General Notes

- The Pat Winlink client does not currently support Packet Radio connections when deployed on a Windows system. This is because the AX.25 support packed it requires has not been ported to Windows. If you need to run Winlink over packet radio, please consider using eHaW on a Linux mint platform.
- I have tested Pat Winlink on Windows with ARDOP and VARA HF. VARA HF works very well and is strongly recommended.
- You will need to purchase a license for VARA to use it at full speed. Once VARA is installed and running click Upgrade in the toolbar and Click the Buy Now button. A onetime charge of about $69 gets you a license for life and covers both VARA HF and VARA FM. If you try to run any volume at the unlicensed VARA speed, Winlink gateways may limit your access time.
- The eHaW Windows Distribution kits are broken into 50MB pieces ending in .zip.001, 002, 003…
    - This is done to deal with Github file size restrictions
    - Be sure you download all 3 files
    - You will need Winzip or 7-Zip to unpack the kit. 7-Zip is free and can be downloaded from https://7-zip.org/download
- You will need to purchase a license to use Connectify in any real deployment. The PRO license does everything you need for eHaW at a onetime cost of about $15 on the Connectify web site at https://connectify.me.

Preinstallation Checklist

Laptop

Windows 10 x64
64bit CPU
4GB memory minimum
32GB storage minimum
Display resolution, 1366x768 minimum
WIFI,
USB

SQL Account Names / Passwords

Windows login password, you will use this as your root password for MySQL
Winlink Account password, this is the you created when you registered you callsign with Winlink.org
eHaW Admin account password. Make up a strong password you can remember
eHaW user account password. Make up a strong password. You will only use this twice during the installation process
eHaW moderator password. Make up a strong password. You will only use this twice during the installation process

Licenses

VARA Registration code _____
If you already have a VARA Registration code, have it handy. If not, you can purchase it using the link provided after you install VARA
Connectify account/password
If you have already purchased a Connectify Pro license, you will need the email account and password you provided when you made the purchase. If not, you can browse to the https://connectify.me and purchase your license.

Amateur radio transceiver with CAT and audio computer interfaces. If you using a later model transceiver like the Icom 7100, Kenwood 590 or Yeasu FT-891, your rig may provide both CAT and

audio interfaces through a simple USB cable. If this is the case, you may need to install a USB driver on your laptop. Check your rig user manual for details.

HamLib rig number for transceiver _____
https://github.com/Hamlib/Hamlib/wiki/Supported-Radios
Windows comm port number for your rig's CAT interface _____
Open the Windows device manager, expand Ports in the device tree and see which com port gets created when you connect your CAT serial USB cable
CAT serial baud rate _____
The CAT interface speed is a setting on your transceiver. See you rig user manual
Windows audio interface name _____
Connect and power up your audio interface, then look for what it is called in Windows with Manage Sound Devices. For example, a SignaLink audio interface might be listed as USB Audio CODEC

Get the eHaW Windows Distribution kit

- If you do not already have WinZip or 7-Zip installed on your laptop, browse to https://7-zip.org/download and install the Windows x64 kit now.
- Browse to https://github.com/BobSegrest/eHaW
- Click each of the eHaW Windows Distribution Kit files and download them to your laptop
  - There are 3 or more files that make up the kit. All of the file names start with **eHaW Windows Distribution Kit** and end with a 3 digit number, 001, 002, 003…
  - As you select each file, you will be taken to a file specific page where you can click a Download button. When the file download is complete use the back arrow button on your browser to go back to the previous page.
  - Be sure to download all of the distribution kit files files
- Launch the File Explorer on on your laptop and browse to your Downloads folder
- Right-click on the distribution kit file that ends in 001 and select the 7-Zip Extract Here option

Installing Prerequisite Software

- Turn your rig on, connect it to your computer and ensure any required cables/drivers are correctly configured per the manufacturers recommendations
- HamLib
  - Open a file explorer and navigate to the Pat Winlink folder in the eHaW Distribution Kit
  - Right-click and execute hamlib-w64-4.4.exe ***as Administrator***
  - Navigate to C:\Program Files (x86)\hamlib-w64-4.4\bin
  - Right click on the rigctl**d**.exe file and select the create shortcut option
  - Click OK on the popup that asks if you want to save on your desktop
  - Right click the shortcut and select properties
    - Select the General tab and rename the shortcut to **RigCtlD NNNN**
    - Select the Shortcut tab and add " **-m NNNN -r comX -s 19200**" to the end of the Target string,
    - Where:
      - **NNNN** is the HamLib rig number
      - **comX** is the communications port connect to the radio CAT interface
      - **19200** after the -s indicates the baud rate used for the CAT interface

