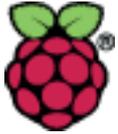


WSJT-X

WSJT-X

John Brown; AD7QQ  
ad7qq@arri.net

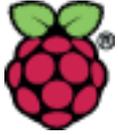
Shaun Harteloo; N7TNP  
kf7skb@gmail.com



## WSJT-X and RPi

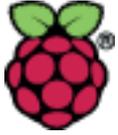
- WSJT-X is a program to facilitate weak signal communications for ham radio operators.
- **Weak Signal** communication by K1JT, after the originator of WSJT-X and various weak signal protocols and programs. The “**X**” stands for experimental.
- Dr Taylor was the keynote speaker at the ARRL Centennial Banquet in 2014, and his address can be viewed on YouTube at <http://bit.ly/drtkeynote>





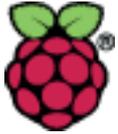
## WSJT-X

- Detailed instructions for the WSJT-X program are located at Dr Taylor's site: <http://bit.ly/wsjtinfo>
- The WSJT-X handbook for version 1.7 is located at: <http://bit.ly/wsjt17man>
- The installation instructions for installing WSJT-X 1.7 are available here: <http://bit.ly/wsjtinstall>
  - This is already installed on your Compass SD Card.
  - Out of the box raspbian apt-get installs an older version of WSJT-X.



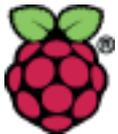
## WSJT-X

- The modes available in the WSJT-X 1.7 suite.
  - JT4, JT9, JT65, WSPR, QRA64, ISCAT, MSK144, and Echo.
- The modes included in WSJT-X are designed for Weak Signal radio communications.
- These modes are great at picking up signals that are well below the noise floor.



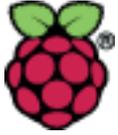
## WSJT-X

- JT65
  - Initially developed weak signals with slow variation.
  - Encountered in EME or troposcatter communications.
  - Was initially intended for VHF, but has been adapted for HF.
  - 177.6 hz wide
- JT9
  - Similar to JT65.
  - Mainly used on MF and HF.
  - Is more powerful at digging out weak signals.
  - 15.6 hz wide
- JT4
  - Similar to JT65, and JT9.
  - Adds components and structure used in WSPR.



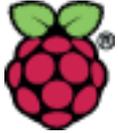
## WSJT-X

- QRA64
  - New experimental multiband mode for very weak signal work.
  - Is being used for EME.
  - It appears to be superior to JT65.
- ISCAT
  - “Ionospheric **SCAT**tering mode.”
- MSK144
  - Used for meteor scatter.
  - Designed to replace FSK441.
  - It has strong error correction.
  - Similar format to JT9.
- Echo
  - Allows the user to make very sensitive tests on your own echos from the moon.



## WSJT-X: JT9 and JT65

- The JT modes available in WSJT-X use structured messages that compress text transmissions into 72 bits.
  - Maximum of 13 characters per transmission cycle.
  - 2 28 bit fields for call signs.
  - 1 15 bit field for Grid Locator, Signal Report, Acknowledgment, or 73.
  - 1 additional bit to flag a custom message, that do not fit the normal structure.
- The goal is to fit the minimal amount of information into 72 bits required to complete a valid QSO.



## WSJT-X: JT9 and JT65

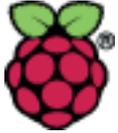
- Two windows
  - Each window is 60 seconds each and stations alternate between two.
    - Transmit for 60 seconds.
    - Receive for 60 seconds.
  - Actual transmission ends at the 50 second mark.
    - This leaves 10 seconds for stations to decode messages and prepare for the next window.
- It takes a minimum of 6 minutes to complete 1 QSO.



# WSJT-X: Interface

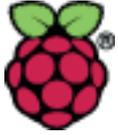
The screenshot displays the WSJT-X v1.7.0 interface. At the top, there are window titles for 'Menu', 'WSJT-X - Wide Graph', and 'WSJT-X v1.7.0 by K...'. The main window has a menu bar with 'File', 'Configurations', 'View', 'Mode', 'Decode', 'Save', and 'Help'. Below the menu bar are two tables: 'Band Activity' and 'Rx Frequency'. The 'Band Activity' table shows a list of stations with columns for UTC, dB, DT, Freq, and Message. The 'Rx Frequency' table shows a list of stations with columns for UTC, dB, DT, Freq, and Message. Below the tables are several control buttons: 'Log QSO', 'Stop', 'Monitor', 'Erase', 'Decode', 'Enable Tx', 'Halt Tx', and 'Tune'. A central display shows the current frequency '7.078 000' and a '40m' band selection. To the right of the frequency display is a 'Generate Std Msgs' section with a list of messages and 'Tx' buttons. Below the frequency display is a 'DX Call' and 'DX Grid' section with fields for 'N3EJS' and 'FM29', and a 'Report -15' dropdown. At the bottom of the interface is a 'Wide Graph' window showing a spectrogram of the 40m band with a frequency range from 200 to 1200 kHz. The spectrogram shows a strong signal at 7.078 MHz. The interface also includes a status bar at the bottom showing 'Receiving', 'JT9', and 'WD.0m'.

