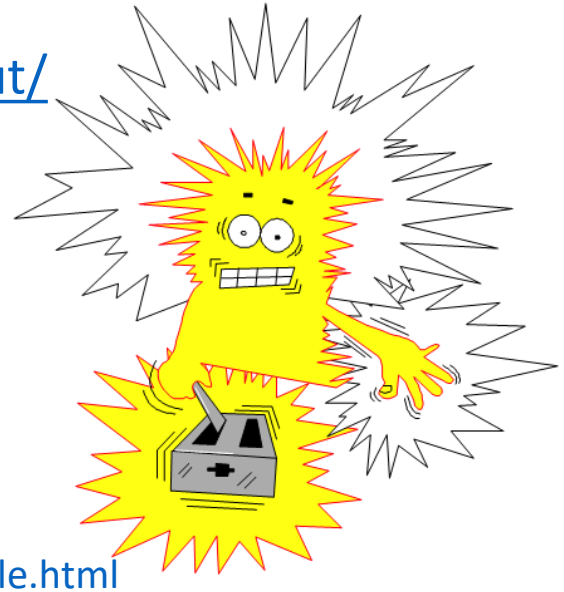
Digital HAM Radio – An Introduction

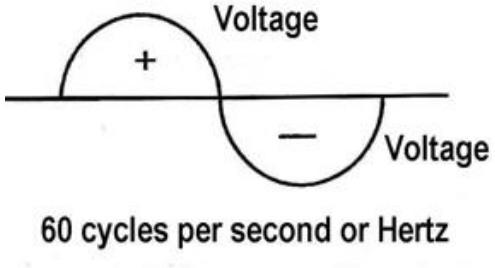
Basic Introduction to Digital Communications using:



- **Penut** (D-Star – Windows and Android – FREE Software) http://www.pa7lim.nl/peanut/
- **Pi Star Hot Spots** (ZUM and Jumbo Spot) https://www.pistar.uk/
  - Yaesu and DMR (BrandMeister) Basic Configurations
- **Wires-X** – Yaesu Software connecting to Wires-X Digital Rooms using a FT-2DR
  - https://www.yaesu.com/jp/en/wires-x/ - General Web Page
  - https://www.yaesu.com/jp/en/wires-x/regist/index.php - Registration Link
  - Good reference wires-x bible: https://www.hamoperator.com/Hamoperator/WiRES-X_Bible/WiRES-X_Bible.html

Note: Several sides taken from Brian Donavan, K2AS

Wires-X presentation and from various googled internet sites



As of 12 Aug 19

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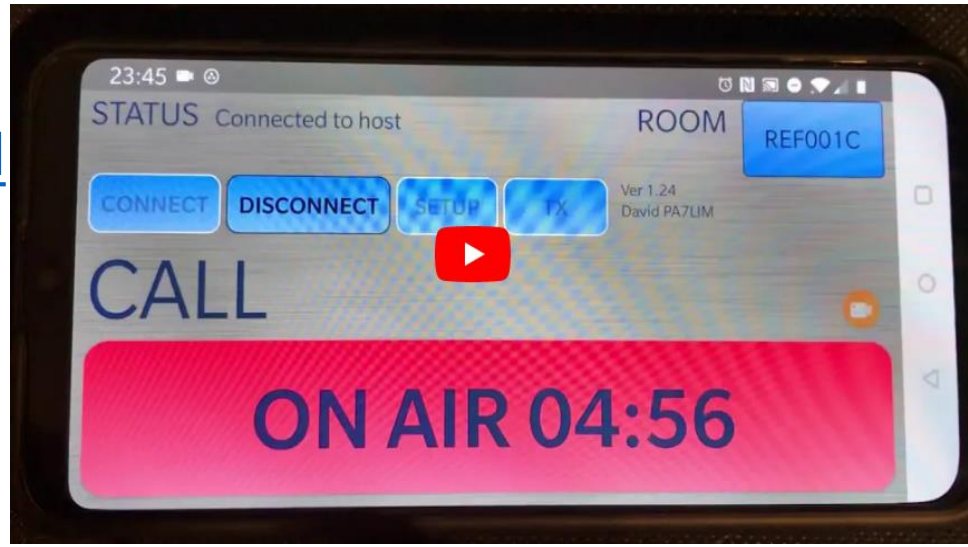
Penut – D-STAR and DMR – Free to Download/Use

- Website: http://www.pa7lim.nl/peanut/
- Windows (DSTAR/DMR) & Android (DSTAR)
- By David PA7LIM – From the Netherlands
- Uses transcoding with the AMBE3000 chip
- Must Register Penut and also DSTAR
  - http://www.pa7lim.nl/peanut-request/
  - http://www.dstargateway.org/D-Star_Registration.html



Hotspots

- Lots of options: DVAP, zumspot, jumbospot, dv4mini, openspot, mmdvm, blue dv, DVMega, Nanospot
- Digital modes other than YSF are available: DMR, D-Star, P25, NXDN
- Low power 440 Mhz tranceivers – up to 12 mW limited coverage unless mmdvm is used with a higher power radio
- Hotspots were not developed to replace repeaters but rather to supplement them.
- In areas where there is NO repeater, a hotspot allows the user to connect directly to a digital network via the Internet
- Costs vary- approx. $65 - $255 for hotspots
- Network is based off DMR (Brandmeister), XLX reflectors and YSF refectors
- Gateways and bridges are setup and different modes can talk to each other (i.e.openspot DMR<=>C4FM)
- **Pi-Star** software on Raspberry Pi is very popular and will work with most hotspots
- Hotspot can be controlled with the Wires-X function on Yaesu digital radios
- Wires-X nodes and “rooms” are **NOT** the same as what is available with hotspots

Hot Spots: AKA RF to Internet Connections

- Pi Star Hot Spots (ZUM and Jumbo Spot) https://www.pistar.uk/
- Yaesu and DMR (BrandMeister) Basic Configurations:
  - DMR User Registration: https://www.dmr-marc.net/
  - BrandMeister Registration - https://brandmeister.network/?page=register
  - Yaesu registration not required but nice to have https://www.yaesu.com/jp/en/wires-x/regist/index.php

Pi-Star Digital Voice Dashboard for KY4TN

Modes Enabled	
D-Star	DMR
YSF	P25
YSF XMode	NXDN
DMR XMode	POCSAG

Network Status	
D-Star Net	DMR Net
YSF Net	P25 Net
YSF2DMR	NXDN Net
YSF2NXDN	YSF2P25
DMR2NXDN	DMR2YSF

Radio Info	
Trx	TX DMR Slot 2
Tx	433.175000 MHz
Rx	433.175000 MHz
FW	HS_Hat:v1.3.3

DMR Repeater	
DMR ID	3147980
DMR CC	1
TS1	disabled
TS2	enabled
TG 91/No Ref	
DMR Master	
BM United States ..	