        - Click OK to finish the shortcut
- VARA HF
    - Open a file explorer and navigate to the Pat Winlink folder in the eHaW Distribution Kit
    - Extract the **VARA setup (Run as Administrator).exe** file from VARA HF v4.6.1 Setup.zip and place it in the Pat Winlink folder
    - Right-click the **VARA setup (Run as Administrator).exe** file and execute it with the Run as Administrator option
    - Accept the license agreement, check the Create a desktop icon option and accept the default responses to complete the installation. The VARA HF application will open after you click the Finish button.
    - Open the Settings| VARA Setup window from the toolbar
        - Enter your callsign
        - Enter your Registration Key
        - Click the Close button
    - With your rig CAT cable and audio interface cables connected and turned on, open the Settings SoundCard window from the toolbar
        - Select your rig soundcard interface in the Device Input and Output dropdown fields.
        - Close the soundcard settings window.
        - Configure your rig for upper sideband, tune to an unused frequency and adjust the audio input for your sound interface to hold the VU meter at about the middle of the green range.
        - If you are using an audio interface with a delay setting, set the delay to zero.
    - Close the VARA HF application.
- Pat Winlink
    - Open a file explorer and navigate to the Pat Winlink folder in the eHaW Distribution Kit
    - Extract the pat.exe file from pat_0.15.1_windows_i386.zip and place it in the Pat Winlink folder
    - Open a command window and cd to the Pat Winlink folder
    - Execute the command **pat configure** to edit your Pat configuration
        - Insert your **callsign** as the *mycall* value
        - Insert your Winlink login **password** as the *secure_login_password* value
        - Enter your 6 character maiden head locator as the *locator* value
        - Enter **"RigID":{"address":"localhost:4532","network":"tcp"}** as the *hamlib_rigs* value, Where
            - RigID is a string you choose to represent your rig
            - Be sure to include the quotation marks, colons, and curly braces
            - All of this goes inside of the existing curly braces…
        - If you will be using ARDOP, VARA HF and VARA FM protocols with Winlink,
            - Scroll down to each of these sections
            - Enter your **RigID string** as the *rig* value
        - Save your changes and close the editor
    - Execute the command **pat http** to start the pat web service
    - Open a web browser, and enter localhost:8080 in the address bar to open the pat gui interface
    - Select the out and sent folders to verify they are empty
    - Close the browser

- In the command window, enter a control-c to stop the pat web service
- Execute the command **pat env** to display the pat environment paths
- In the file explorer, select the pat.exe file and copy it to the AppData\local\pat folder displayed with the PAT_MAILBOX_PATH environment variable.
  - Don't put it in the mailbox folder. Put it in the pat folder just before the mailbox…
- Right-click pat.exe in the pat folder and select the create shortcut option
- Drag the new shortcut from the pat folder to your desktop
- Right click the shortcut and select properties
  - Select the General tab and rename the shortcut to **PAT HTTP**
  - Select the Shortcut tab and add " http" to the end of the Target string
  - Click OK to finish the shortcut
- Use the Windows key to open **Edit the system environment variable** control panel
  - On the Advanced tab, select the Environment Variables button
  - In the User Variables section near the top of the Environment Variables window, select the Path variable and click the Edit button
  - On the Edit environment variable window, click the New button
  - And add the full path for the pat folder you placed pat.exe into.
  - Click OK 3 times to close the dialog windows

- MySQL
  - MySQL Components
    - MySQL Server 8.0 - this is the actual SQL database service
    - MySQL Shell 8.0 - the eHaWConfig tool will use this interface to create and configure the eHaW required SQL bits and pieces.
    - MySQL Workbench 8.0 - (optional, but recommended) The workbench provide you will a user friendly SQL management interface for creating required accounts and troubleshooting.
  - MySQL Accounts
    - root - this is your overall control account, and is by default the windows account you used to install MySQL. I recommend that you treat it as a safety net and use it only to create the 3 required eHaW specific SQL accounts and to grant permissions to the eHaW admin account. Do everything else you need to do for eHaW SQL management using the admin account.
    - admin - this is a user you will name, create and grant all control of the eHaW database. Use a strong password…
    - ehawuser - this is a user you will name, create and grant the minimal privileges required by the eHaW web service. This is the only one of your SQL passwords that will be saved in a (restricted access) file in clear text.
    - moderator - this is the user you will name, create and grant limited permissions required by the eHaW Moderator application. Use a strong password…
    - All 3 eHaW specific SQL accounts must be created with the following 2 settings
      - Authentication Type = **caching_sha2_password**
      - Limit Hosts Matching = **localhost**
  - Deployment
    - Execute the mysql-installer-web-community-8.0.30.0.msi file in your eHaW Distribution Kit \ eHaW Setup folder
    - Select the Yes option if you are asked to apply a mandatory MySQL Installer Upgrade