| Band Activity |     |      |        |                               | Rx Frequency |     |      |       |                  |
|---------------|-----|------|--------|-------------------------------|--------------|-----|------|-------|------------------|
| UTC           | dB  | DT   | Freq   | Message                       | UTC          | dB  | DT   | Freq  | Message          |
| 1332          | -6  | 0.5  | 702 @  | DS3CHK W7NZJ 73               | 1330         | -7  | 0.5  | 703 @ | DS3CHK W7NZJ -12 |
| 1332          | -24 | -0.3 | 1004 @ | CQ WA5DJJ DH62 U.S.A.         | 1331         | -24 | -0.7 | 706 @ | W7NZJ DS3CHK 73  |
| 1334          | -22 | -0.1 | 1004 @ | CQ WA5DJJ DH62 U.S.A.         | 1332         | -6  | 0.5  | 702 @ | DS3CHK W7NZJ 73  |
| 1335          | -24 | -0.7 | 706 @  | CQ DS3CHK PH36 1Rep. of Korea | 1335         | -24 | -0.7 | 706 @ | CQ DS3CHK PH36   |
| 1337          | -24 | -0.5 | 706 @  | CQ DS3CHK PH36 1Rep. of Korea | 1337         | -24 | -0.5 | 706 @ | CQ DS3CHK PH36   |
| 1338          | -19 | 0.2  | 706 @  | DS3CHK K6GB DM14              | 1338         | -19 | 0.2  | 706 @ | DS3CHK K6GB DM14 |



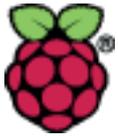
## WSJT-X: Setup

- What do you need?
  - A SSB Radio and an appropriate antenna.
  - A Raspberry Pi.
  - Monitor with at least 1024 x 768 resolution.
  - Computer-to-radio interface
    - Serial USB CAT
    - Audio Interface
      - UDRC-II
      - Signalink or Other Radio Interface
      - USB SoundCard with a Sample Rate of 48000 Hz.
    - VOX, PTT via CAT, or PTT via Serial



## WSJT-X: Setup

- WSJT-X is very sensitive to time.
  - If your system time is off by more than a second, other stations will not be able to decode your message.
- Ways you can resync the clock on your RPi.
  - If you are connected to the internet
    - `$ sudo ntp -qg`
    - `$ sudo /etc/init.d/ntp restart`
  - Listening to WWV
    - `$ sudo date -s "Fri Jun 2 17:10:00 UTC 2017"`
    - Hit enter when the WWV gives the tone.
  - Use a RTC (Real Time Clock) Daughter Board designed for the RPi.
    - DS3231



# WSJT-X: Interface

WSJT-X v1.7.0 by K1JT

File Configurations View Mode Decode Save Help

### Band Activity

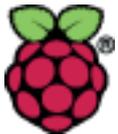
| UTC  | dB  | DT  | Freq  | Message                        |
|------|-----|-----|-------|--------------------------------|
| 1337 | -24 | 0.5 | 706 @ | CQ DS3CHK PM36 (Rep. of Korea) |
| 1338 | -19 | 0.2 | 706 @ | DS3CHK K6GB DM14               |
| 1353 | -7  | 0.0 | 686 @ | CQ KB7MH CN82 ~U.S.A.          |
| 1356 | -9  | 0.2 | 686 @ | CQ KB7MH CN82 ~U.S.A.          |
| 1356 | -25 | 0.1 | 326 @ | CQ KB7MH CN82 ~U.S.A.          |
| 1357 | -6  | 0.2 | 686 @ | CQ KB7MH CN82 ~U.S.A.          |

### Rx Frequency

| UTC  | dB  | DT   | Freq  | Message          |
|------|-----|------|-------|------------------|
| 1330 | -7  | 0.5  | 703 @ | DS3CHK W7NZJ -12 |
| 1331 | -24 | -0.7 | 706 @ | W7NZJ DS3CHK 73  |
| 1332 | -6  | 0.5  | 702 @ | DS3CHK W7NZJ 73  |
| 1335 | -24 | -0.7 | 706 @ | CQ DS3CHK PM36   |
| 1337 | -24 | -0.5 | 706 @ | CQ DS3CHK PM36   |
| 1338 | -19 | 0.2  | 706 @ | DS3CHK K6GB DM14 |

Log QSO Stop Monitor Erase Decode Enable Tx Halt Tx Tune

40m **7.078 000** Generate Std Msgs Next Now | Pwr



## WSJT-X: Setup

General Radio Audio Tx Macros Reporting Frequencies Colors Advanced

Station Details

My Call:  My Grid:

Message generation for type 2 compound callsign holders:

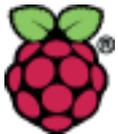
Display

- Blank line between decoding periods
- Display distance in miles
- Tx messages to Rx frequency window
- Show DXCC entity and worked before status

Font...

Decoded Text Font...

- Enter your call, and Grid Square
- Configure the display options.
  - Blank lines between decoding periods will insert a blank line in the band activity window.



## WSJT-X: Setup

Behavior

|   |  |
|---|--|
| <input type="checkbox"/> Monitor off at startup                         | <input type="checkbox"/> Enable VHF/UHF/Microwave features             |
| <input type="checkbox"/> Monitor returns to last used frequency         | <input type="checkbox"/> Allow Tx frequency changes while transmitting |
| <input checked="" type="checkbox"/> Double-click on call sets Tx enable | <input type="checkbox"/> Single decode                                 |
| <input checked="" type="checkbox"/> Disable Tx after sending 73         | <input type="checkbox"/> Decode after EME delay                        |

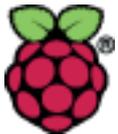
Tx watchdog:

CW ID after 73

Periodic CW ID Interval:

