CONNECTING AND USING THE TARC FLEX REMOTE
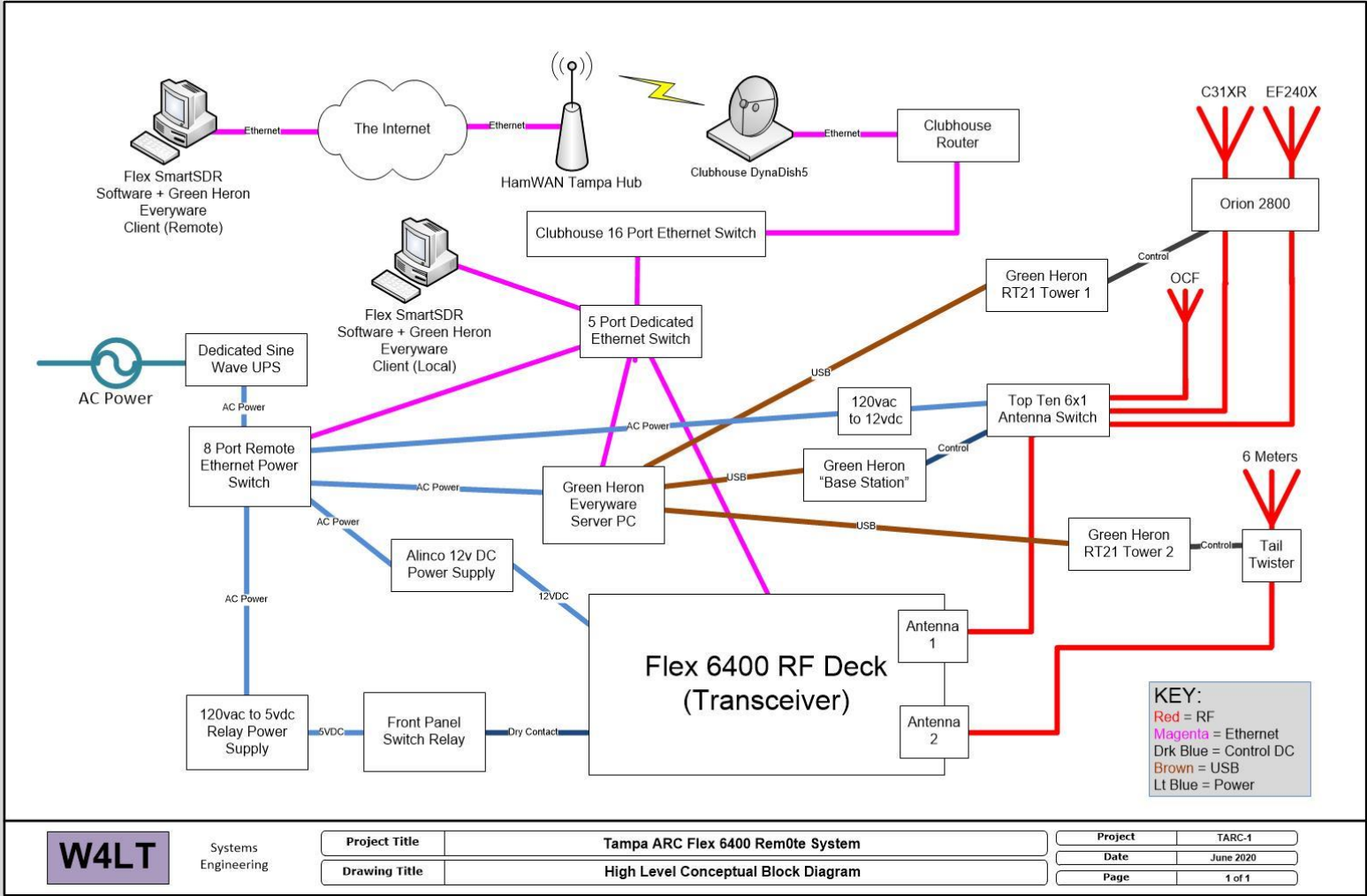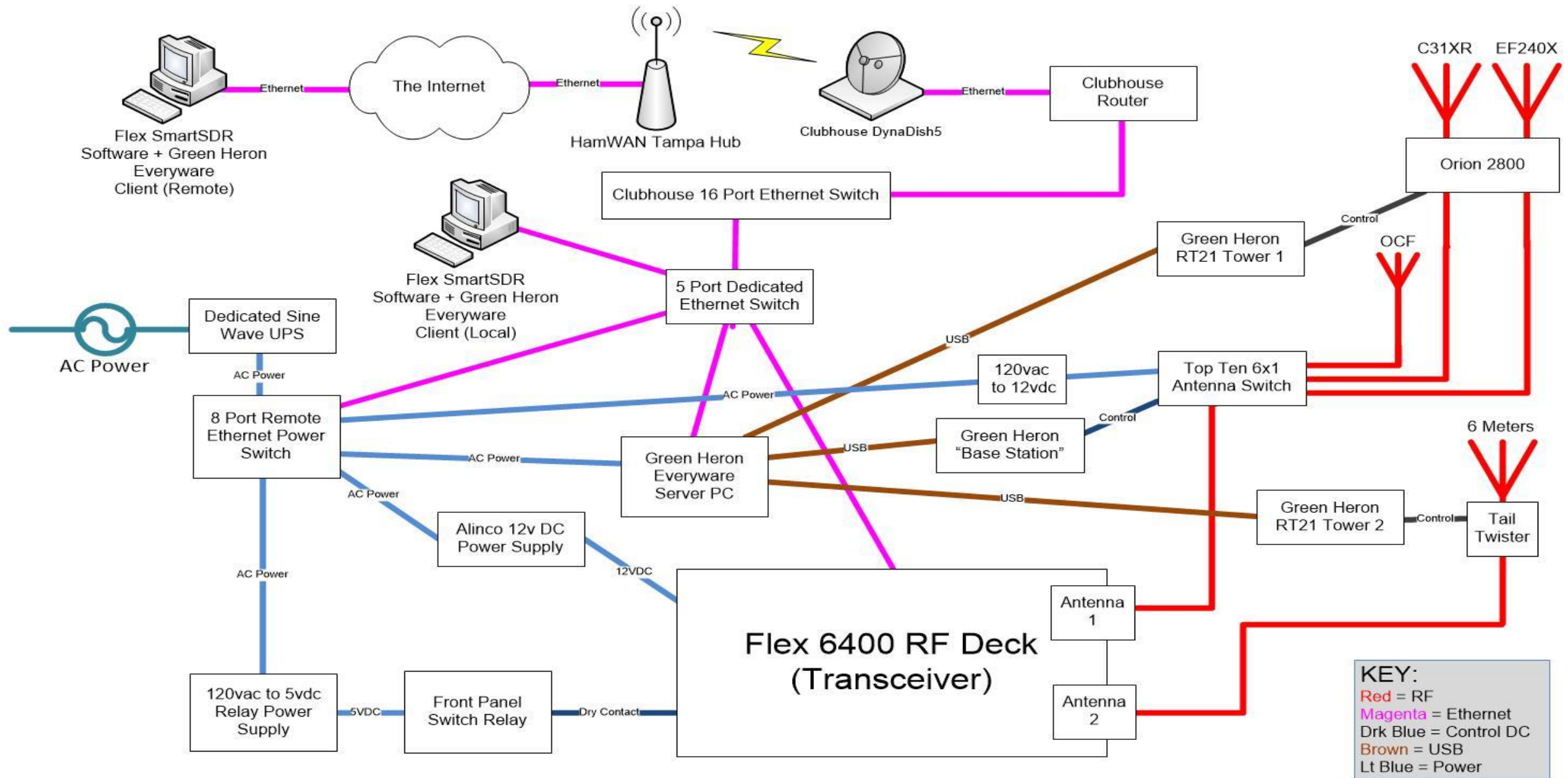
Presented by W4LT

Feb 2021 WCF TechCon

TARC Flex Remote System Architecture

Flex SmartSDR Software + Green Heron Everyware Client (Remote)

The Internet

HamWAN Tampa Hub

Clubhouse DynaDish5

Clubhouse Router

C31XR   EF240X

Clubhouse 16 Port Ethernet Switch

Orion 2800

Green Heron RT21 Tower 1

OCF

Flex SmartSDR Software + Green Heron Everyware Client (Local)

5 Port Dedicated Ethernet Switch

Control

USB

120vac to 12vdc

Top Ten 6x1 Antenna Switch

Dedicated Sine Wave UPS

AC Power

AC Power

8 Port Remote Ethernet Power Switch

AC Power

Green Heron Everyware Server PC

USB

Green Heron "Base Station"

Control

6 Meters

AC Power

Alinco 12v DC Power Supply

USB

Green Heron RT21 Tower 2

Control

Tail Twister

AC Power

12VDC

Flex 6400 RF Deck (Transceiver)

Antenna 1

120vac to 5vdc Relay Power Supply

5VDC

Front Panel Switch Relay

Dry Contact

Antenna 2

KEY:
Red = RF
Magenta = Ethernet
Drk Blue = Control DC
Brown = USB
Lt Blue = Power

W4LT

Systems Engineering

Project Title	Tampa ARC Flex 6400 Rem0te System	Project	TARC-1
Drawing Title	High Level Conceptual Block Diagram	Date	June 2020
		Page	1 of 1