Gateway Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	Loss	BER
18:13:09 Jun 4th	DMR Slot 2	KS5V	TG 91	Net	2.6	0%	0.0%
18:11:26 Jun 4th	DMR Slot 2	3141560	TG 91	Net	100.6	2%	0.0%
18:11:20 Jun 4th	DMR Slot 2	KI7CDG	TG 91	Net	0.8	7%	0.0%
18:09:47 Jun 4th	DMR Slot 2	N4HAY	TG 91	Net	91.9	2%	0.0%
18:07:05 Jun 4th	DMR Slot 2	WB0NPN	TG 91	Net	0.5	0%	0.0%
18:03:14 Jun 4th	DMR Slot 2	N5AQM	TG 91	Net	5.2	0%	0.0%
18:02:55 Jun 4th	DMR Slot 2	AG6PF	TG 91	Net	14.5	5%	0.0%
17:56:39 Jun 4th	DMR Slot 2	N2JZ	TG 91	Net	1.6	0%	0.0%
17:55:55 Jun 4th	DMR Slot 2	DU1AVC	TG 91	Net	0.8	0%	0.0%
17:54:41 Jun 4th	DMR Slot 2	3143172	TG 91	Net	0.8	0%	0.0%
17:54:06 Jun 4th	DMR Slot 2	3141754	TG 91	Net	0.1	0%	0.0%
17:53:17 Jun 4th	DMR Slot 2	AF6PF	TG 91	Net	0.8	0%	0.0%
17:52:36 Jun 4th	DMR Slot 2	W6JAR	TG 91	Net	1.6	0%	0.0%
17:51:57 Jun 4th	DMR Slot 2	3143125	TG 91	Net	0.8	0%	0.0%
17:51:08 Jun 4th	DMR Slot 2	K9AAO	TG 91	Net	14.5	6%	0.0%
17:51:04 Jun 4th	DMR Slot 2	KM6DZQ	TG 91	Net	0.5	0%	0.0%
17:49:01 Jun 4th	DMR Slot 2	VK7WP	TG 91	Net	1.9	0%	0.0%

Local RF Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	BER	RSSI

Pi-Star / Pi-Star Dashboard, © Andy Taylor (MW0MWZ) 2014-2019.
ircDDBGateway Dashboard by Hans-J. Barthen (DL5DI),
MMDVMDash developed by Kim Huebel (DG9VH),
Need help? Click here for the Facebook Group
or Click here to join the Support Forum

Pi-Star Digital Voice Dashboard for KY4TN

Modes Enabled	
D-Star	DMR
YSF	P25
YSF XMode	NXDN
DMR XMode	POCSAG

Network Status	
D-Star Net	DMR Net
YSF Net	P25 Net
YSF2DMR	NXDN Net
YSF2NXDN	YSF2P25
DMR2NXDN	DMR2YSF

Radio Info	
Trx	TX YSF
Tx	434.175000 MHz
Rx	434.175000 MHz
FW	HS_Hat:v1.3.3

YSF Network
Linked to: FCS00290

Gateway Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	Loss	BER
18:15:32 Jun 4th	YSF	KG7HHG	ALL at FCS002-90	Net	TX		
18:15:03 Jun 4th	YSF	KB0RTQ	ALL at FCS002-90	Net	24.0	0%	0.0%
18:13:52 Jun 4th	YSF	AMERICALNK	ALL at FCS002-90	Net	0.7	0%	0.0%
18:13:06 Jun 4th	YSF	W3AIX	ALL at FCS002-90	Net	9.6	0%	0.0%
18:10:48 Jun 4th	YSF	W7AZC	ALL at FCS002-90	Net	0.6	0%	0.0%
18:08:55 Jun 4th	YSF	N9JJG	ALL at FCS002-90	Net	0.3	0%	0.0%
18:08:12 Jun 4th	YSF	NJ3U	ALL at FCS002-90	Net	8.1	0%	0.0%
18:05:56 Jun 4th	YSF	BI3RKD	ALL at FCS002-90	Net	0.3	0%	0.0%
18:04:41 Jun 4th	YSF	KE5MLF	ALL at FCS002-90	Net	3.5	0%	0.0%
18:03:59 Jun 4th	YSF	N3RES	ALL at FCS002-90	Net	1.0	0%	0.6%
18:03:37 Jun 4th	YSF	W4KYT	ALL at FCS002-90	Net	8.9	0%	0.0%
18:03:03 Jun 4th	YSF	N3EXA	ALL at FCS002-90	Net	27.0	0%	0.0%
17:57:13 Jun 4th	YSF	KB5EDR	ALL at FCS002-90	Net	12.2	0%	0.0%
17:52:11 Jun 4th	YSF	WB2FZC	ALL at FCS002-90	Net	0.8	0%	0.0%
17:51:26 Jun 4th	YSF	JE2EZE	ALL at FCS002-90	Net	1.4	0%	0.0%
17:50:30 Jun 4th	YSF	K3CXW	ALL at FCS002-90	Net	0.8	0%	0.0%
17:49:05 Jun 4th	YSF	N0TJD	ALL at FCS002-90	Net	4.4	0%	0.0%

Local RF Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	BER	RSSI

Pi-Star / Pi-Star Dashboard, © Andy Taylor (MW0MWZ) 2014-2019.
ircDDBGateway Dashboard by Hans-J. Barthen (DL5DI),
MMDVMDash developed by Kim Huebel (DG9VH),
Need help? Click here for the Facebook Group
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Get your copy of Pi-Star from here.

Hot Spots: AKA RF to Internet Connections

- Hot Spot Key Configurations:
  - Correct Modem type selected?
  - WIFI / Bluetooth Settings and passwords (if required) correct and connected?
  - Correct mode (YSF or DMR – Many other to select – DSTAR/P25/NXDN/POSAG)?
    - For DMR specific to the Jumbo Spot – entered the 500hz modem RX/TX offset frequency?
    - For DMR Proper Frequency and Color Code Entered in Hot Spot and in DMR radio code plug?
  - YSF / FCS Reflector / DMR Talk Group -- Entered Correct?

Hot Spot – Correct Modem Selected – YSF Yaesu Setup

General Configuration

Setting	Value
Hostname:	pi-star-1 Do not add suffixes such as .local
Node Callsign:	KY4TN
CCS7/DMR ID:	3147977
Radio Frequency:	434.175.000 MHz
Latitude:	33.9776 degrees (positive value for North, negative for South)
Longitude:	-118.461 degrees (positive value for East, negative for West)
Town:	Marina del Rey, CA DM03
Country:	USA
URL:	http://www.qrz.com/db/KY4TN (•) Auto ( ) Manual
Radio/Modem Type:	STM32-DVM / MMDVM_HS - Raspberry Pi Hat (GPIO)
Node Type:	( ) Private (•) Public
System Time Zone:	America/Los_Angeles
Dashboard Language:	english_us

Hot Spot – Correct Modem Selected – DMR

Note: Radio Freq – Critical Multi Hot Spots

General Configuration

Setting	Value
Hostname:	pi-star-2 Do not add suffixes such as .local
Node Callsign:	KY4TN
CCS7/DMR ID:	3147980
Radio Frequency:	433.175.000 MHz
Latitude:	33.9776 degrees (positive value for North, negative for South)
Longitude:	-118.461 degrees (positive value for East, negative for West)
Town:	Marina del Rey, CA DM03
Country:	USA
URL:	http://www.qrz.com/db/KY4TN (•) Auto ( ) Manual
Radio/Modem Type:	STM32-DVM / MMDVM_HS - Raspberry Pi Hat (GPIO)
Node Type:	( ) Private (•) Public
System Time Zone:	America/Los_Angeles
Dashboard Language:	english_us

Apply Changes

Hot Spot – WIFI / Bluetooth Settings

Firewall Configuration

Setting	Value	
Dashboard Access:	○ Private ◉ Public	
ircDDBGateway Remote:	◉ Private ○ Public	
SSH Access:	◉ Private ○ Public	
Auto AP:	◉ On ○ Off	Note: Reboot Required if changed
uPNP:	◉ On ○ Off	