- Choose the Custom setup option and click Next
- Expand the Available Products tree as needed, and select the following options, clicking the green right arrow to move them into the Products To Be Installed box
    - MySQL Server 8.0.33 - X64
    - MySQL Workbench 8.0.33 - X64
    - MySQL Shell 8.0.33 - X64
    - It is ok to select the latest 8.0.xx sub version
    - When all 3 products are selected, click the Next button
- Click Execute on the Check Requirements page
    - If any requirements pop up for installation, select the option install them
    - When all the requirements are met, click Next
- Click Execute on the Download page, when the downloads are finished, click Next
    - If a download fails
        - Click the Back button
        - Click the next button
        - And click the Execute button again to retry the download
- Click Execute on the Installation page, when the installation is complete, click Next
- Other than entering your normal user password for the root account when prompted, accept the defaults for all remaining responses until configuration is completed.
- After clicking Finish, the MySQL Shell window and MySQL Workbench application will be launched. You can close the MySQL Shell window now.
- Click the Local instance MySQL80 button on the MySQL Workbench window, then if prompted enter your normal user password to open the root user account.
- If necessary, click the Schemas tab at the bottom of the Navigator pane on the upper left side of the workbench window
- Enter **create database ehaw;** on line 1 in the Query 1 tab and click the lightning bolt icon to execute it. Verify the message 1 row(s) affected is displayed in the output panel at the bottom of the page.
- Click the on the Local Instance tab at the top of the page to close it. Then click the Local instance MySQL80 button on the MySQL Workbench window, to open it again.
- Verify that the ehaw database is now listed with the sys database in the Schemas panel.
- Select the Administration tab at the bottom of the Navigator panel.
- Select the Users and Privileges option under Management on the Navigator panel.
- Create the ehaw admin account
    - Click the Add Account button on the User Account panel
    - Enter a username in the Login Name box. I recommend you use your callsign in all lower case characters.

        - Select the **caching_sha2_password** as the Authentication Type option.
        - Enter **localhost** in the Limit to Hosts Matching box.
        - Enter a strong password in the Password and Confirm Password boxes
        - Select the Administrative Roles tab on the User Accounts panel.
        - Check the DBA box which should also check all of the other boxes on this tab.
        - Select the Schema Privileges tab on the User Accounts panel.
        - Click the Add Entry button at the center right side of the tab.
        - On the new schema privilege definition popup dialog window, select the Selected schema option and ensure the ehaw database is selected in the drop down box. Then click OK to close the popup dialog window.
        - Check ALL of the Object Rights, DDL Rights and Other Rights check boxes in the lower part of the Schema Privileges tab.
        - Click the Apply button at the lower right corner of the user accounts panel to finish creating the account.
    - Create the ehawuser account
        - Click the Add Account button on the User Account panel
        - Enter a username in the Login Name box. I recommend simply using **ehawuser** as a username.
        - Select the **caching_sha2_password** as the Authentication Type option.
        - Enter **localhost** in the Limit to Hosts Matching box.
        - Enter a strong password in the Password and Confirm Password boxes.
        - Click the Apply button at the lower right corner of the user accounts panel to finish creating the account.
    - Create the moderator account
        - Click the Add Account button on the User Account panel
        - Enter a username in the Login Name box. I recommend simply using **moderator** as a username.
        - Select the **caching_sha2_password** as the Authentication Type option.
        - Enter **localhost** in the Limit to Hosts Matching box.
        - Enter a strong password in the Password and Confirm Password boxes.
        - Click the Apply button at the lower right corner of the user accounts panel to finish creating the account.
    - Close the MySQL Workbench application.
- NodeJS
    - Execute the node-v18.16.1-x64.msi file in your eHaW Distribution Kit \ eHaW Setup folder.
    - Accept the license agreement and take all of the defaults to complete the node installation.
- Connectify Installation
    - Execute the ConnectifyInstaller.exe file in your eHaW Distribution Kit \ eHaW Setup folder.
    - Accept the license agreement and take all of the defaults to complete the installation.
    - Go ahead and reboot your computer now.