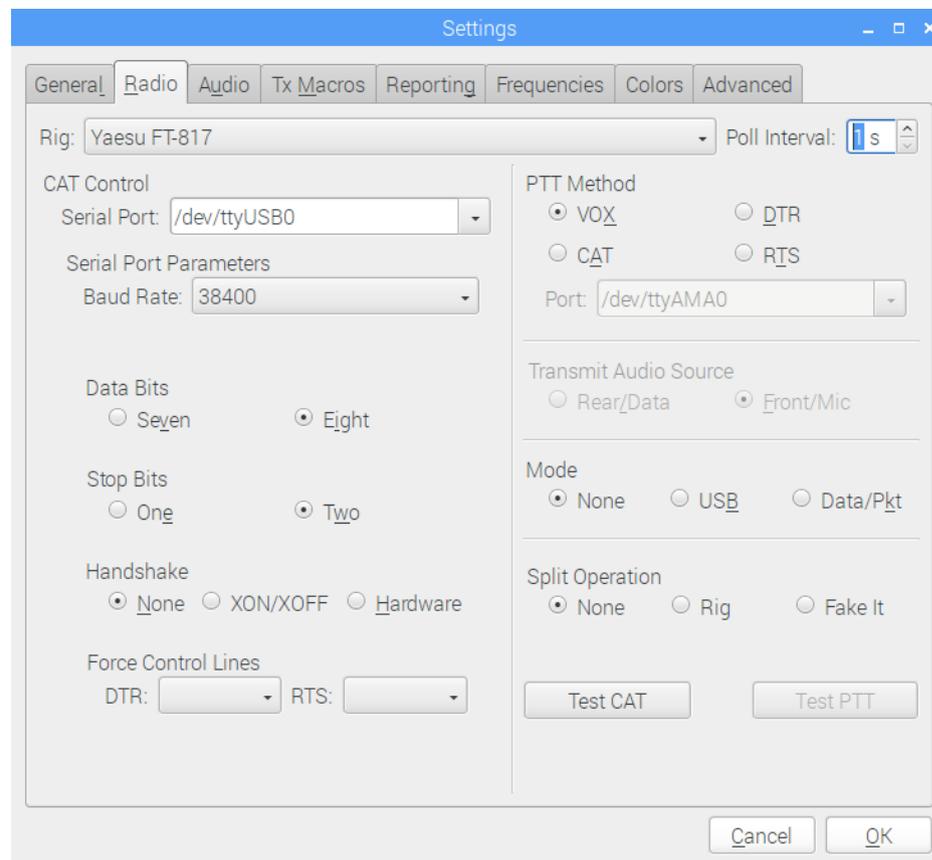
Cancel OK

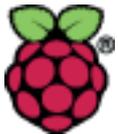
- Monitor at startup will enable the software's receiving functionality at startup.
- TX Watchdog will automatically disable transmitting if you step away, and forgot that it was enabled.



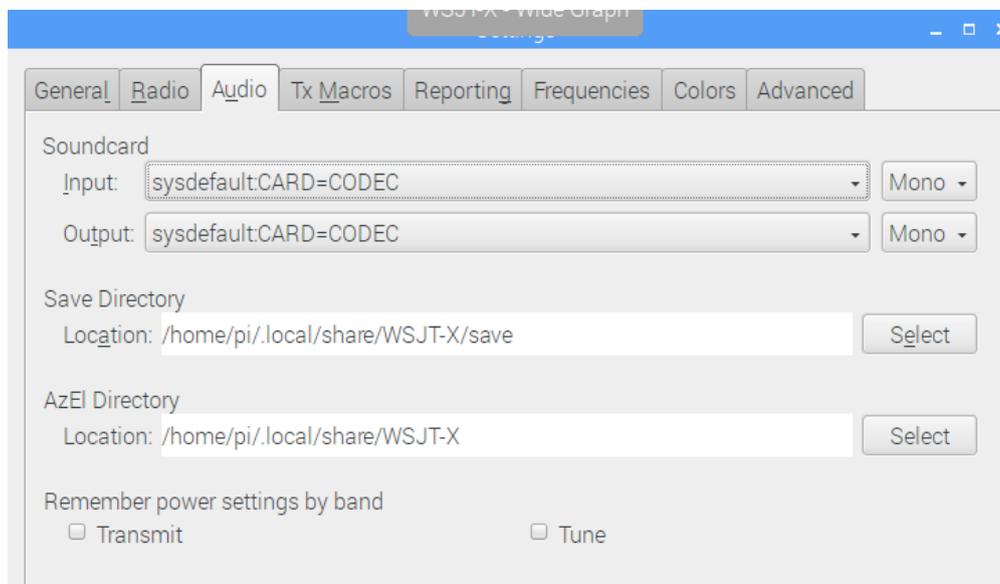
## WSJT-X: Setup

- Select your radio from the list.
  - Chose the corresponding baud rate for your radio.
  - Chose correct data bits.
  - Chose the correct stop bit.
  - Select the PTT Method.