Apply Changes

Wireless Configuration

Refresh | Reset WiFi Adapter | Configure WiFi

Wireless Information and Statistics

Interface Information	Wireless Information
Interface Name : wlan0	Connected To : Elton John
Interface Status : Interface is up	AP Mac Address : 18:d6:c7:4d:7a:66
IP Address : 192.168.0.109	
Subnet Mask : 255.255.255.0	Bitrate : 72.2 MBit/s
Mac Address : b8:27:eb:a7:96:8e	Signal Level : -25 dBm
Interface Statistics	Transmit Power : 31 dBm
Received Packets : 20272	Link Quality : 70/70
Received Bytes : 3757622 (3.5 MiB)	
Transferred Packets : 12483	
Transferred Bytes : 6229882 (5.9 MiB)	

Information provided by ifconfig and iwconfig

Hot Spot - Correct mode (YSF or DMR)

Pi-Star Digital Voice – Configuration

Dashboard | Admin | Expert | Power | Update | Backup/Restore | Factory Reset

Gateway Hardware Information

Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star-1	4.9.35+	Pi Zero W Rev 1.1 (512MB)	0.62 / 0.74 / 0.71	44.4°C / 111.9°F

Control Software

Setting	Value
Controller Software:	○ DStarRepeater ◉ MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	◉ Simplex Node ○ Duplex Repeater (or Half-Duplex on Hotspots)

Apply Changes

MMDVMHost Configuration

Setting	Value				
DMR Mode:	○	RF Hangtime:	20	Net Hangtime:	20
D-Star Mode:	○	RF Hangtime:	20	Net Hangtime:	20
YSF Mode:	●	RF Hangtime:	20	Net Hangtime:	20
P25 Mode:	○	RF Hangtime:	20	Net Hangtime:	20
NXDN Mode:	○	RF Hangtime:	20	Net Hangtime:	20
YSF2DMR:	○				
YSF2NXDN:	○				
YSF2P25:	○				
POCSAG:	○	POCSAG Paging Features			

Hot Spot - For DMR specific to the Jumbo Spot – Entered the 500hz modem RX/TX offset frequency

Pi-Star Digital Voice – Expert Editors

Dashboard | Admin | Update | Upgrade | Backup/Restore | Configuration

Quick Edit: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMR GW | YSF GW | P25 GW | NXDN GW | DAPNET GW
Full Edit: DMR GW | PiStar-Remote | WiFi | BM API | DAPNET API | System Cron | RSSI Dat **Tools:** CSS Tool | SSH Access

Info

Latitude	33.9776
Longitude	-118.461
Location	Marina del Rey, CA DM03
URL	http://www.qrz.com/db/KY4T
RXFrequency	433175500
TXFrequency	433175500
Power	1
Height	0

Change to: 434175**500**

Change to: 434175**500**

Note: This offset is not displayed on dashboard! Be carefull changing settings in Expert mode!

Hot Spot: For DMR-Proper Frequency and Color Code Must Be Entered in Hot Spot and Match DMR radio code plug!

DMR Configuration

Setting	Value
DMR Master:	BM_United_States_3108
Hotspot Security:	
BrandMeister Network:	Repeater Information | Edit Repeater (BrandMeister Selfcare)
DMR Color Code:	1
DMR EmbeddedLCOnly:	
DMR DumpTAData:	

Apply Changes

Hot Spot: YSF / FCS Reflector / DMR Talk Group -- Entered Correct?

Yaesu System Fusion Configuration

Setting	Value
YSF Startup Host:	FCS00290 - AmericaLinkWIRESX
APRS Host:	missouri.aprs2.net
UPPERCASE Hostfiles:	Note: Update Required if changed
WiresX Passthrough:	Turn ON

WiresX Auto Passthrough - The idea is that YSF and FCS reflectors work like they always did, however now when you connect to YSF2DMR, YSF2NXDN or YSF2P25, the gateway will pass your WiresX commands to the gateway until you unlink, so in YSF2DMR, you can choose reflectors from the radio (use Brandmeister for the best results at the moment, the other networks will catch up soon). When you unlink, it will unlink the YSF2DMR TG, and unlink from YSF2DMR allowing you to switch to a new home.

DMR Configuration

Setting	Value
DMR Master:	BM_United_States_3108
Hotspot Security:	
BrandMeister Network:	Repeater Information | Edit Repeater (BrandMeister Selfcare)
DMR Color Code:	1
DMR EmbeddedLCOnly:	
DMR DumpTAData:	

YSF2DMR Example Configuration:

MMDVMHost Configuration

Setting	Value				
DMR Mode:	○	RF Hangtime:	20	Net Hangtime:	20
D-Star Mode:	○	RF Hangtime:	20	Net Hangtime:	20
YSF Mode:	●	RF Hangtime:	20	Net Hangtime:	20
P25 Mode:	○	RF Hangtime:	20	Net Hangtime:	20
NXDN Mode:	○	RF Hangtime:	20	Net Hangtime:	20
YSF2DMR:	●				
YSF2NXDN:	○				

Yaesu System Fusion Configuration

Setting	Value	
YSF Startup Host:	YSF00002 - Link YSF2DMR ▼	
APRS Host:	missouri.aprs2.net ▼	
UPPERCASE Hostfiles:	○	Note: Update Required if changed
WiresX Passthrough:	●	
(YSF2DMR)CCS7/DMR ID:	3147977	
DMR Master:	BM_United_States_3101 ▼	
Hotspot Security:		
DMR TG:	3147	

YSF2DMR Example PI-STAR Dashboard:

Hostname: pi-star-1 — Pi-Star:3.4.11 / Dashboard: 20190429

Pi-Star Digital Voice Dashboard for KY4TN

Dashboard | Admin | Configuration

Modes Enabled	
D-Star	DMR
YSF	P25
YSF XMode	NXDN
DMR XMode	POCSAG

Network Status	
D-Star Net	DMR Net
YSF Net	P25 Net
YSF2DMR	NXDN Net
YSF2NXDN	YSF2P25
DMR2NXDN	DMR2YSF

Radio Info	
Trx	TX YSF
Tx	434.175000 MHz
Rx	434.175000 MHz
FW	HS_Hat:v1.3.3

YSF Network
Linked to: YSF2DMR

YSF2DMR	
DMR ID	3147977
YSF2DMR Master	
BM United States ..	

Gateway Activity

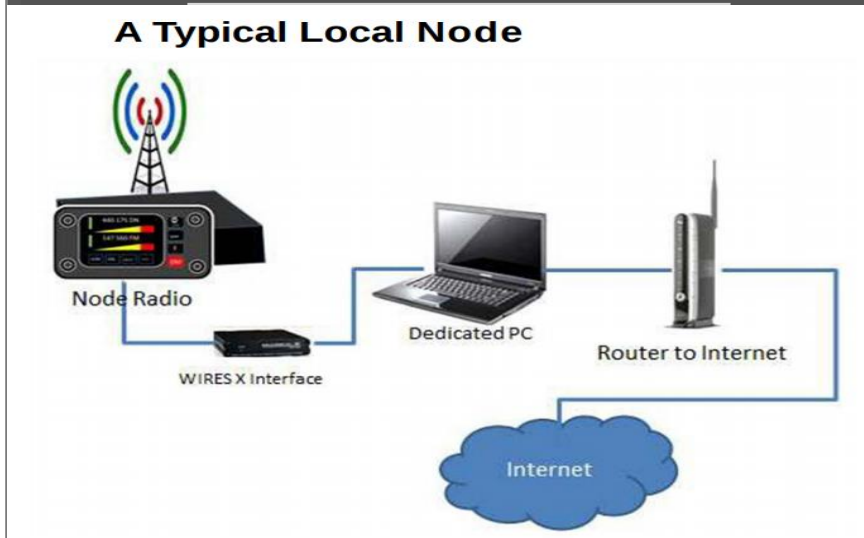
Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	Loss	BER
14:58:13 Jun 5th	YSF	M7AGB	ALL at FCS002-90	Net	TX		
14:56:47 Jun 5th	YSF	KD2SED	ALL at FCS002-90	Net	2.5	0%	0.0%
14:53:55 Jun 5th	YSF	AMERICALNK	ALL at FCS002-90	Net	0.6	0%	0.0%
14:51:42 Jun 5th	YSF	G1YLG	ALL at FCS002-90	Net	26.6	0%	0.0%
14:50:08 Jun 5th	YSF	KC2ABV	ALL at FCS002-90	Net	0.9	0%	0.0%
14:49:23 Jun 5th	YSF	VE7PGE	ALL at FCS002-90	Net	0.2	0%	0.0%
14:48:25 Jun 5th	YSF	EA6ABL	ALL at FCS002-90	Net	1.1	0%	0.0%
14:47:53 Jun 5th	YSF	KN4LXN	ALL at FCS002-90	Net	9.1	0%	0.0%