Computer Prerequisites

- IBM PC Compatible with minimum Intel I3 or equivalent (works with 4 Core Atoms, but not efficiently)
  - Minimum broadband internet 10 up/10 down speed
  - Minimum Windows 7 OS 32 or 64 bit
  - Minimum 4GB RAM for best performance
  - Sound card for all modes (so you can hear what you are doing)
  - Headset for SSB (strongly recommend Yamaha CM500 headset)
  - A PTT "dongle" per the KM4SQS design for Foot Switch or Hand Trigger
  - A WinKey if you want to send paddle CW (and serial dongle setup – See RemoteKeyerInterface.io for details)
  - Strongly recommend two monitors, but will work fine with a single monitor too
  - Flex Radio SmartSDR version 3.1.12 or higher (Free to download at Flexradiosystems.com)
  - Green Heron Everyware version 2.7.4 or higher (Free to download at Greenheronengineering.com)
  - Philandro Software AnyDesk version 6.0 or higher (Free to download at Anydesk.com)
  - Web Browser to run SmartLink, the station power switch and Slack for operator coordination messages
  - Patience and understanding

Computer Prerequisites

◦ Apple MacIntosh based PC/iPad/iPhone, minimum V10.0 and above OS

  ◦ Same broadband requirement as with a IBM PC system

  ◦ Sound Card with headset and mic as in PC (Yamaha CM500 recommended)

  ◦ For Mac, CW will be via Flex CWX Keyboard only for now

  ◦ Dogpark "Mac Native" SDR for GUI on MacOS (not free – download at dogparksoftware.com) <mark>OR</mark>

  ◦ SmartSDR for iOS or Mac by DL8MRE (not free – download at ham-radio-apps.com)

  ◦ Philandro Software AnyDesk version 6.0 or higher (Free to download at Anydesk.com)

  ◦ Web Browser to run SmartLink, the station power switch and Slack for operator coordination messages

  ◦ Patience and understanding

  IMPORTANT: Its *really* more convenient to get a decent laptop instead of using your Mac!

Computer Prerequisites

◦ Linux/Unix/Android/everything else

NOT SUPPORTED!

◦ But it is possible to access the system using AnyDesk with any AnyDesk supported OS!

◦ This is still experimental at the TARC facilities. We are working on getting all OS's supported one way or another!

Learning how to operate Flex

○ Watch the following videos:
  ◦ [FLEX 6600M Getting Started with some Basic Controls – FlexRadio](#)
  ◦ [How to use your friends Flex 6000 Series radio -- remotely – YouTube](#)
  ◦ [SmartSDR 101 - The Very Basics – YouTube](#)
  ◦ [SmartSDR WSJTx Setup – YouTube](#)
  ◦ [SmartSDR CAT & DAX - in depth – YouTube](#)
  ◦ And last but not least, this one!
  ◦ [TARCTalks: An Introduction to the Flex 6400 - YouTube](#)

Lets Get Started!

◦ Go to the FlexRadio website and download the following document:

  ◦ SmartLink Quick Start Guide – FlexRadio

  This document gives you background on how SmartLink works. SmartLink is the authentication method we use for you to log in and control the radio.

  DO NOT OPEN YOUR OWN ACCOUNT!!!

  You will be using credentials that the club will supply you to access the rig.

Install SmartSDR and its companions

After you install your downloaded SSDR applications, you will have these three icons on your desktop. Opening SmartSDR will by default automatically open the other two apps. SSDR is what you will use to access the radio, CAT is the radio control ports and DAX is the Digital Audio Transfer software for Flex Systems. Set this aside for now.

Joining SLACK

When you are ready to use the system, join Slack EVERYBODY that uses the remotes and/or the clubhouse SHOULD USE SLACK to tell everybody their intentions to use the radios EVERY TIME! Slack will be used to coordinate users.
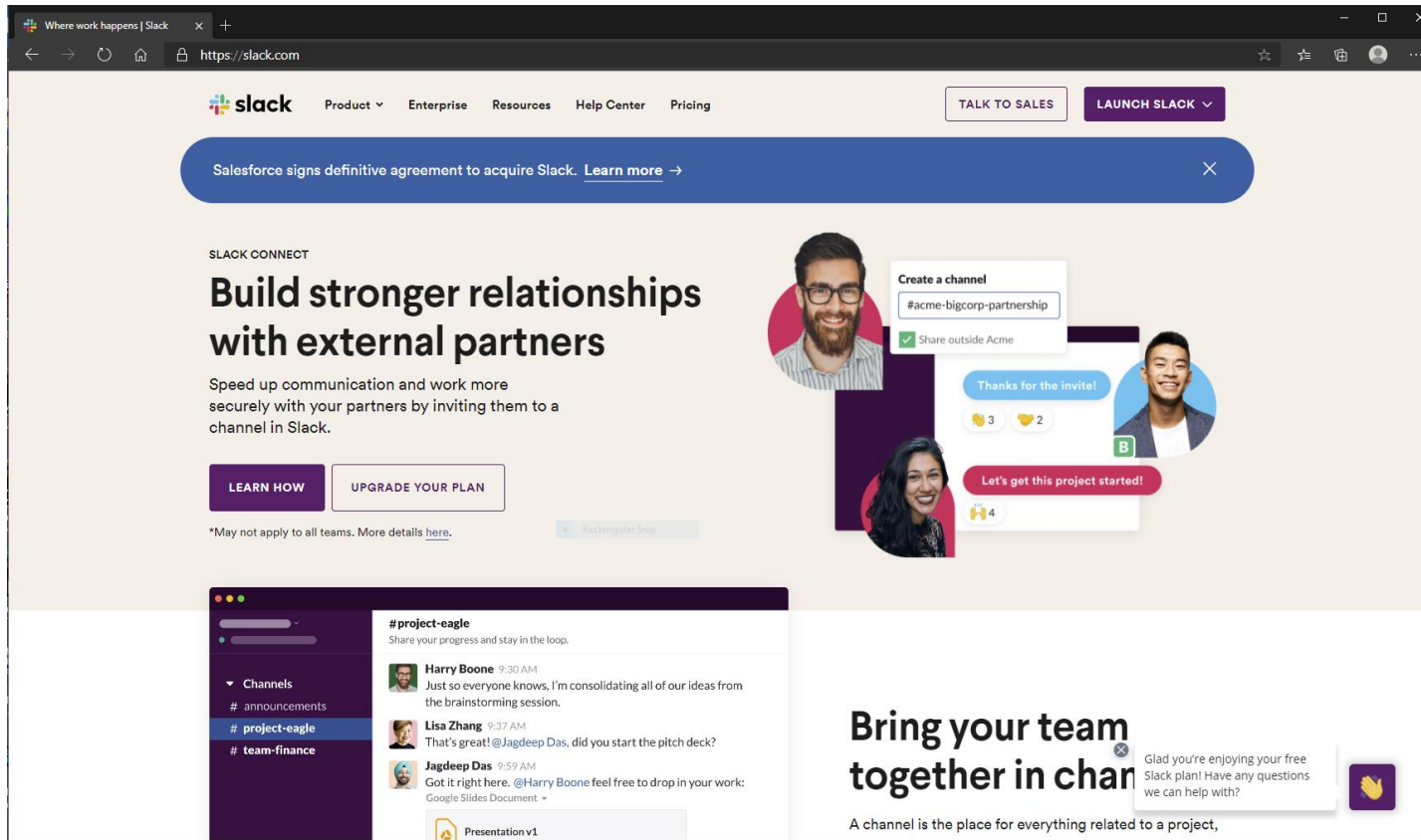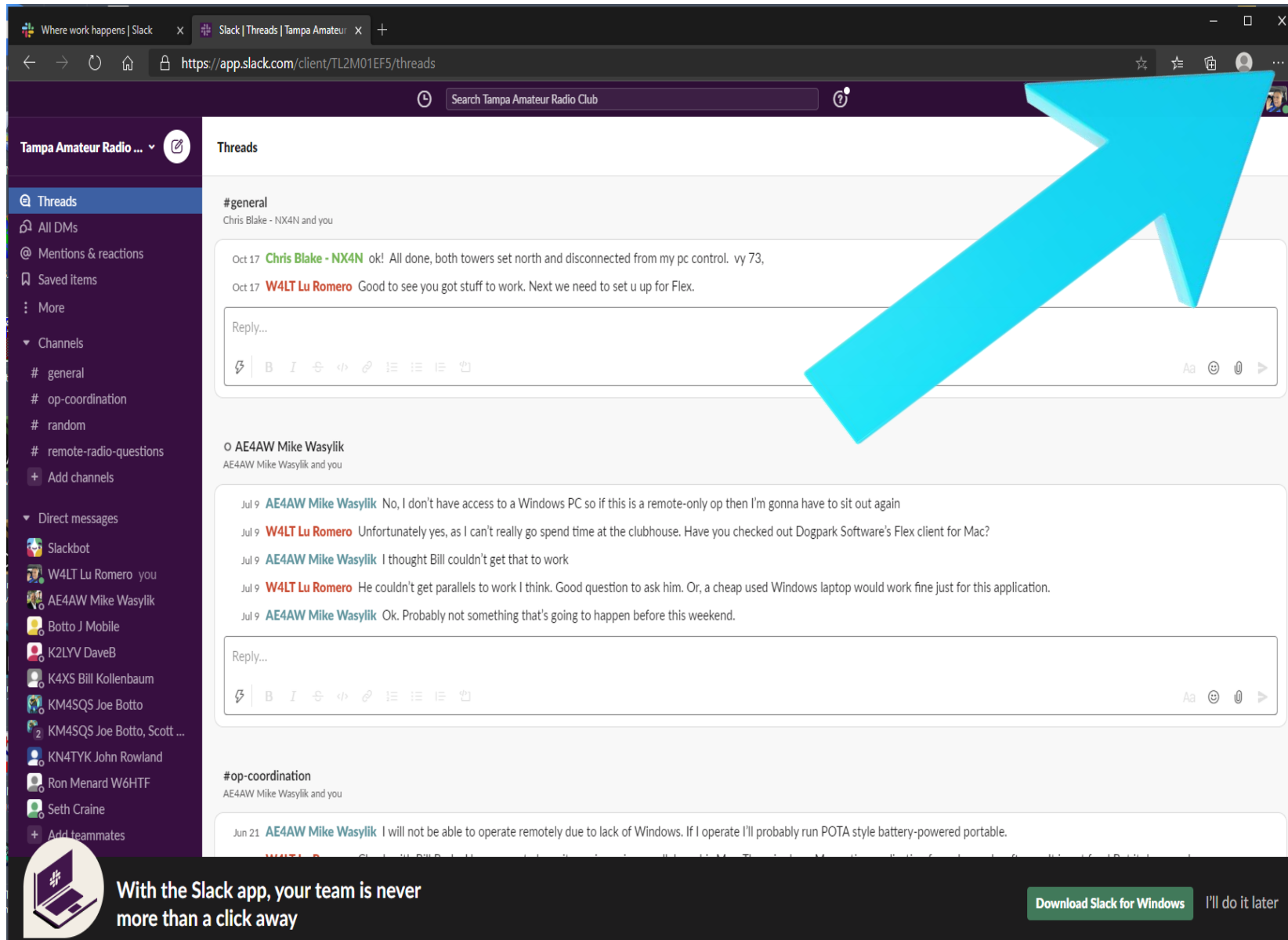
Joining SLACK