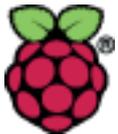




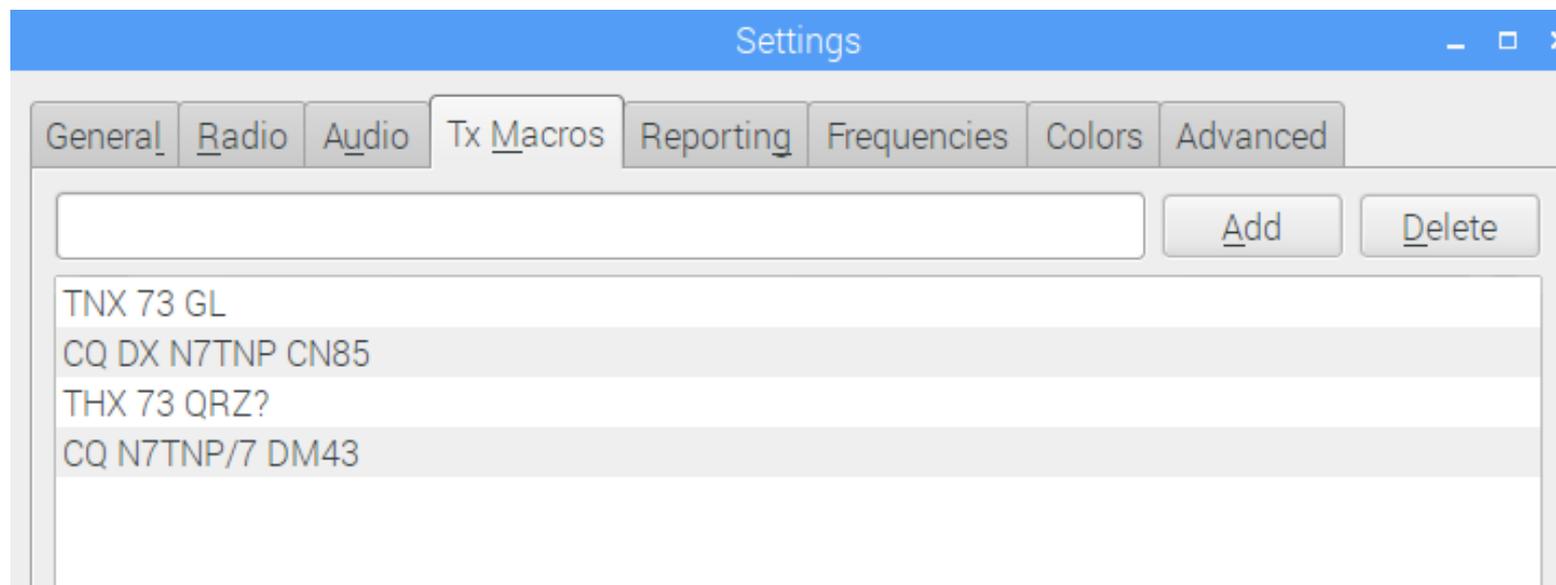
## WSJT-X: Setup



- Select your sound interface from the list.
  - UDRC-II is CODEC

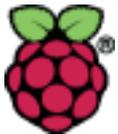


## WSJT-X: Setup

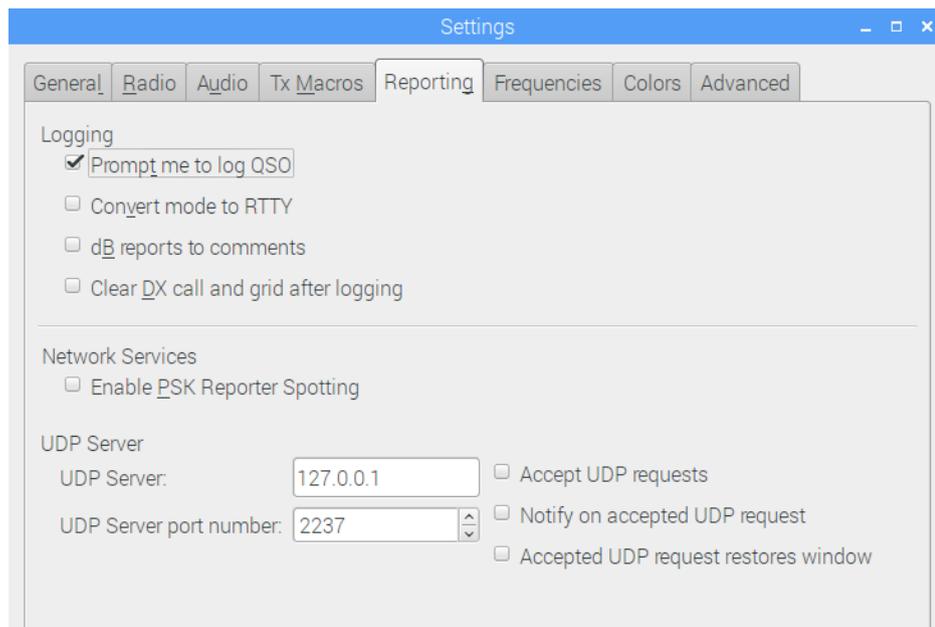


You can add custom messages to a list to make preparing for your next transmission quick and easy.

Remember you are limited to 13 characters.



## WSJT-X: Setup



- Prompt to log QSO is useful.
  - Only works if you send a standard 73.
- PSK Reporter Spotting
  - This is a reverse beacon network.
  - <http://www.pskreporter.info>



# WSJT-X: Setup

Settings

General | Radio | Audio | Tx Macros | Reporting | **Frequencies** | Colors | Advanced

Working Frequencies

| Mode | Frequency             |
|------|-----------------------|
| WSPR | 0.136 000 MHz (2190m) |
| JT65 | 0.136 130 MHz (2190m) |
| JT65 | 0.474 200 MHz (630m)  |
| JT9  | 0.474 200 MHz (630m)  |
| WSPR | 0.474 200 MHz (630m)  |
| WSPR | 1.836 600 MHz (160m)  |
| JT65 | 1.838 000 MHz (160m)  |

Reset

Frequency Calibration

Intercept: 0.00 Hz

Slope: 0.0000 ppm

Station Information

| Band | Offset | Antenna Description |
|------|--------|---------------------|
|------|--------|---------------------|

Cancel OK



# WSJT-X: Setup

Settings

General | Radio | Audio | Tx Macros | Reporting | Frequencies | Colors | Advanced

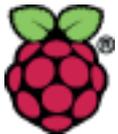
|                     |       |
|---------------------|-------|
| CQ in message       | K1ABC |
| My Call in message  | K1ABC |
| Transmitted message | K1ABC |
| New DXCC            | K1ABC |
| New Call            | K1ABC |



## WSJT-X: Setup



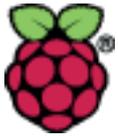
- **Bins/Pixel**
  - This will adjust the width of the waterfall.
    - Adjust this value to make the waterfall fit your window size or screen size.
- **Start**
  - This adjusts the left side of the waterfall display.



## WSJT-X: Setup

### Receive Audio Level Adjustment

- Adjust the mixer, and receiver controls to around 30dB when no signals are present.
  - If it is not already highlighted in green, click the Monitor button to start normal receive operation.
    - Be sure your transceiver is set to USB (or USB Data) mode.
    - Turn off AGC, or slow it down.
    - Adjust audio mixer volume on Rpi.
    - Adjust slider next to dB meter.
      - Note: Dynamic Range is better with slider at 50% and the displayed level is 30db.
  - Adjust the RF gain on the receiver.