Local RF Activity

Time (PDT)	Mode	Callsign	Target	Src	Dur(s)	BER	RSSI

Transition Slide to:

Wires-X Section



Hotspots vs. Wires-X

- Wires-X node software allows operator to set many parameters
  - Access (open, closed, DP-ID, DG-ID, GM-group mode)
  - Analog or digital modes
  - VHF/UHF frequencies
  - Simplex or connected to a repeater
  - Power output – variable up to 50 watts
  - ID/Timers – individual setup
  - News, messages, pictures, info on other stations, who is connected and log history
  - Connect and disconnect options, restrict access. Return to “room”
  - All YSF radios allow for control of Wires-X but how this is done varies from radio to radio
  - Can add a second radio to HRI 200 for preset search function just press the WIRES-X button to find nodes
  - Simple and easy to use once you have it set up

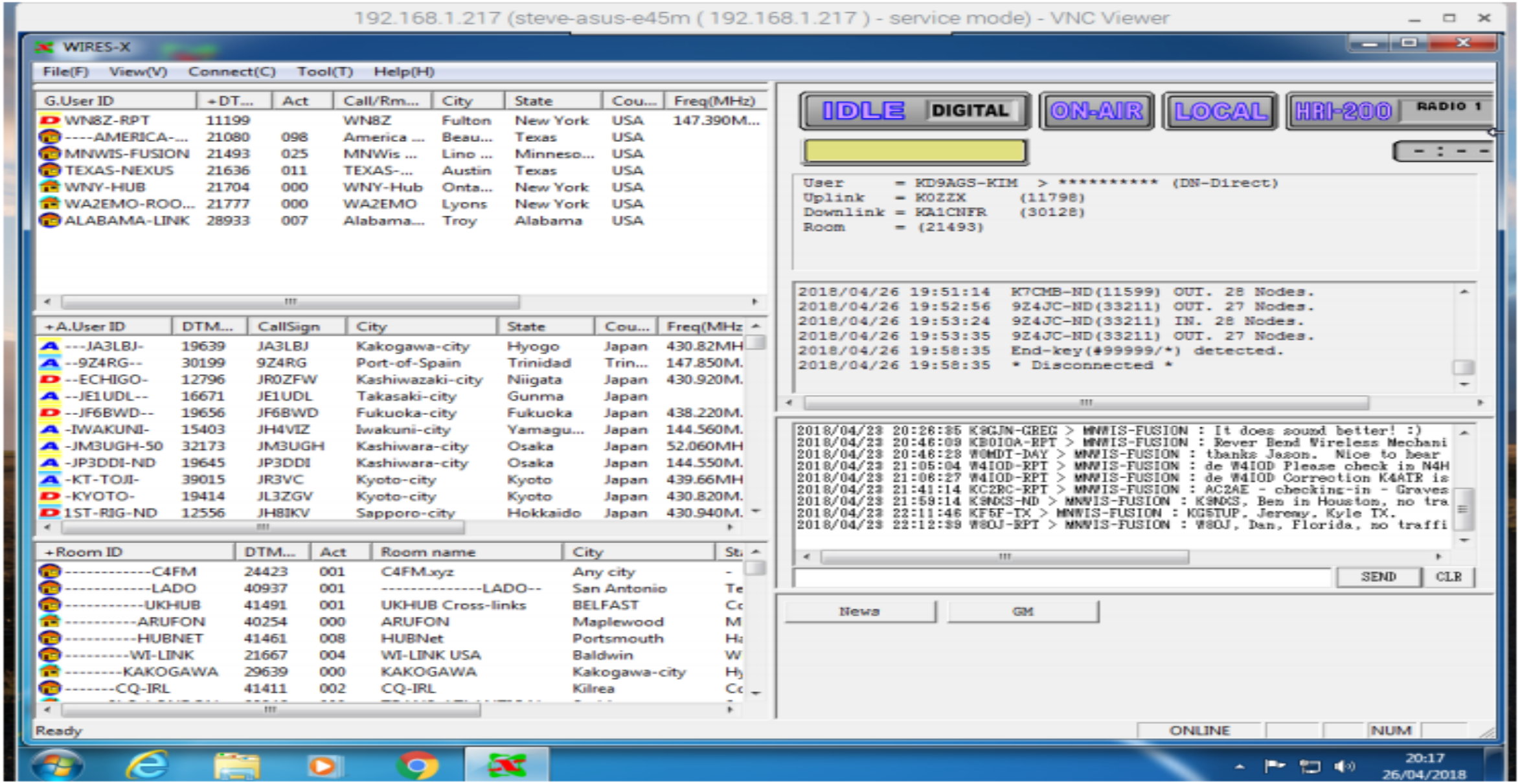
Terminology
(info from Wires-X – The Bible)

- **Node -** Radio (repeater or simplex) connected to the Internet via a PC, which repeats communications of a conventional amateur radio as an access point.
- **Local Node -** This is a Node within the radio communication range of a conventional amateur radio station.
- **Analog Node -** A Node that is a transceiver or repeater using a conventional FM format and can only repeat DTMF (Dual Tone Multi Frequencies) codes and analog audio transmission/receptions.
- **Digital Node -** This is a Node which is a transceiver or repeater compatible with digital communications in C4FM (Continuous 4 Level FM) format. With this type of Node you can not only relay voice communications, but also text and image data transmissions. One can also repeat DMTF codes and audio transmissions/receptions.