When you receive our email, click on the link and you will be taken to Slack.
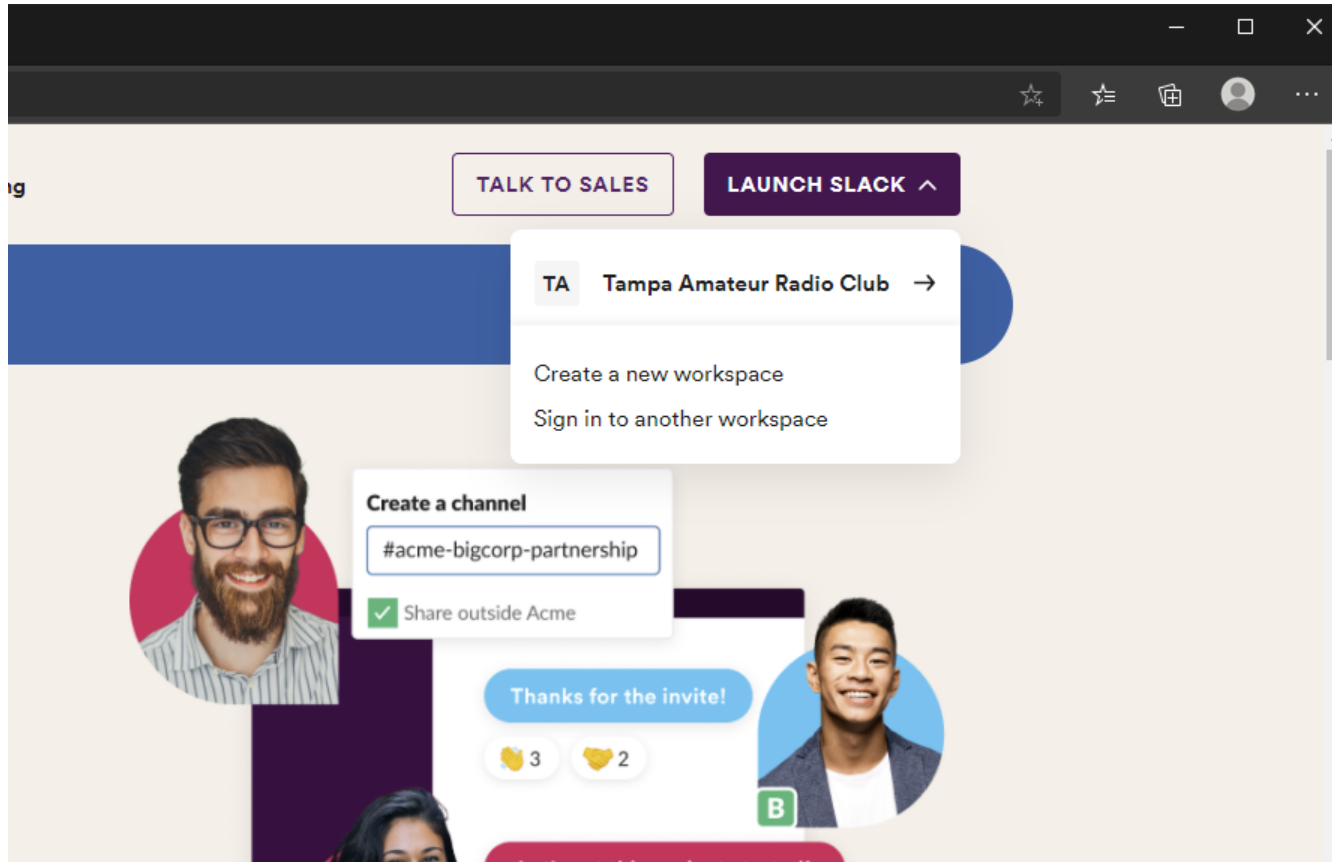
Joining SLACK

When you join, you will be taken directly to our chat room. Or, simply search for the Tampa Amateur Radio Club and you will be taken to our Club Slack page.

Joining SLACK

Our chat room looks like this. Before you do anything, click on the three dots and fill out your profile.

Joining SLACK

Here is the Slack chat page. We use OP COORDINATION for chats among people using the radios AND/OR the clubhouse. The other sections are for questions or other communication. Put Slack aside for now.
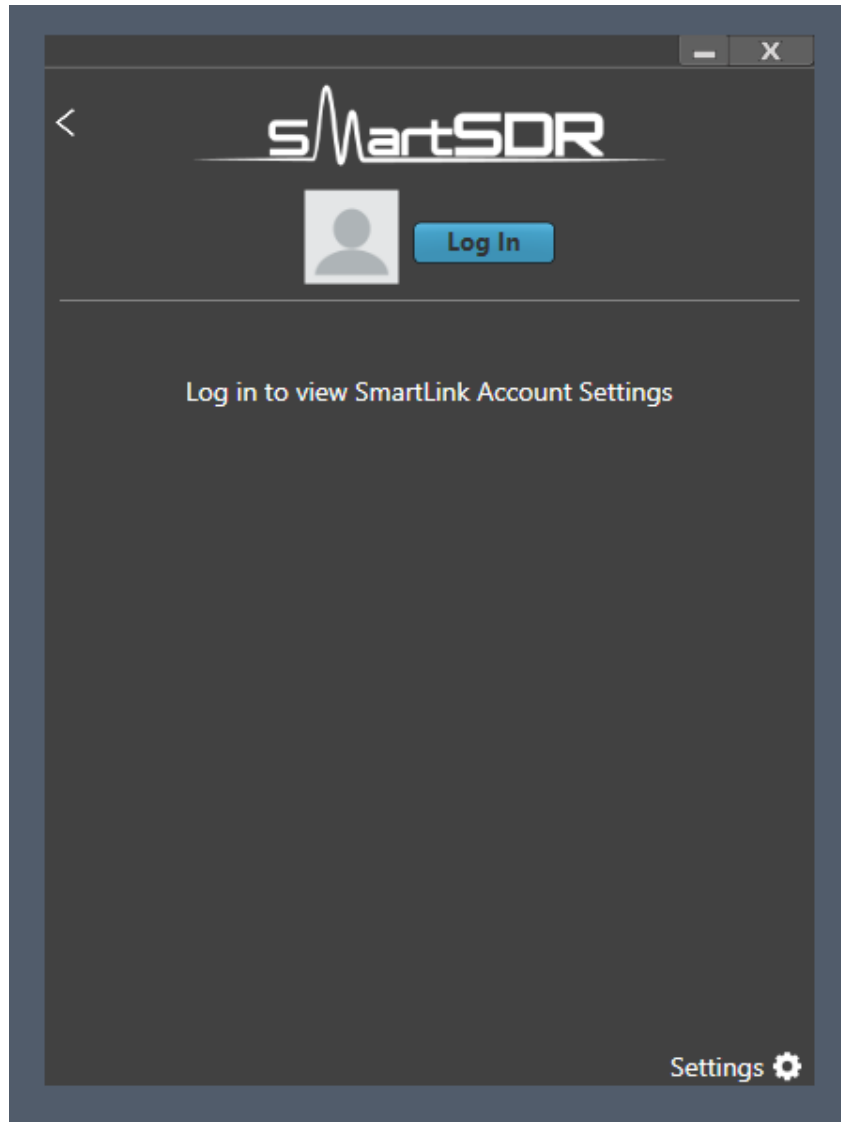
Setting up SmartLink