# WSJT-X: Setup

20m ● **14.076 000**

60+  
50  
40  
30  
20  
10  
0  
0.0 dB

DX Call

DX Grid

Lookup Add

**2017 May 29  
16:44:00**

Tx even/1st

Tx 1500 Hz

Rx 1500 Hz

Report -15

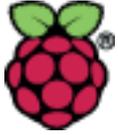
Tx JT65 #

Tx ← Rx

Rx ← Tx

Lock Tx=Rx

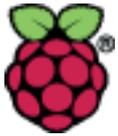
Receiving JT9+JT65



## WSJT-X: Setup

### Transmit Audio Level Adjustment

- Click the Tune button on the main screen to switch the radio into transmit mode and generate a steady audio tone.
  - Use the transmitter's 'Monitor' capability to hear the audio output from the RPi. Ensure the tone is clear, and the audio is good.
  - Adjust the output volume in the RPi Mixer software
    - Set it to where your transmitter outputs appropriate set power, and the ALC does not trigger.
  - You can make the Adjustment in WSJT-X using the power slider on the right side of the Screen.
- Toggle the Tune button once more or click Halt Tx to stop your test transmission.



# WSJT-X: Setup

AA

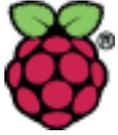
| Calling CQ | Answering CQ |
|------------|--------------|
| CQ         | Grid         |
| dB         | R+dB         |
| RRR        | 73           |

CQ N7TNP CN85  Gen msg

Free msg

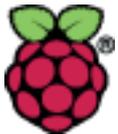
Pwr

30/60 WD:4m



## WSHT-X: QSO

- A Standard JT QSO
  - CQ
    - CQ N7TNP CN85
  - Response
    - N7TNP AD7QQ DN16
  - Signal Report #1
    - AD7QQ N7TNP -12
  - Signal Report #2
    - N7TNP AD7QQ R-15
  - Acknowledge Report
    - AD7QQ N7TNP RRR
  - Salutation #1
    - N7TNP AD7QQ 73
  - Salutation #2
    - AD7QQ N7TNP 73

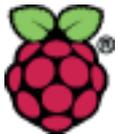


## WSJT-X: QSO

| Band Activity |     |      |      |                           |
|---------------|-----|------|------|---------------------------|
| UTC           | dB  | DT   | Freq | Message                   |
| 1641          | -1  | 0.1  | 518  | # W8LLL KK6ILV CM97       |
| 1641          | -21 | 0.3  | 733  | # CQ KB0PPQ EM29 U.S.A.   |
| 1641          | -16 | -0.3 | 824  | # CQ DX N6VNI DM13 U.S.A. |
| 1641          | -21 | 0.2  | 1234 | # KL7SK K7KRW DN41        |
| 1641          | -15 | 1.4  | 380  | # K9PSM KB2F EM64         |
| 1641          | -21 | -0.6 | 774  | # CQ K6VHF DM04 U.S.A.    |
| ----- 20m     |     |      |      |                           |
| 1642          | -14 | 0.2  | 518  | # KK6ILV W8LLL -20        |
| 1642          | -18 | -0.1 | 824  | # N6VNI KK6YYF CM98       |

| Rx Frequency |     |      |      |                     |
|--------------|-----|------|------|---------------------|
| UTC          | dB  | DT   | Freq | Message             |
| 1619         | Tx  |      | 1500 | # CQ N7TNP CN85     |
| 1621         | Tx  |      | 1500 | # CQ N7TNP CN85     |
| 1625         | Tx  |      | 1500 | # CQ N7TNP CN85     |
| 1627         | Tx  |      | 1500 | # CQ N7TNP CN85     |
| 1629         | Tx  |      | 1500 | # CQ N7TNP CN85     |
| 1632         | -2  | 0.1  | 1500 | # N7TNP NS6E CM87   |
| 1639         | -13 | 0.1  | 1502 | # KD0GT KK6D0A -10  |
| 1639         | -17 | -0.2 | 1501 | # KK6D0A AA6FF DN40 |

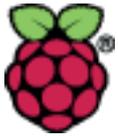
- You can click a line in the band Activity box
  - This will set your software to respond to a CQ.
- Continue your QSO from the RX Frequency Box.
  - Clicking the red line will set you up for the next message in the sequence.



# WSJT-X: JT9 QSO

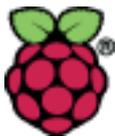
The screenshot displays the WSJT-X v1.7.0 software interface. At the top, the window title is "WSJT-X v1.7.0 by K1JT". The main interface is divided into several sections:

- Band Activity:** A table with columns UTC, dB, DT, Freq, and Message. It is currently empty.
- Rx Frequency:** A table with columns UTC, dB, DT, Freq, and Message. It shows a single entry: "1525 Tx 500 @ CQ AD7QQ DN16".
- Control Panel:** Includes buttons for "Log QSO", "Stop", "Monitor", "Erase", "Decode", "Enable Tx" (highlighted in red), "Halt Tx", and "Tune".
- Frequency and Mode:** Shows a frequency of "14.078 000" and a mode of "20m".
- DX Call and Grid:** Shows "N3EJS" and "FM29".
- Distance and Date:** Shows "Az: 88 2150 mi" and "2017 May 26 15:25:16".
- Message Queue:** A list of messages with "Generate Std Msgs" and "Next Now Pwr" buttons. The selected message is "CQ AD7QQ DN16".
- Status Bar:** Shows "Tx: CQ AD7QQ DN16", "JT9", "Last Tx: CQ AD7QQ DN16", "16/60", and "WD:6m".
- Wide Graph:** A waterfall plot showing frequency from 200 to 1200 kHz. A vertical line indicates the current frequency. The plot shows a signal at approximately 700 kHz.