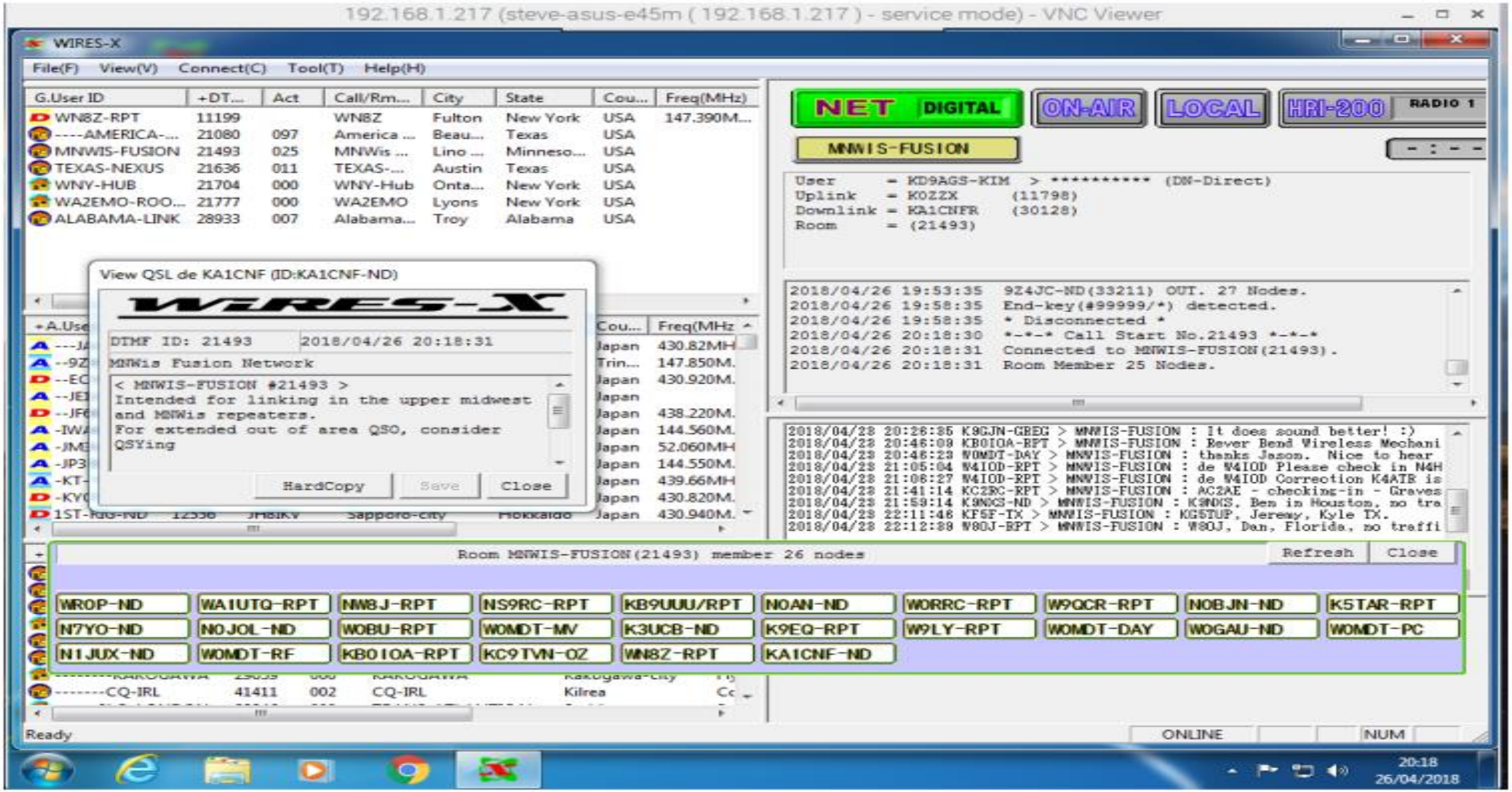
Terminology (cont'd)

- **Conventional Amateur Station -** This is a normal Amateur Radio station, an individual on either a hand held radio, a mobile radio or a base station radio.
- **Room -** This is a WIRES-X Network community space to which multiple Nodes can connect simultaneously, like the old telco party line. This is a place where all amateur stations can link to each other via a local Node and communicate with each other. In addition to voice communication, one can chat with text messages on the PC used for the local Node.
- **WIRES-X user ID (node) -** YAESU provides an identification name with the WIRES-X node. Each node is assigned a DTMF ID (5-digit number, e.g. 11916) and user ID (alphanumeric e.g. WB7OEV) up to 10 digits in length. Knowing the ID of the node to connect to, you can transmit the DTMF ID code from the transceiver, specifying the node to connect to by searching by characters.