Go ahead and open SSDR. When you first open this app, you will see this screen. You will only see it once, because once you authenticate into the system, it will remember your settings and automatically log you in (unless you log out). Click on Log In to start the process.
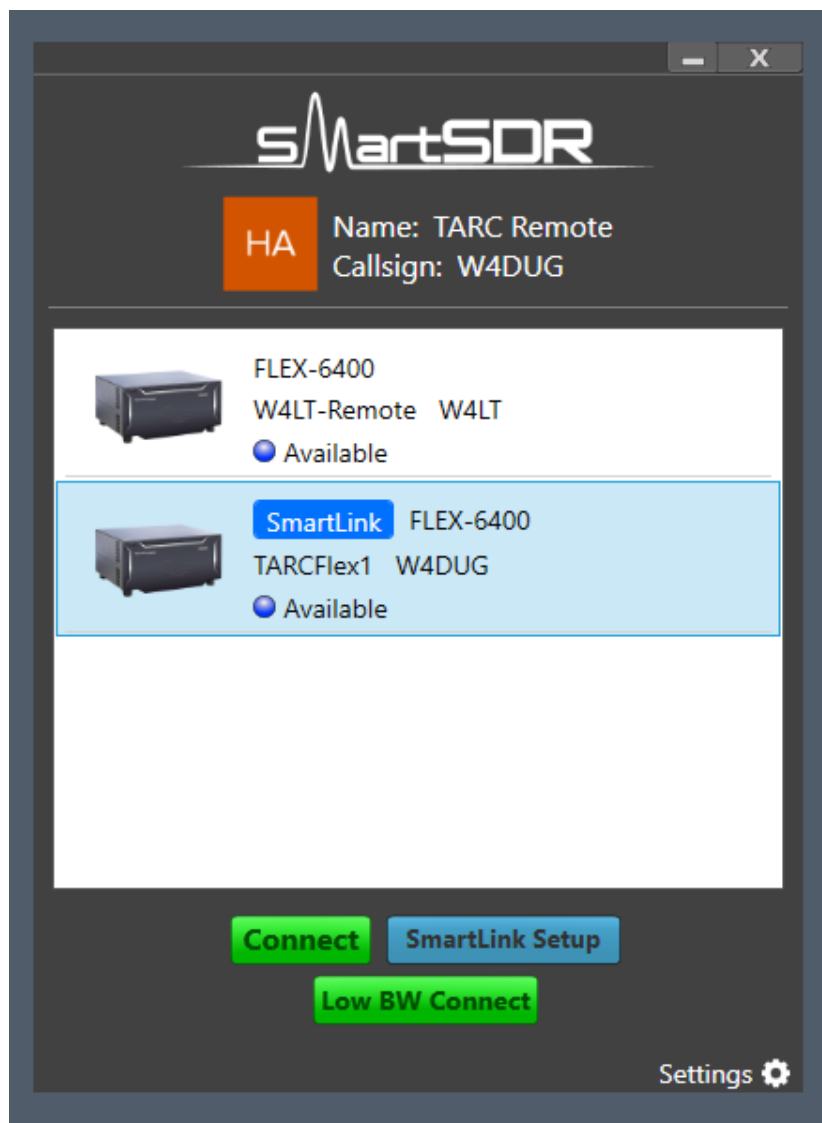
Setting up SmartLink

You will then see this screen. Here you will enter our log in email and password then click on login. DO NOT SHARE THESE CREDENTIALS with anyone Violators will lose system access.

Starting SSDR

Double click on the SSDR icon.

Starting SSDR

You will then see this screen. Any local radio (like mine) will NOT have the blue SmartLink logo. If the radio is in use, you will not see "Available" lit. Highlight the radio you want to use by highlighting it (click on it). Then click on CONNECT (DO NOT click on Low BW Connect). A maximum of two users can log in at one time, only one user can transmit at a time. First log in controls the transmitter.
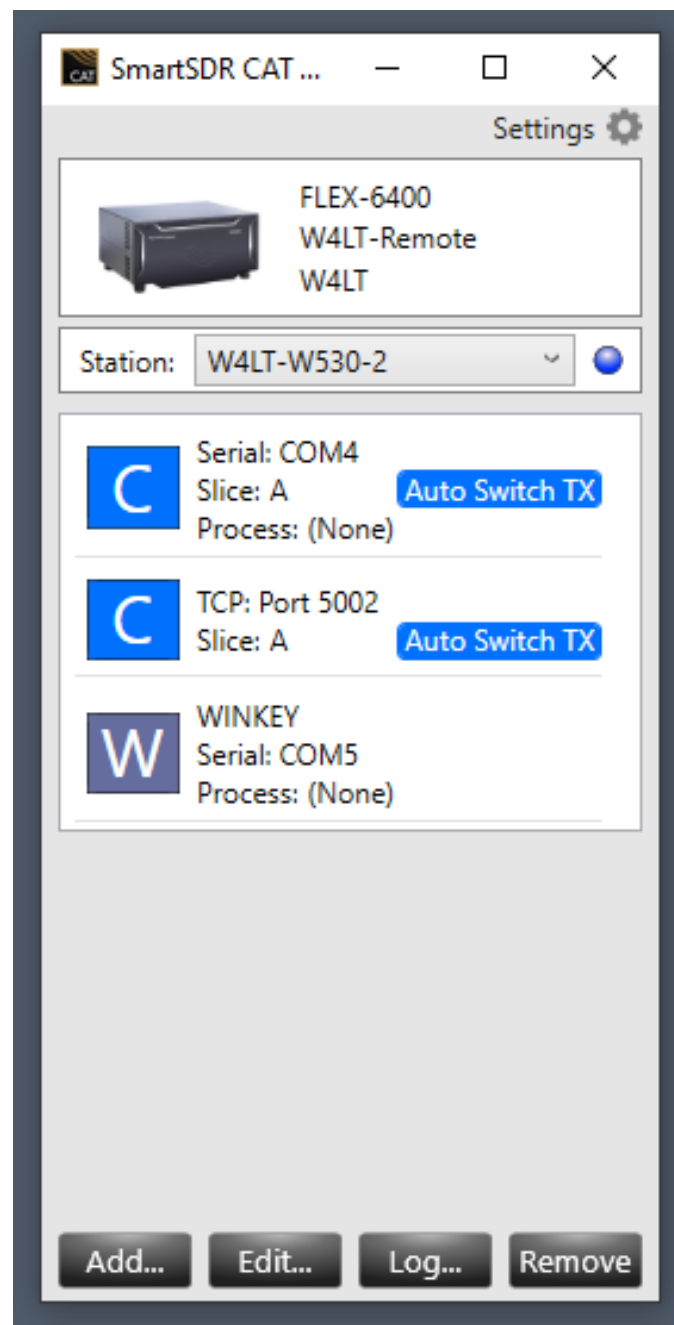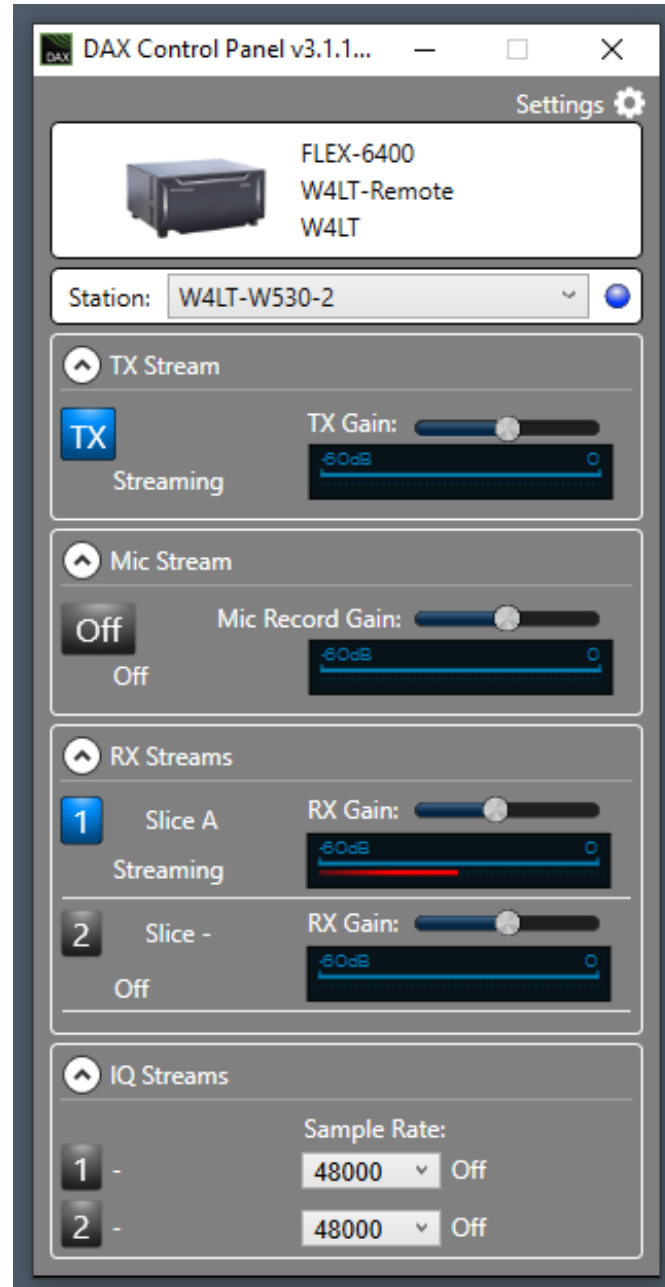
Setting up CAT ports