# WSJT-X: JT9 QSO

The screenshot displays the WSJT-X v1.7.0 software interface. The main window shows the 'Band Activity' and 'Rx Frequency' tables. The 'Rx Frequency' table has one entry: UTC 1525, dB Tx, DT Freq 500 @, and Message CQ AD7QQ DN16. Below the tables are control buttons: Log QSO, Stop, Monitor, Erase, Decode, Enable Tx (highlighted in red), Halt Tx, and Tune. The frequency display shows 20m, a green indicator light, and the frequency 14.078 000. The DX Call is N3EJS and the DX Grid is FM29. The date and time are 2017 May 26 15:25:16. The 'Generate Std Msgs' section lists several message options, with 'CQ AD7QQ DN16' selected. The status bar at the bottom shows 'Tx: CQ AD7QQ DN16', 'JT9', 'Last Tx: CQ AD7QQ DN16', '16/60', and 'WD:6m'. Below the main window is a 'Wide Graph' showing a waterfall plot with a prominent signal at approximately 7.078 MHz. The graph has a time axis from 15:21 to 15:24 and a frequency axis from 200 to 1200 kHz. The signal is visible in the 20m band.



# WSJT-X: JT9 QSO

The screenshot displays the WSJT-X v1.7.0 software interface. The main window shows the 'Band Activity' and 'Rx Frequency' tables, both containing two entries for a transmission at 14.078000 MHz with a message of 'CQ AD7QQ DN16'. The 'Monitor' button is highlighted in green, and the 'Enable Tx' button is highlighted in red. The frequency display shows 14.078 000 MHz. The interface includes various controls for TX/RX frequency, TX/RX mode, and TX/RX power. The status bar at the bottom indicates 'Receiving' and 'JT9' mode, with the last transmission being 'CQ AD7QQ DN16' at 45/60 dB. The 'Wide Graph' window at the bottom shows a waterfall plot with a red square indicating the current transmission at 14.078 MHz. The time and date are displayed as 2017 May 26 15:28:45.

| UTC  | dB | DT  | Freq | Message       |
|------|----|-----|------|---------------|
| 1525 | Tx | 500 | Hz   | CQ AD7QQ DN16 |
| 1527 | Tx | 500 | Hz   | CQ AD7QQ DN16 |

| UTC  | dB | DT  | Freq | Message       |
|------|----|-----|------|---------------|
| 1525 | Tx | 500 | Hz   | CQ AD7QQ DN16 |
| 1527 | Tx | 500 | Hz   | CQ AD7QQ DN16 |

20m 14.078 000

60+ 50 40 30 20 10 0 60.0 dB

DX Call: N3EJS, DX Grid: FM29, Az: 88, 2150 mi

2017 May 26 15:28:45

Generate Std Msgs: N3EJS AD7QQ DN16, N3EJS AD7QQ -15, N3EJS AD7QQ R-15, N3EJS AD7QQ RRR, N3EJS AD7QQ 73, CQ AD7QQ DN16

Next: Tx 1, Tx 2, Tx 3, Tx 4, Tx 5, Tx 6

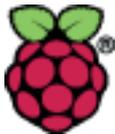
Receiving JT9 Last Tx: CQ AD7QQ DN16 45/60 WD:3m

WSJT-X - Wide Graph

200 400 600 800 1000 1200

5:28 - 20m, 5:26 - 20m, 5:24 - 20m, 5:23 - 20m

Flatten Ref Spec Spec 30



# WSJT-X: JT9 QSO

The screenshot displays the WSJT-X v1.7.0 software interface. At the top, there are window titles: "WSJT-X - Wide Graph" and "WSJT-X v1.7.0 by K...". The main window has a menu bar with "File", "Configurations", "View", "Mode", "Decode", "Save", and "Help".

**Band Activity Table:**

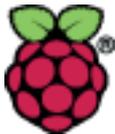
| UTC  | dB  | DT  | Freq  | Message           |
|------|-----|-----|-------|-------------------|
| 1528 | -18 | 0.1 | 501 @ | AD7QQ VA3MJR FN03 |
| 1530 | -20 | 0.1 | 501 @ | AD7QQ VA3MJR FN03 |

**Rx Frequency Table:**

| UTC  | dB  | DT  | Freq  | Message           |
|------|-----|-----|-------|-------------------|
| 1527 | Tx  |     | 500 @ | CQ AD7QQ DN16     |
| 1528 | -18 | 0.1 | 501 @ | AD7QQ VA3MJR FN03 |
| 1529 | Tx  |     | 500 @ | CQ AD7QQ DN16     |
| 1529 | Tx  |     | 501 @ | VA3MJR AD7QQ -18  |
| 1530 | -20 | 0.1 | 501 @ | AD7QQ VA3MJR FN03 |
| 1531 | Tx  |     | 501 @ | VA3MJR AD7QQ -18  |

**Controls:** Buttons for "Log QSO", "Stop", "Monitor", "Erase", "Decode", "Enable Tx" (highlighted in red), "Halt Tx", and "Tune". A frequency display shows "20m" and "14.078 000". A vertical scale on the left shows signal strength from 0.0 dB to 60+ dB. A "DX Call" field contains "VA3MJR" and "DX Grid" contains "FN03". A "Report -18" dropdown is visible. A status bar at the bottom shows "Tx: VA3MJR AD7QQ -18", "JT9", "Last Tx: VA3MJR AD7QQ -18", "4/60", and "WD:6m".

**Wide Graph:** A waterfall plot showing frequency from 200 to 1200 kHz. A vertical yellow line is positioned at 500 kHz. The plot shows a signal at 501 kHz, corresponding to the QSO activity. The time axis on the left shows "15:30 - 20m", "15:28 - 20m", "15:26 - 20m", and "15:24 - 20m".