Wires-X Software not connected

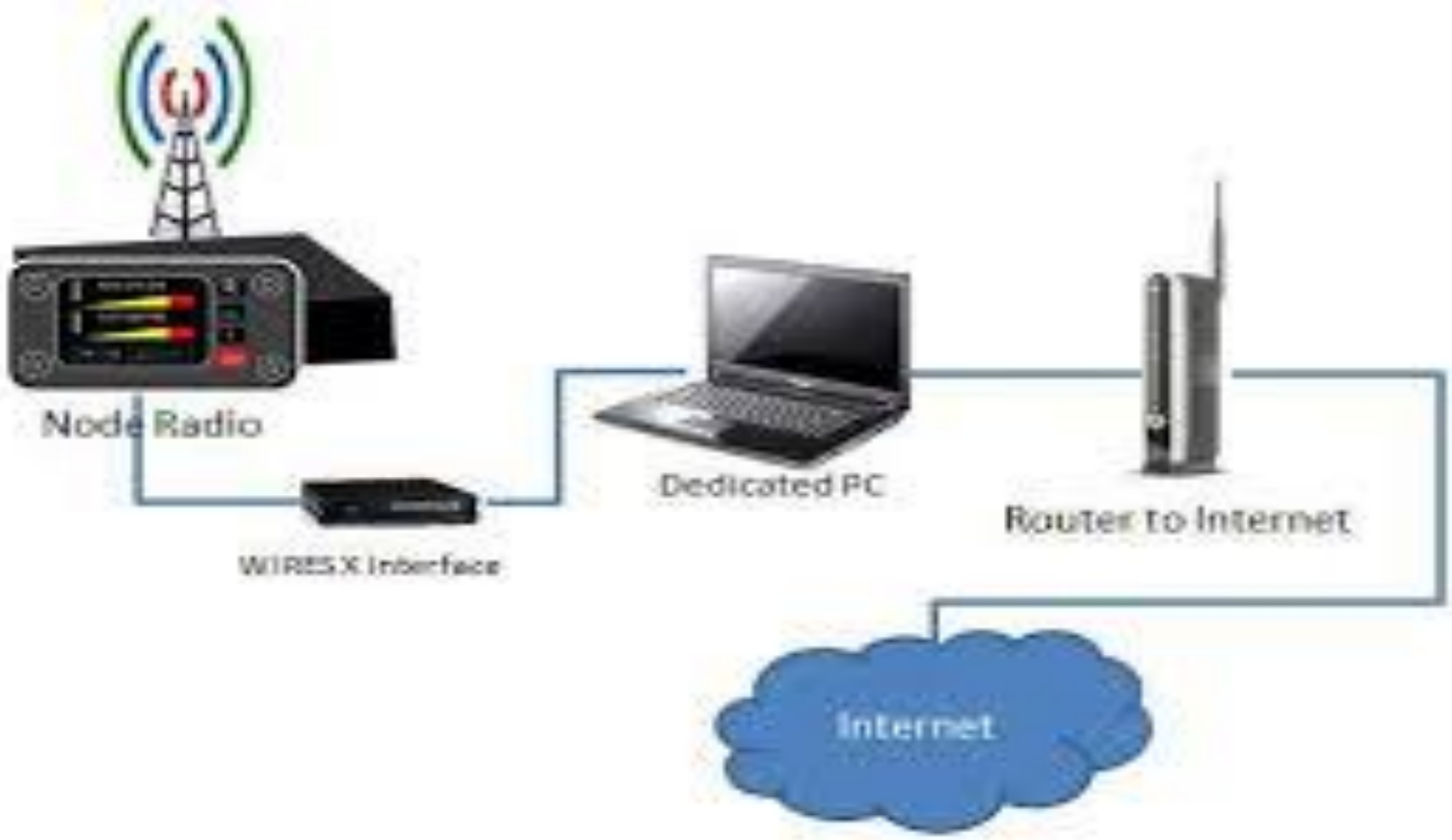


Wires-X Software – connected to MNWis Room



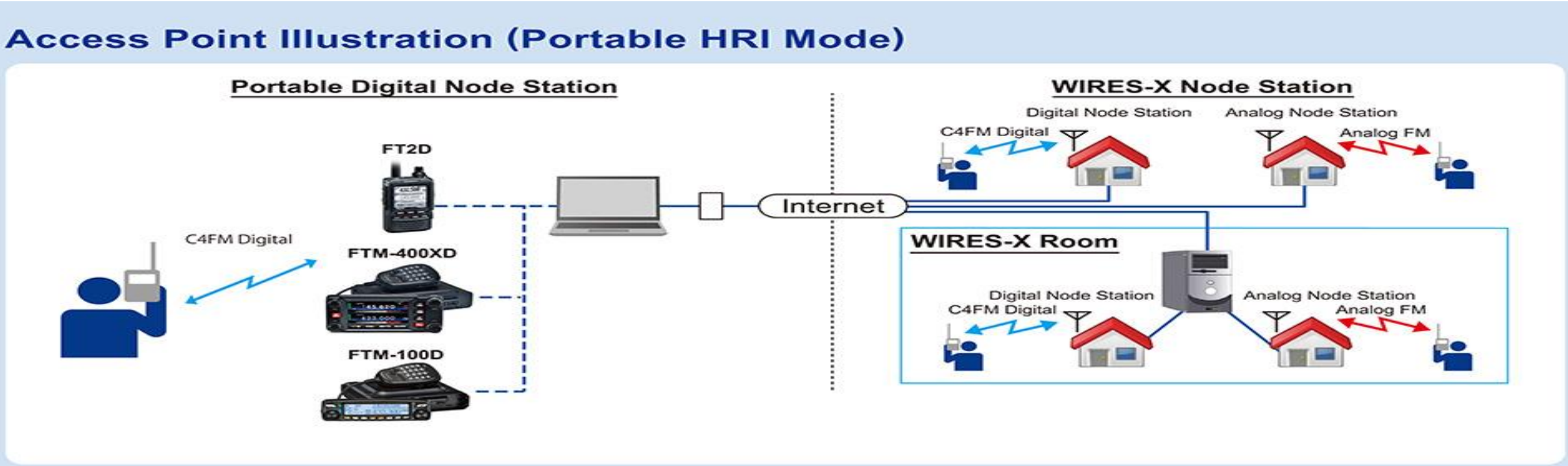
Wires-X Internet/Computer/Radio Interface

- HRI-200



Wires-X - Yaesu Software – Home user setup

- **Wires-X** – Yaesu Software connecting to Wires-X Digital Rooms using a FT-2DR
  - https://www.yaesu.com/jp/en/wires-x/ - General Web Page
  - https://www.yaesu.com/jp/en/wires-x/regist/index.php - Registration Link



Wires-X - Yaesu Software – Typical Repeater setup

- IMRS Repeater network and WIRES-X

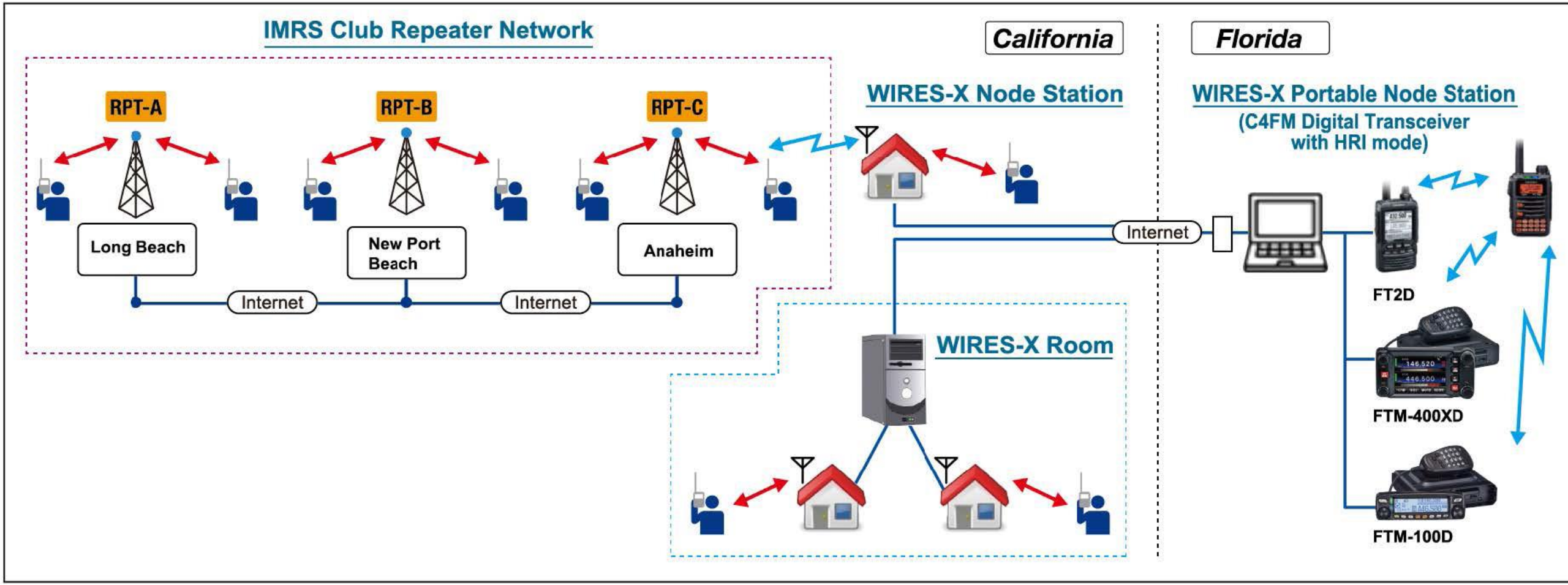


Illustration of WIRES-X operation via Portable digital Node Stations

System Fusion II Radios

C4FM Digital

Advantages of Wires-X (From Yaesu Presentation)

- Supports C4FM digital. Repeating digital data via the Internet, users can enjoy clear voice communications
- Automatically connects to nodes and “rooms”. Call sign, name, distance between stations included in transmission
- Search active nodes and “rooms”
- Similar to Echolink, IRLP, Allstar but with more features
- Does not require repeater controllers
- No repeater needed – can be simplex
- Can also link repeaters
- Range increased when linked to other repeaters and/or nodes
- News bulletins (messages, images, voice memos) can be freely uploaded to nodes and “rooms”
- Also supports traditional FM users and C4FM users can communicate with analog FM stations