This is the CAT (Computer rig control) panel. Here you will set up your ports for radio control from your logger and for CW sending within the SSDR program. It creates "virtual ports" to connect the radio to your PC. Watch the recommended video for information on configuration to your particular logger.
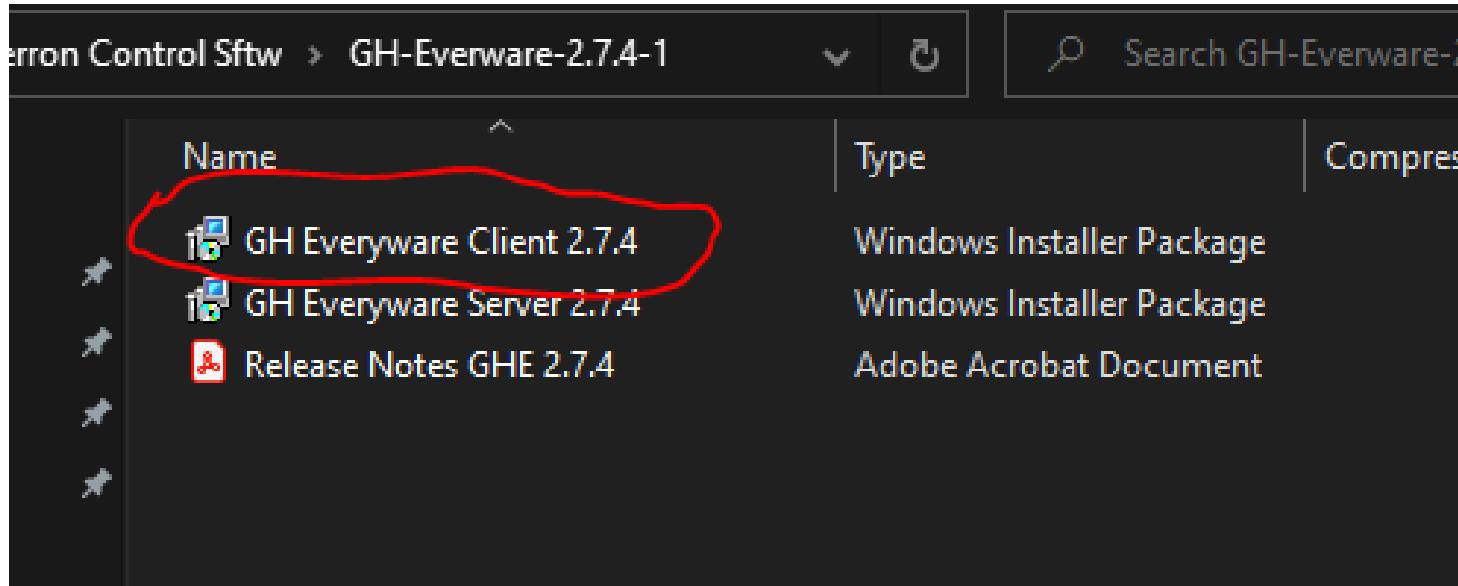
DAX v3.1.12

Setting up DAX Audio system

This is the DAX panel (Digital Audio Transfer). This is where you set up what sound card and "spigot" handles receive and transmit audio, also where the panadaptors can be sent to logging programs. Watch the video to get an understanding of how to set up these options.
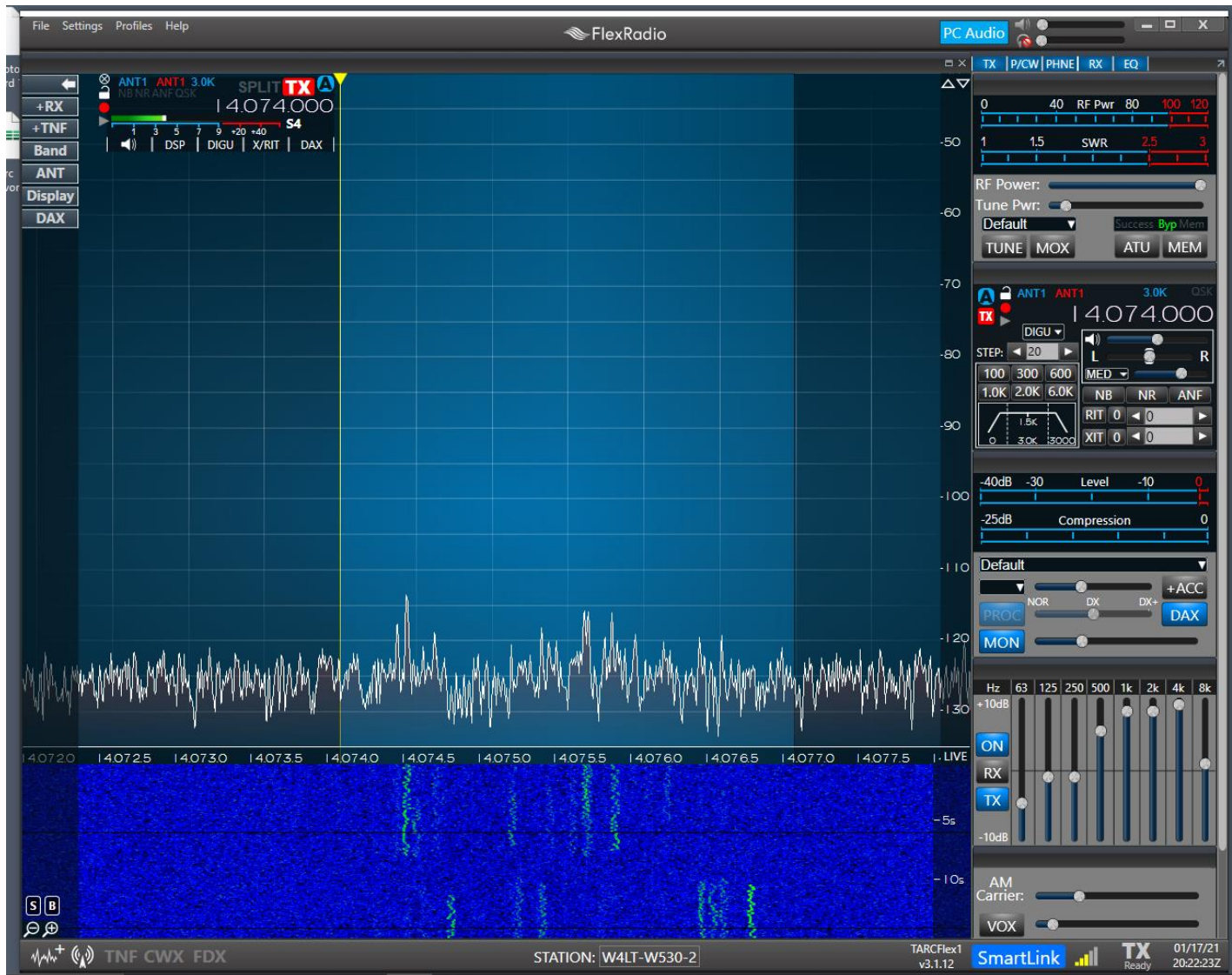
Starting the Radio!

If you set up DAX and CAT to start with SSDR, they will also automatically open in the background SSDR is the radio's "front panel" that runs on your computer. Note that each computer remembers its own settings locally. The screen will look something like this. Close SSDR for now.

Install and Configure Green Heron

Next, you will need to install the Green Heron Everyware client. Open the Zip file you downloaded from the GHE website and install ONLY THE CLIENT, NOT THE SERVER GHE Application!