# WSJT-X: JT9 QSO

Click OK to confirm the following QSO:

| Call   | Date       | Time | Mode | Band |
|--------|------------|------|------|------|
| VA3MJR | 2017-05-26 | 1535 | JT9  | 20m  |

Report: -18    Rcv: -23    Grid: FN03    Name:

Tx power: 10 w     Retain

Comments: RPi powered!!     Retain

| UTC  | dB  | DT  | Freq  | Message           |
|------|-----|-----|-------|-------------------|
| 1530 | -20 | 0.1 | 501 @ | AD7QQ VA3MJR FN03 |
| 1531 | Tx  |     | 501 @ | VA3MJR AD7QQ -18  |
| 1532 | -22 | 0.1 | 500 @ | AD7QQ VA3MJR R-23 |
| 1533 | Tx  |     | 501 @ | VA3MJR AD7QQ RRR  |
| 1534 | -23 | 0.2 | 501 @ | AD7QQ VA3MJR 73   |
| 1535 | Tx  |     | 501 @ | VA3MJR AD7QQ 73   |

Generate Std Msgs    Next    Now    Pwr

- VA3MJR AD7QQ DN16    Tx 1
- VA3MJR AD7QQ -18    Tx 2
- VA3MJR AD7QQ R-18    Tx 3
- VA3MJR AD7QQ RRR    Tx 4
- VA3MJR AD7QQ 7    Tx 5
- CQ AD7QQ DN16    Tx 6

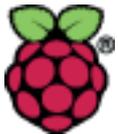
Tx: VA3MJR AD7QQ 73    JT9    Last Tx: VA3MJR AD7QQ 73    6/60    WD.6m

2017 May 26 15:35:06

WSJT-X - Wide Graph

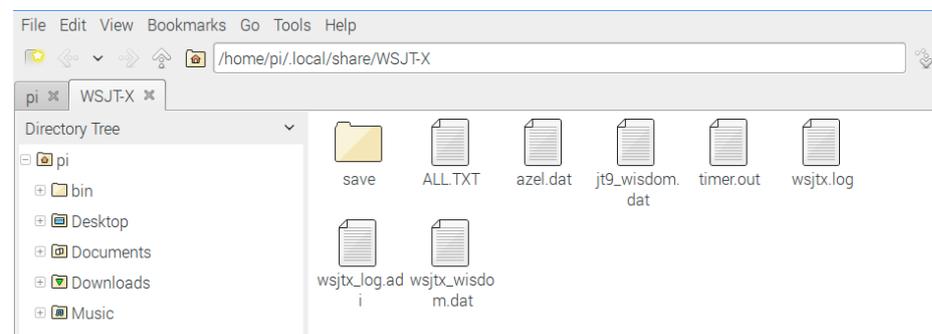
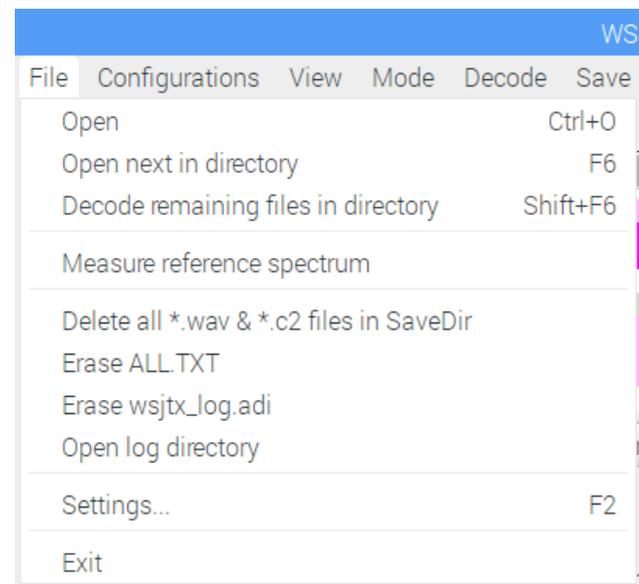
534 - 20m  
532 - 20m  
530 - 20m  
528 - 20m

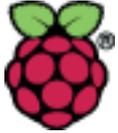
ins/Pixel    Start 0 H    Palette Adjust...     Flatten     Ref Spec    Spec 30



## WSJT-X: Logs

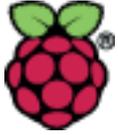
- ALL.TXT
  - Stores all decoded messages.
  - Band Changes.
  - Transmissions.
- wsjtx.log;  
wsjtx\_log.adi
  - Stores logged contacts.





## WSJT-X: WSPR

- **Weak Signal Propagation Reporter**
- Originally written by Joe Taylor.
- It uses an F1D frequency shift keying.
- It transmits:
  - Station's call sign.
  - Maidenhead Grid Location.
  - Power in dBm.
- Each transmission is 2 minutes.
- It is not a QSO.
  - It is more like a reverse beacon.