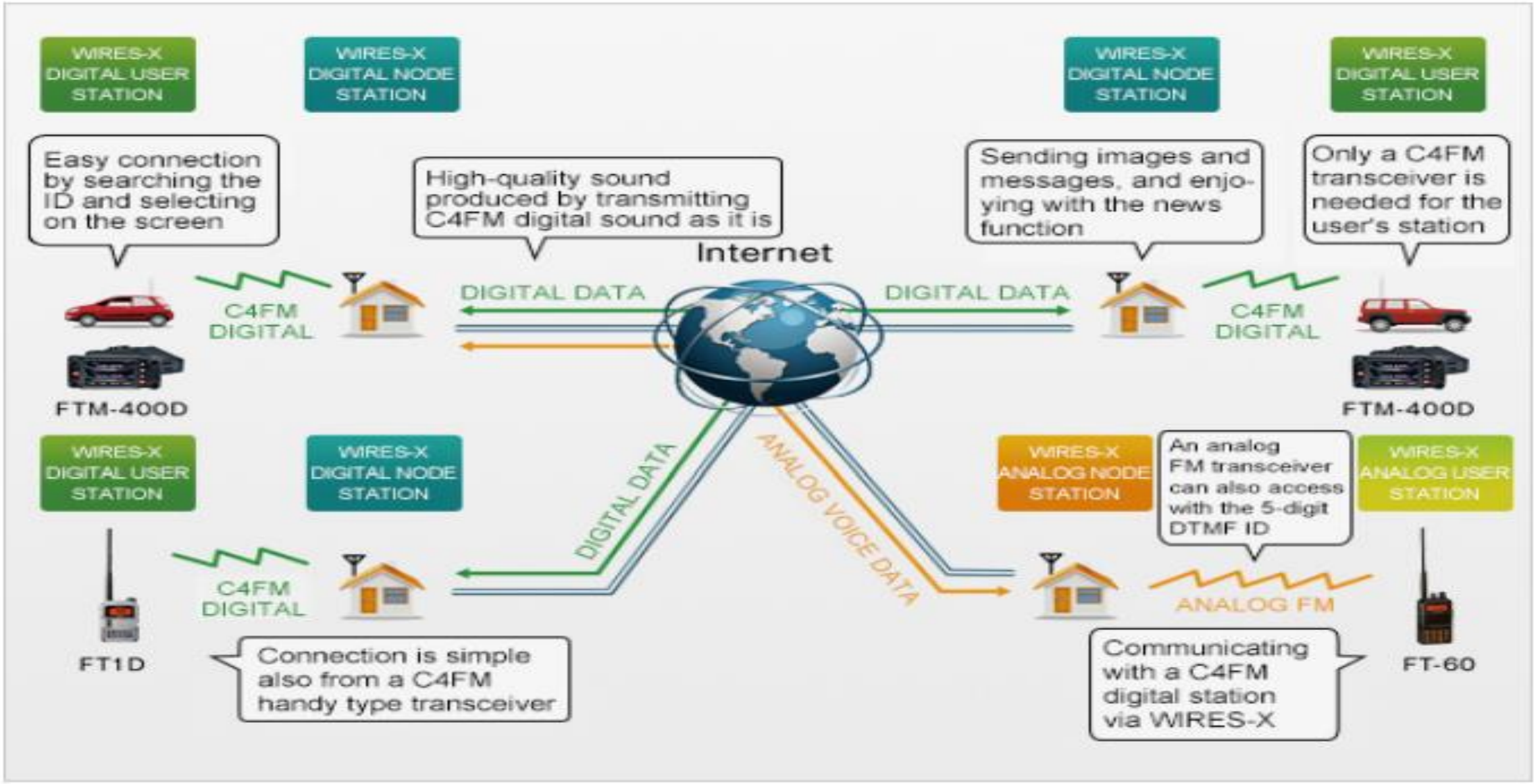
Wires-X Node (From Yaesu Presentation)

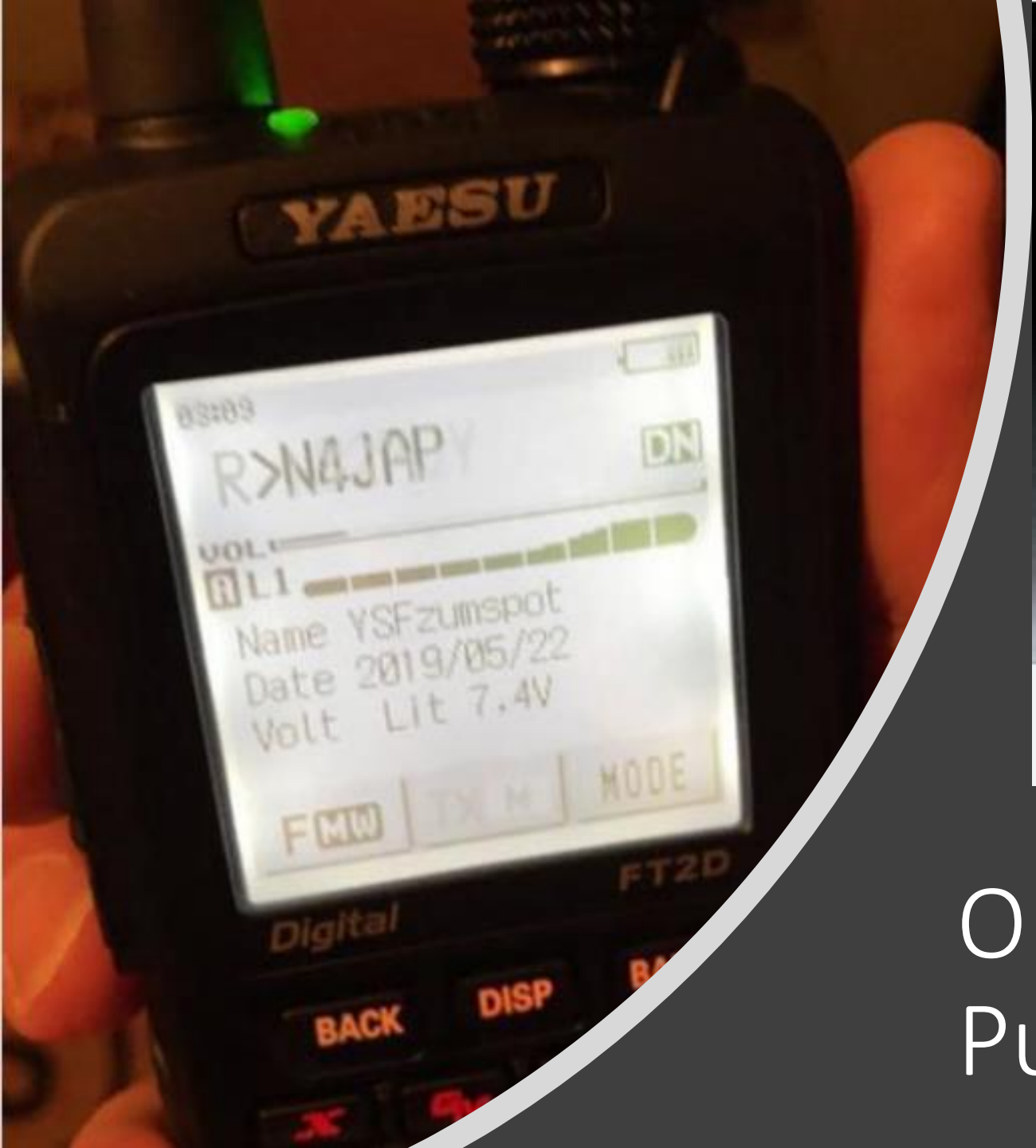
- No Fusion repeater or node near you? Then set up your own node!
- Setup is quick and easy!
- Wires-X node consists of a PC, Wires-X connection kit (VOIP), and a transceiver
- Functions as a repeater station in simplex mode to connect to the
- Internet and another radio or repeater
- Can also be connected to a repeater for linking
- Wires-X node can open and run a community space or “room” where multiple nodes can connect at the same time.
- Uses Yaesu server based in Japan

Wires-X Node (From Yaesu Presentation)

A node radio...such as...

Wires-X Communication from Yaesu site -complicated!