Install and Configure Green Heron

Once you install this system, you will get two icons on your desktop that look like this one. All you need is on, the second one is a "bonus" (if you run SO2R, you will use it, if not ignore it). Open the GHE application and begin the configuration.
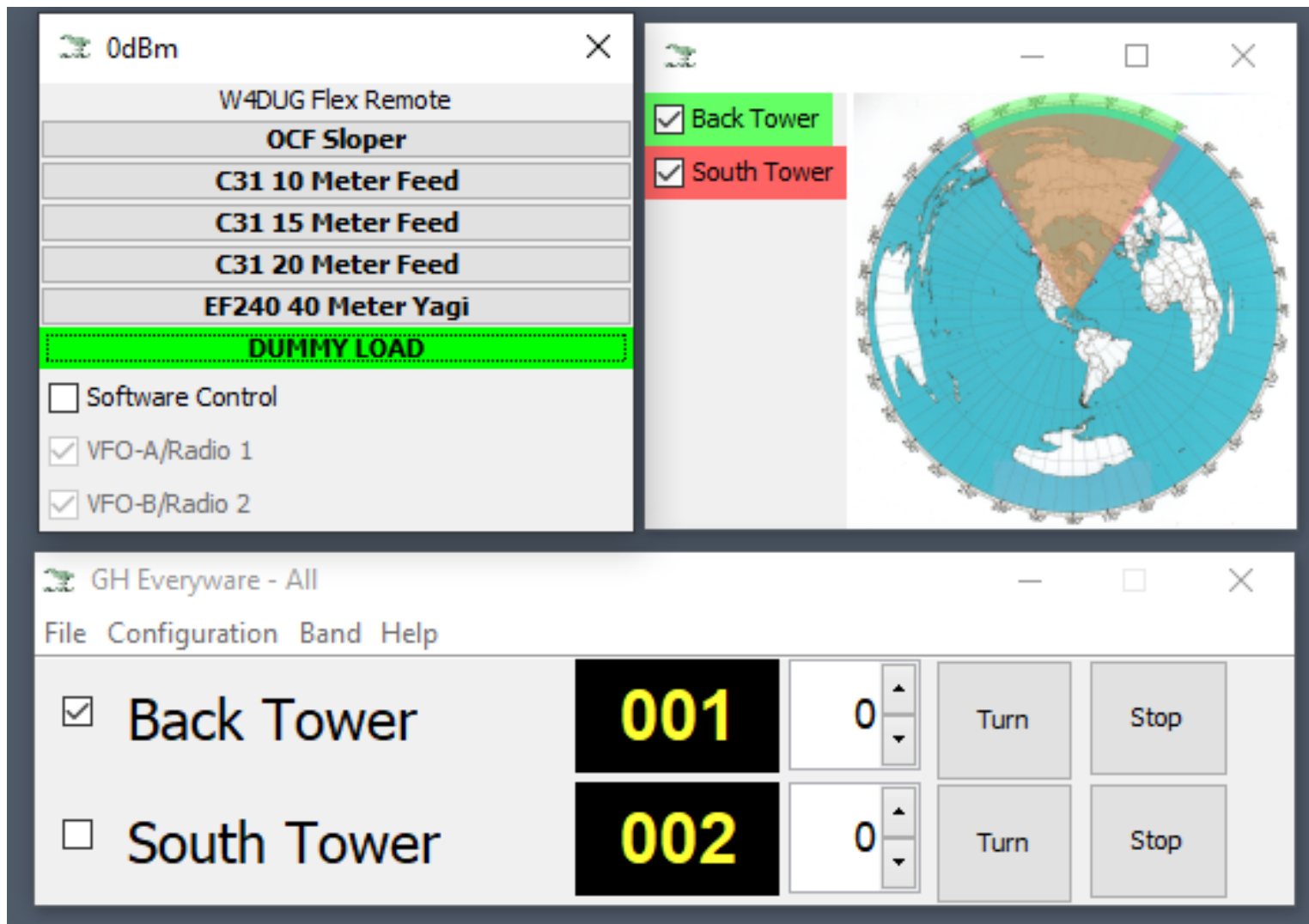
Install and Configure Green Heron

Click on CONFIGURATION on the sheet that opens. Click on Servers. Here you will insert the IP of the GHE server which will allow you to control the antenna rotors and antenna switch remotely. MAKE SURE YOUR ROUTER OPENS the port we give you to the internet!!!

Install and Configure Green Heron

Once you get it set up, it will look like this: This layout is suggested… You can organize the windows any way you want.
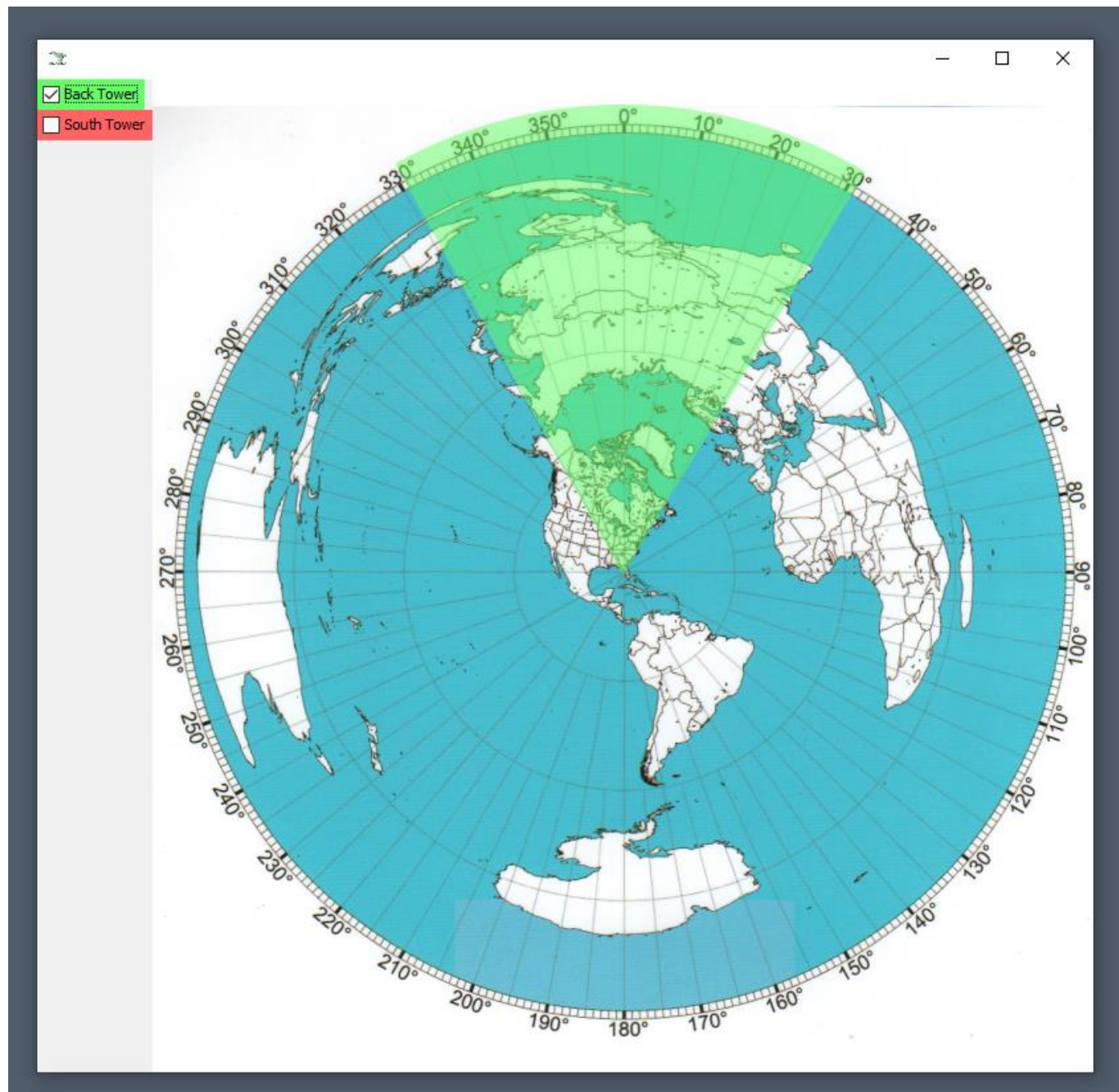
Green Heron operation

This window is the antenna switch control. Clicking on the antenna you want routes the antenna to the radio. In TARC's case, each band has its own antenna. Only 80m and 30m share the sloper. The "Back Tower" has all the HF antennas. The "South Tower" has only the 6 meter beam that will automatically be routed into the radio antenna selector.
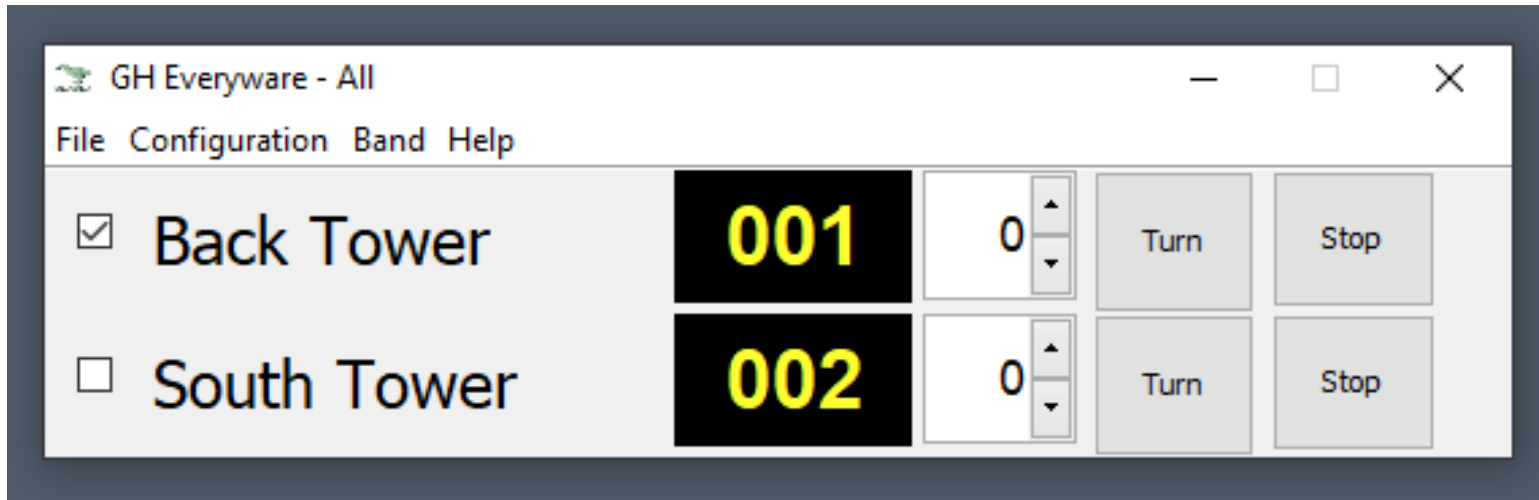
Green Heron operation

This is the antenna rotor tray. Here you can turn the antennas. Select the tower you want to use by unchecking the one you DON'T want to use. Control the rotor by entering the heading and pressing TURN. It will stop automatically when it gets to your chosen azimuth

Green Heron operation

This is the antenna rotor indicator. Yours may have a compass rose.