- After rebooting, log in and Connectify will ask you to purchase or enter your account id information. You need to purchase and enter an account…
- Configure your connectify hotspot
  - Select the **No Internet Sharing** option as the Internet to Share.
  - Enter **ehaw** as the Hotspot Name.
  - Enter a simple password to share with the public. I recommend **ehaw1111** or something like this.
  - Uncheck the **Allow Internet Access** firewall option
  - Click the Start Hotspot button

This completes the eHaW prerequisites installation…

eHaW Application Deployment

- Execute the eHaW_Installer.exe file in your eHaW Distribution Kit | eHaW Setup folder
- Take the default responses all the way through. The installer will create a c:\eHaW folder and launch eHaW Config when it is finished
- The eHaW Config utility is designed to run 1 time only. Start by clicking the eHaW Admin User field and when you have entered the correct value, use your Tab key to move to the next field. Continue filling in each field, followed by the Tab key until the form is finished.
  - eHaW Admin User - Enter the eHaW admin account name you created in the MySQL database deployment. (Hint, we suggested that you use your callsign in all lower case for this)
  - Password - Enter the password you used when you created the eHaW Admin User account in MySQL
  - eHaW User - Enter the eHaW user account name you created during the MySQL deployment. (Hint, we suggested you use the name ehawuser)
  - Password - Enter the password you used when you created the eHaW user account in MySQL
  - Moderator User - Enter the eHaW Moderator user account name you created during the MySQL deployment. (Hint, we suggested you use the name moderator)
  - Password - Enter the password you used when you created the eHaW moderator account in MySQL
  - Winlink Callsign - This field should already contain the callsign you entered when you configured PAT.
  - Operator Callsign - Enter the your callsign again in this field. It should match the Winlink Callsign .
  - Initial Event Location - eHaW uses an event to organize messages and only displays messages from the latest event. Enter an initial event location (20 to 60 characters). Something like **Initial eHaW Deployment Testing** will work nicely.
  - Winlink File Paths - If you followed the prerequisite instructions, you added the Winlink folder to your system User Path environment variable and the Path field is blank. This action also allowed eHaW Config to automatically populate the Winlink Out and Sent folder paths. If this is not the case, you can try entering all 3 path entries now, or click cancel and go fix your prerequisites.
- When all of the fields have been entered correctly, click the Save button to begin the automated configuration process.

    - Note that a CMD window was opened when eHaW Config was started. eHaW Config progress/status is displayed in this window for your reference. This window cannot be used for other purposes.
- eHaW Config will display a popup window with instructions to complete the final MySQL database setup. Follow these instructions carefully.
- eHaW Config will continue, finish with the NPM installation and then briefly display a message at the bottom of the eHaW Config window telling you to close the window.
- Close the eHaW Config and command windows.

Start the eHaW Application

- Start HamLib
    - Double-click the RigCtID desktop shortcut you created
    - A blank command window should open. Minimize the window so that HamLib continues to run in the background.
    - If the window closes after opening, check to be sure the rig Id number, com port and com port baud rate you entered when you configured the shortcut are correct and match you system and rig settings.
- Start the eHaW Web Application
    - Make sure the Connectify Hotspot is running
    - Double-click the eHaW Node icon on your desktop. A command window should open and after a couple seconds the message Database Connected! Should be displayed. This window will display connections and status information for the web application. Minimize it (don't close it).
    - Open your web browser and enter localhost in the address bar. Press Enter and the eHaW Web Application should be displayed.
- Start PAT Winlink
    - Double-click the PAT HTTP shortcut on your desktop
    - This should open a new command window with the message Starting HTTP service. PAT status messages will be displayed on this window. Minimize the command window, don't close it.
    - Open a new tab on your web browser and enter localhost:8080 in the address bar. Press Enter and the PAT web interface will be displayed.
- Start VARA
    - Double-click the VARA icon on your desktop
    - This should open the VARA HF modem display on your desktop. You can minimizes it if you like, but don’t close it.
- Start the eHaW Moderator
    - Double click the eHaW Moderator or eHaW Moderator Sm icon on your desktop to display the eHaw Moderator.

Use the eHaW Web Application

Operate the eHaW Moderator