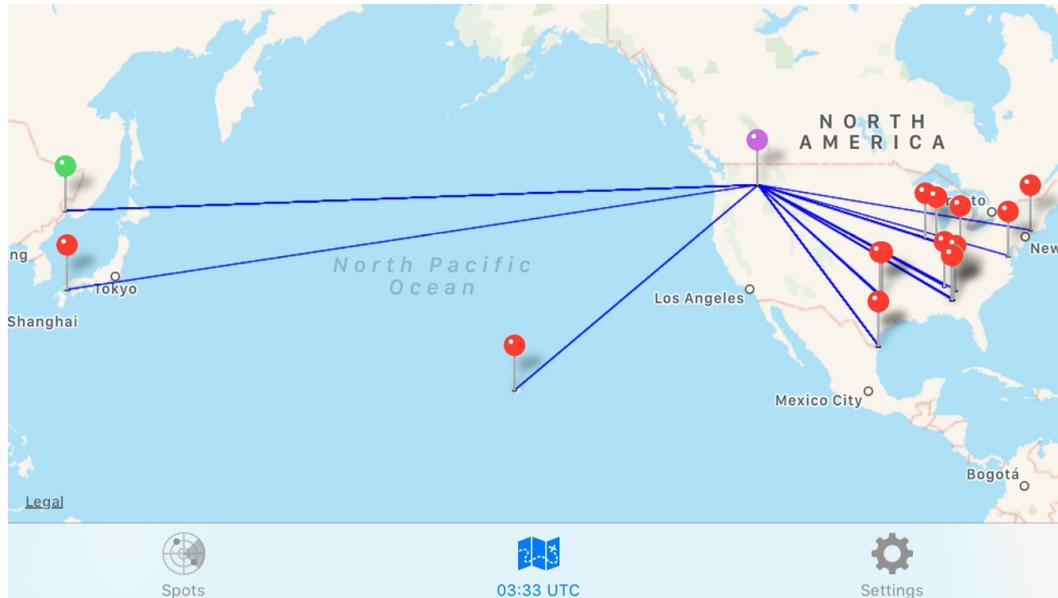
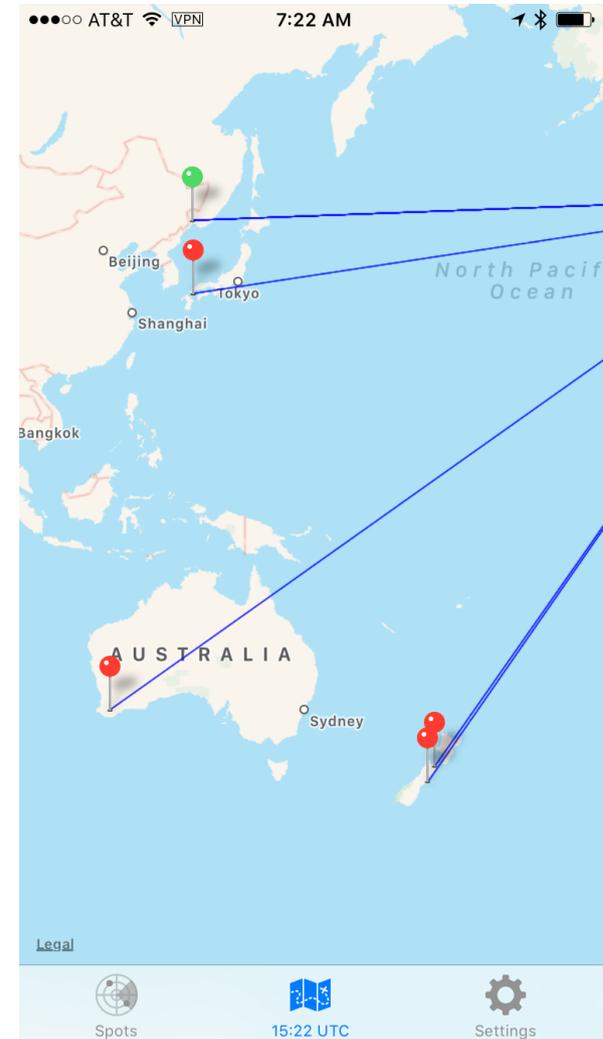
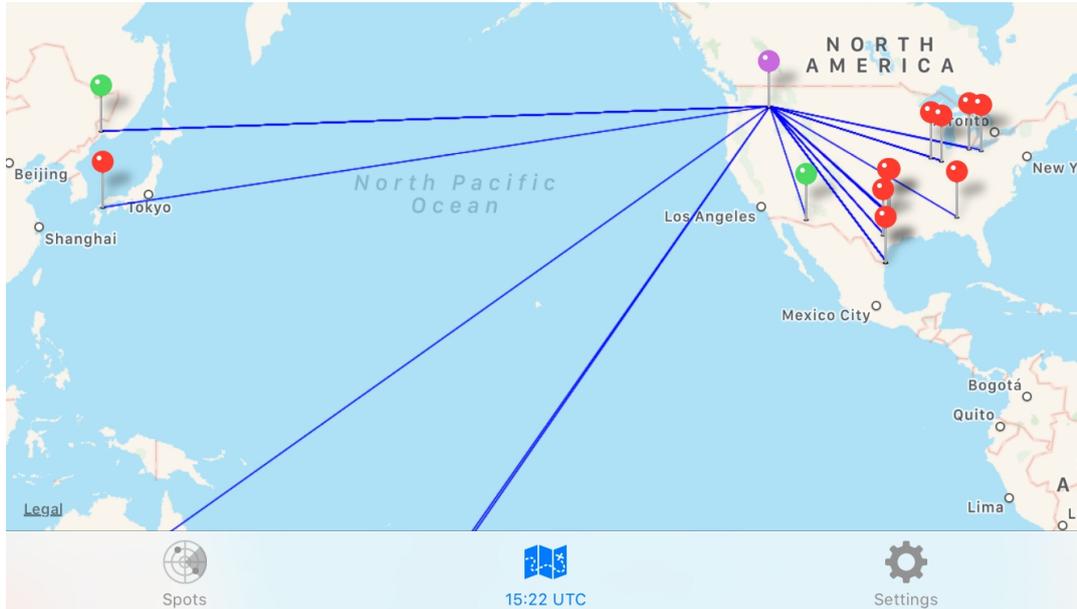
## WSJT-X: WSPR

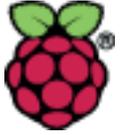
- Reports are collected on the WSPRnet site:  
<http://bit.ly/wsprmap>
- You can query your call sign and see who has heard you.





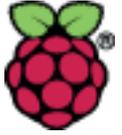
# WSJT-X: WSPR





## WSJT-X: Additional Notes

- Use the file menu then “exit” to shutdown the application.
- Avoid using the “x” button in the upper right.
  - Sometimes this will fail to properly clear the temporary files and the program will not re-open.
  - If this happens you must manually clear the temp files.
  - Terminal commands
    - \$ cd /tmp
    - \$ ls
    - \$ sudo rm -ri \*



WSJT-X

Questions?