# NOW WE ARE READY TO ROCK AND ROLL!

Lets get started!

Asking if the radio is in use

◦ If you had your rotor controller open, close it now by clicking on the rotor tray "X" (this is the only one that closes all three windows).

◦ Using your web browser, open the Slack application. You can do this on ANY web platform. You can use either a web based system or an app based system. Search for Tampa Amateur Radio Club.

◦ Go to the "Op Coordination" chat and see if the radio is available. State your intentions to use the radio either remotely or at the clubhouse (Please do this EVERY TIME!).

◦ Open the GHE Client. When you connect, note if the antennas are pointed north. SOP is when you are done using the rigs, set both antennas to north (0 degrees). If they are NOT at 0 degrees, chances are someone is using the clubhouse or the radios remotely.
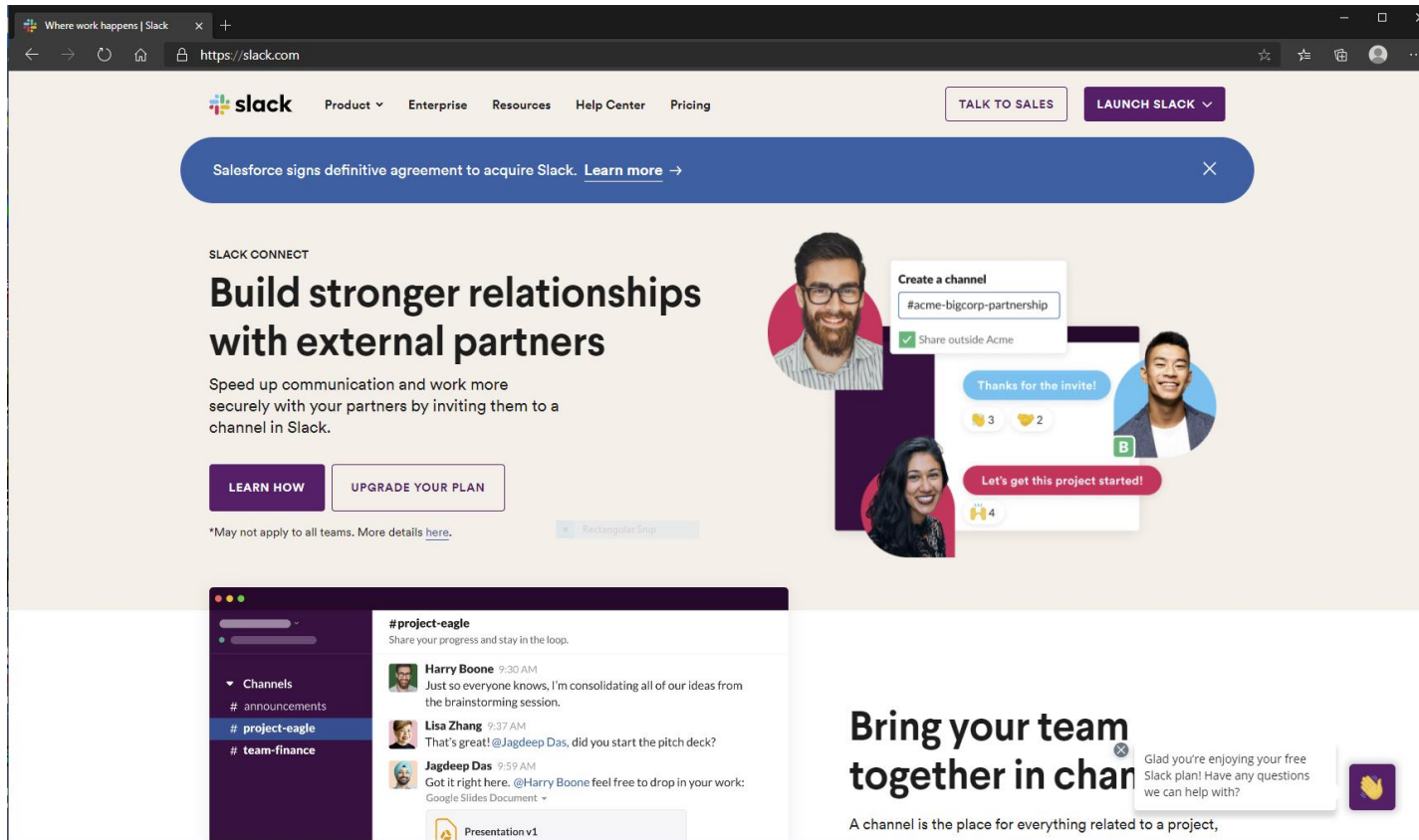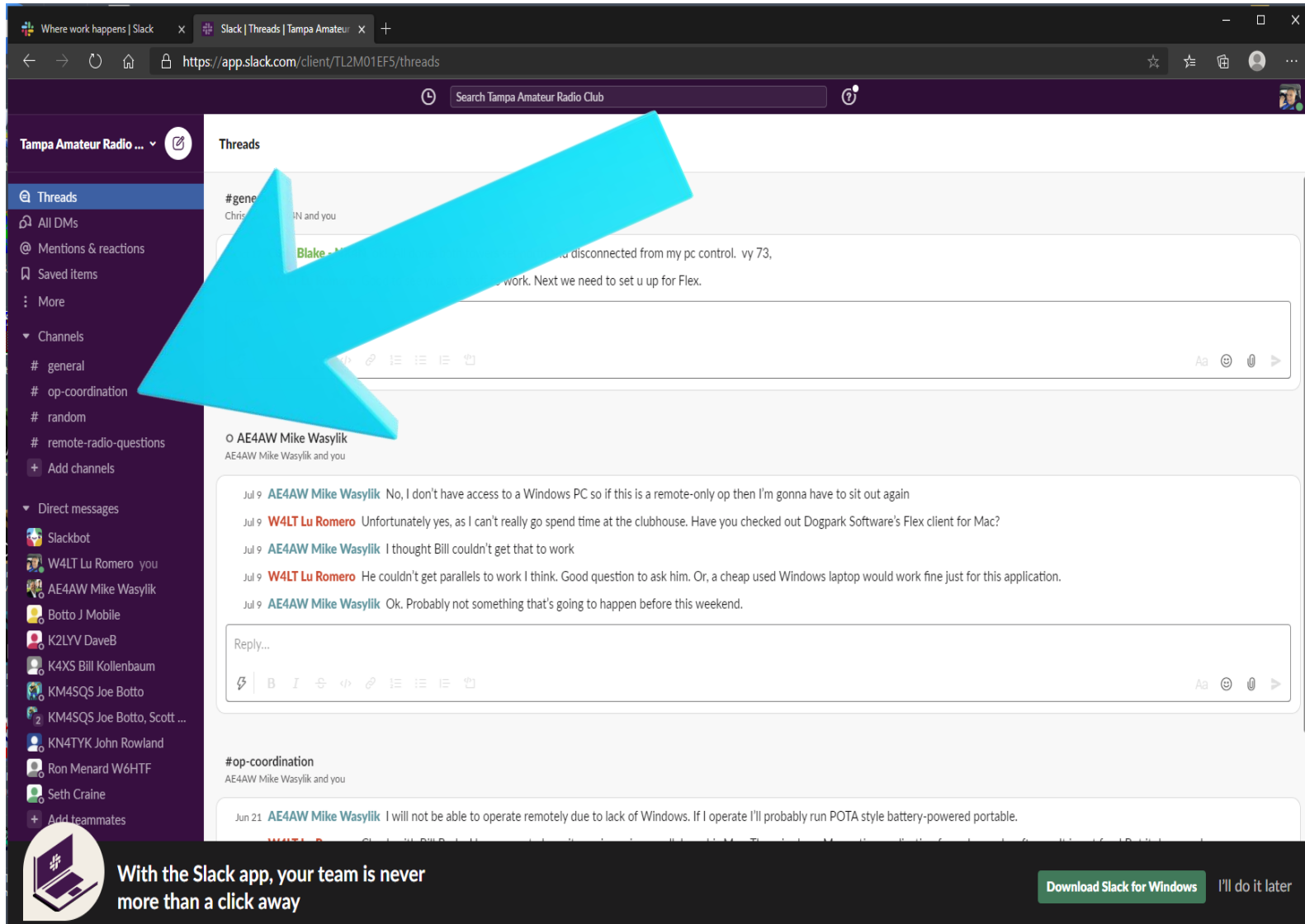
Alerting other users

