Aggregator work well together from what I see. I had 4 skimmers running yesterday most of the day and they produced a lot of traffic for the RBN.

Here is a screen shot of the RBN and some additional information on the RBN

Click link for the WELCOME page of the Reverse Beacon Network

<http://www.reversebeacon.net/index.php>

Click link for a short history of the Reverse Beacon Network.

<http://www.reversebeacon.net/pages/A+Short+History+12>

Typical DX screen with a filter applied for the recent K1N DXpedition.

REVERSE BEACON NETWORK

welcome | main | dx spots | nodes | downloads | about | contact us

[show/hide my last filters](#)

showing spots for DX call: K1N

search spot by callsign

rows to show: 100 ▼

de	dx	freq	cq/dx	snr	speed	time
W3OA	K1N	14023.0	CW CQ [LoTW]	7 dB	32 wpm	1911z 09 Feb
W8WWV	K1N	14023.1	CW CQ [LoTW]	32 dB	32 wpm	1911z 09 Feb
K8ND	K1N	14023.1	CW CQ [LoTW]	23 dB	32 wpm	1911z 09 Feb
PJ2T	K1N	14022.9	CW CQ [LoTW]	20 dB	32 wpm	1911z 09 Feb
WA7LNW	K1N	14023.0	CW CQ [LoTW]	14 dB	31 wpm	1911z 09 Feb

options:
[show/hide](#)

K1N frequencies on last 15 minutes:
20m: 14023 - 39 spots
17m: 18070 - 9 spots
12m: 24899 - 9 spots

[Donate](#)

we have 124 skimmers online
skimmers online:
9V1RM -
AA4VV -
40m,17m,12m,20m,15m,30m,10m
AC0C -
BA5CW - 40m
BD7RS -
BG3LPA -