Open the Slack application either in a web page or in the Slack app that you installed. You can open Slack in any browser supported by your device. A good idea is to open it with your phone so you can monitor it while you operate.
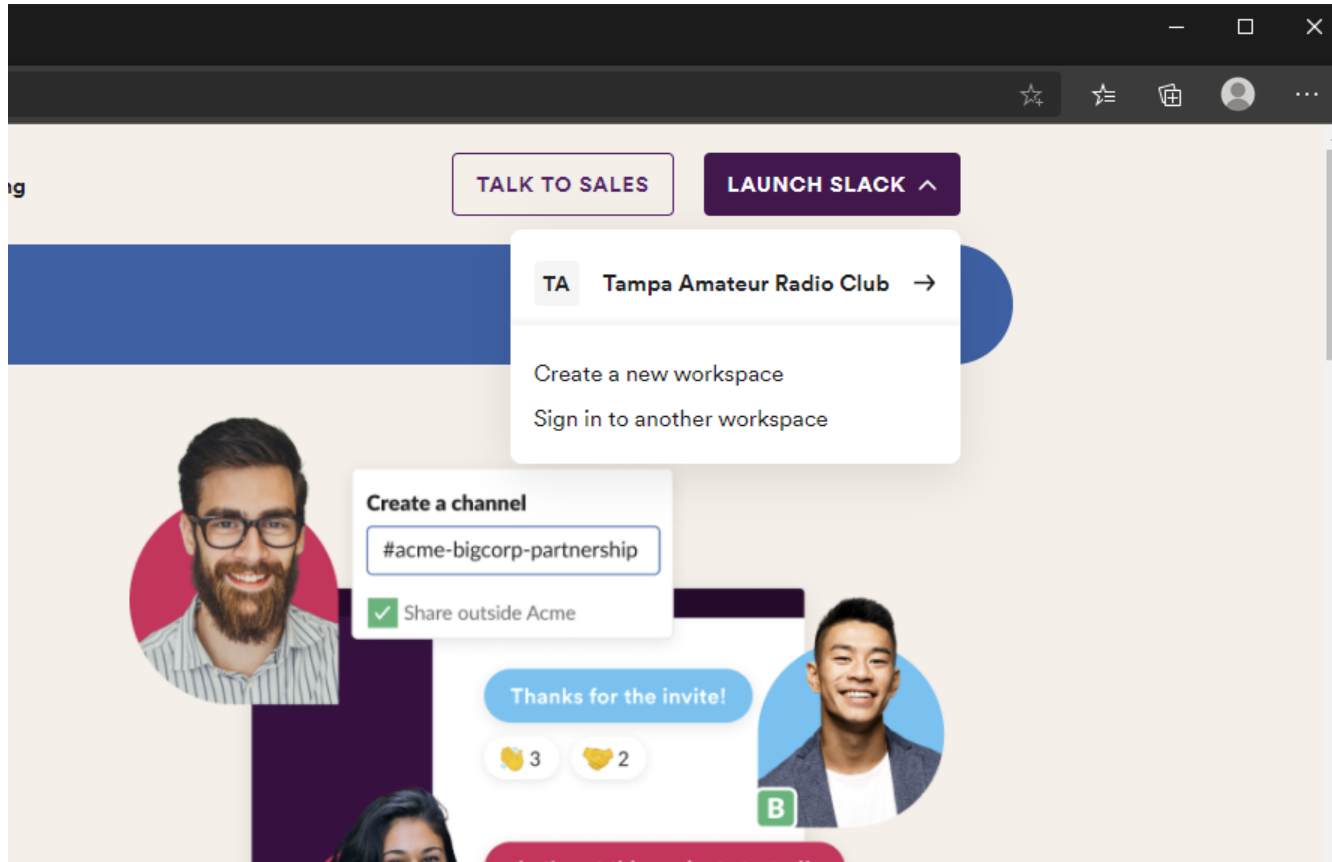
Alerting other users

If you are not taken directly to our chat room, simply search for the Tampa Amateur Radio Club and you will be taken to our Club page.

Alerting other users

We will use the OP COORDINATION chat room to announce our operating intentions. Once you post your intentions, Click on the chat to start using. Last message in is listed at the bottom of the chat page.
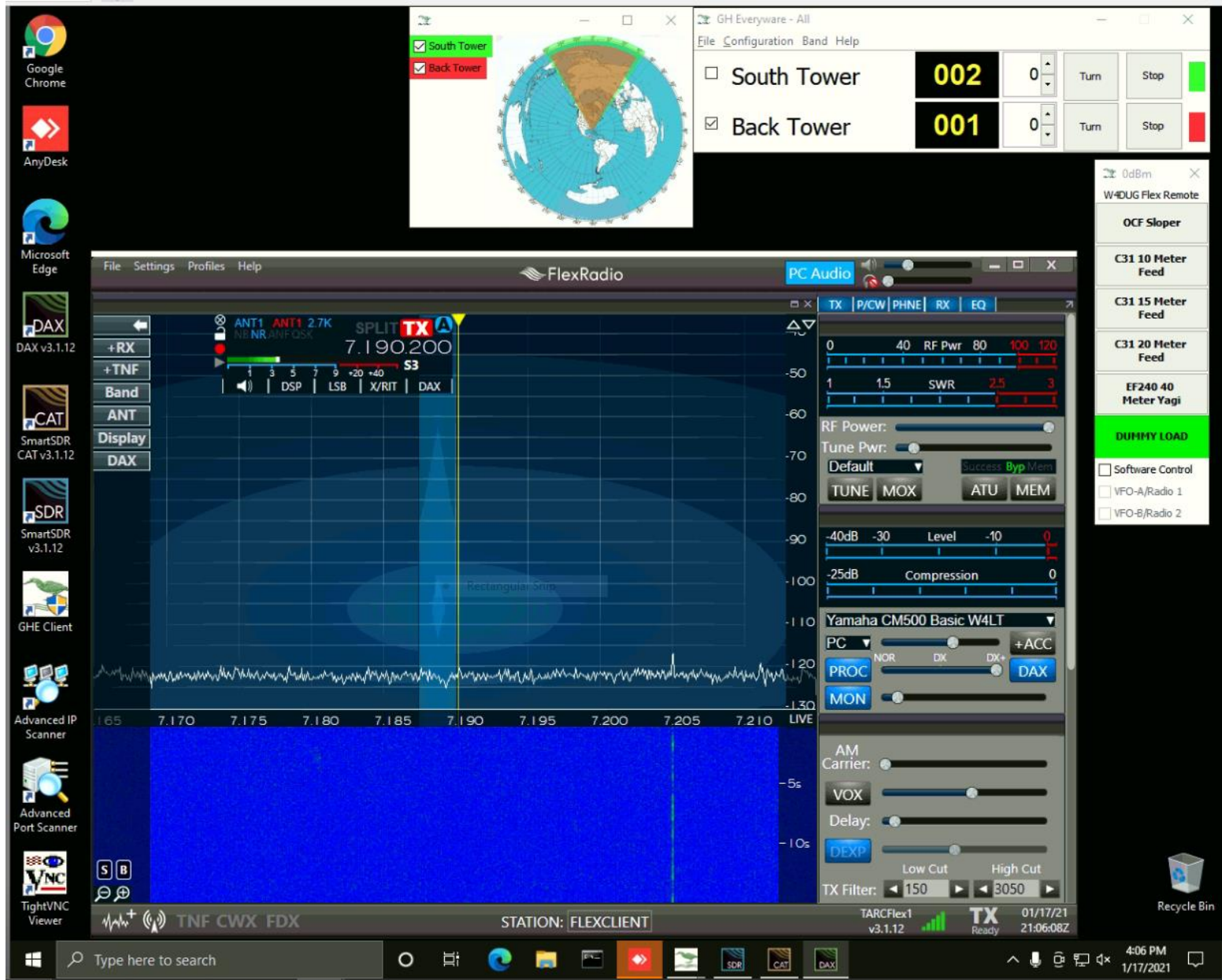
Operating the Flex Remote

You will have the Flex SSDR application, the Flex DAX application and the Flex CAT application on the screen. Opening Green Heron places its windows on the screen. You can then open your log if you use a computerized logger. As an example, set it up like this without a log:

Let's do some live Flexing!

Here we go!

That was Easy!

In Closing:

◦ Yes, this is a complex system. But you are running a complete world class HF station from your house! If you had it in your house, it wouldn't be that much simpler!

◦ This is a shared resource among our members. Just like the Kenwood remote, sharing our toys is important. Be a good sport and don't hog the radio.

◦ As always, those people who make the trip to the clubhouse have priority to its resources. When someone at the clubhouse wants to use your antennas, they have priority, and you must relinquish them

◦ You don't become an instant Extra when you use this rig. It is for General and above licensees only

◦ This is really cutting edge tech here! Have fun using it! You can work the world from your iPhone!

CONNECTING AND USING THE TARC FLEX REMOTE

Questions?

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