QRPBLOG.COM

Yaesu FT3D – new flagship VHF/UHF handheld

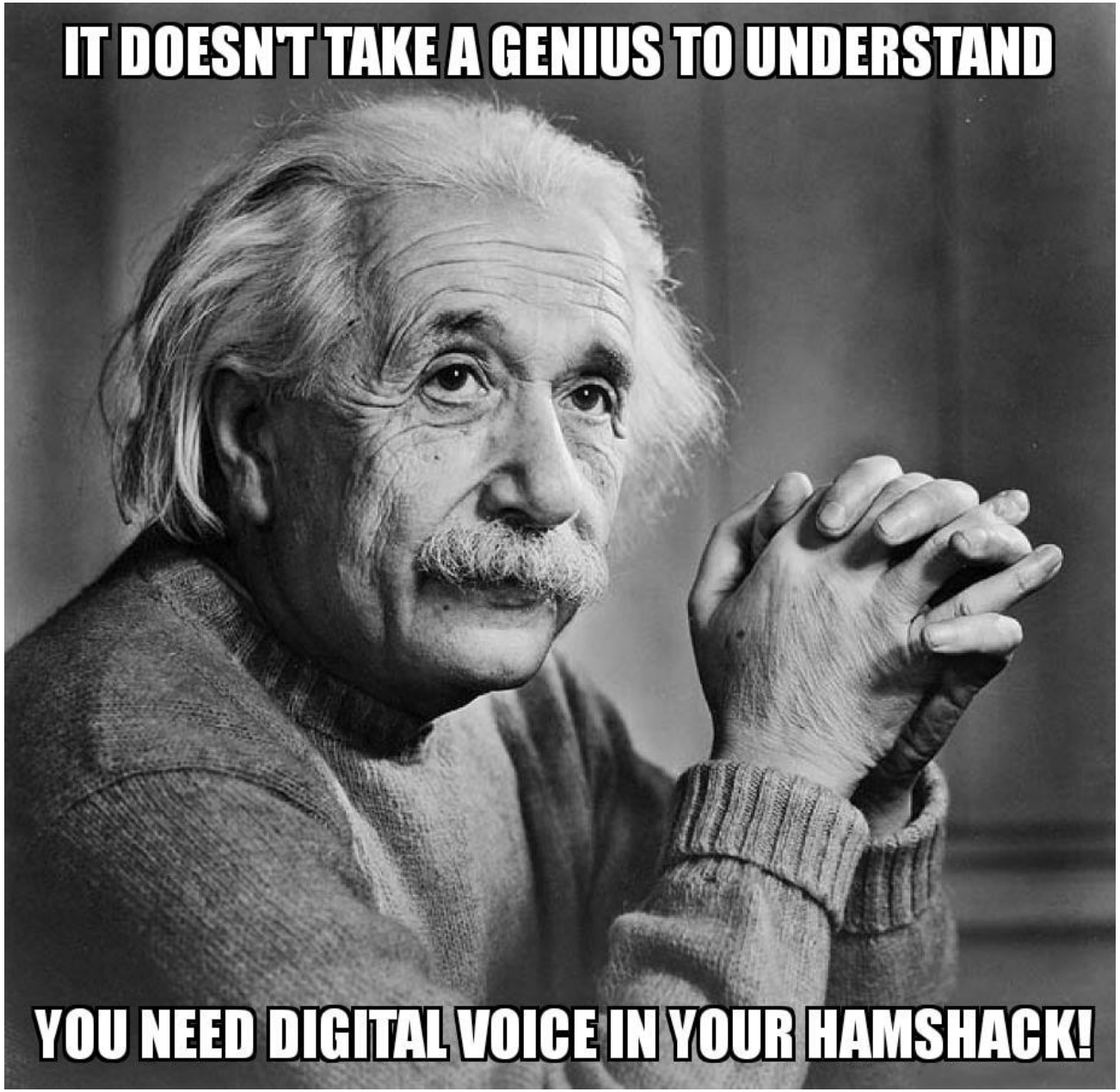
Operating Digital – Putting all this to use!

Digital Operating Tips:

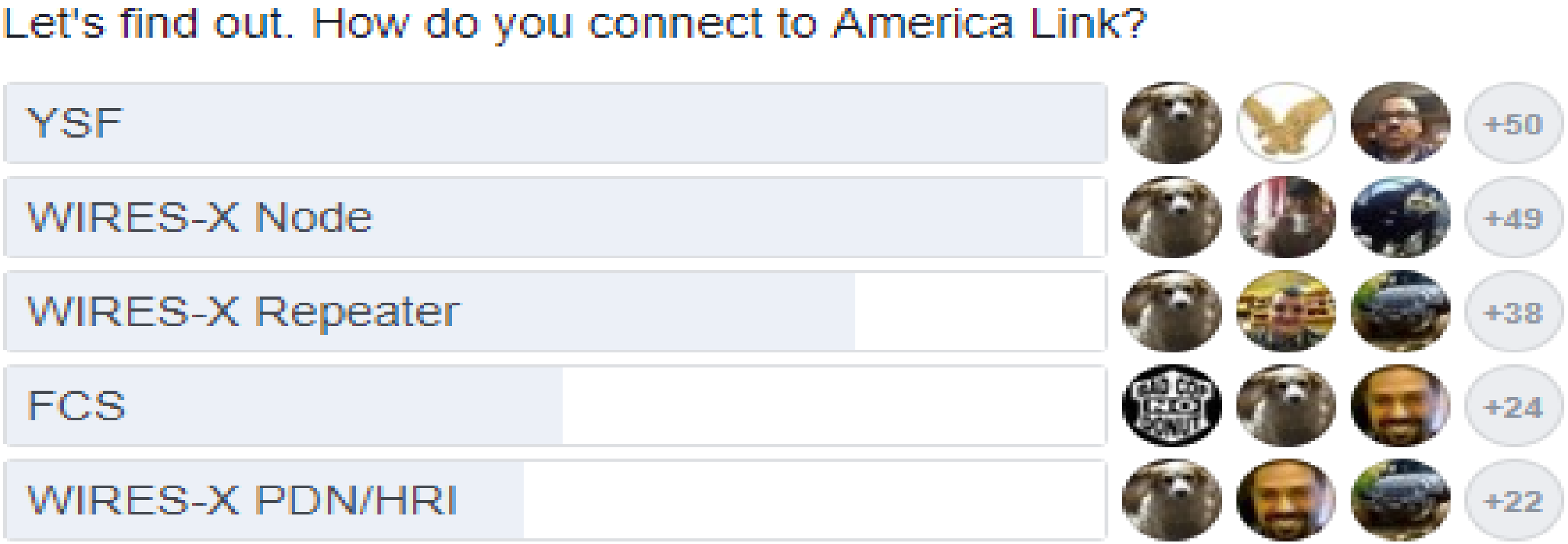
- Leave pauses between transmissions (2-3 seconds)
- Listen before you talk
- ID with your call sign every 10 minutes
- Don’t kerchunk the repeater, your call sign will be displayed!
  - Kerchunking a digital repeater/hotspot does not have a carrier tail/hang time or courtesy tone
- Just say your call sign
- Roundtable rules
- Nets and Emergency Nets
- Be mindful that you are representing all hams and that you might be heard across the county or the world
- Do not monopolize the repeater
- Switching rooms/nodes: If you are not the repeater or node owner, please call on the radio and ask for permission before changing the node or room linking. You might not receive an answer.
- Then return it to the original node or room when you are done

WIRES-X Radio Access

- To connect to a Wires-X node enter the 4 to 6 digit node number.
- Transmit # to disconnect.
- Use node number 9999 to check your audio. Node 9999 records and plays back transmissions for testing purposes.



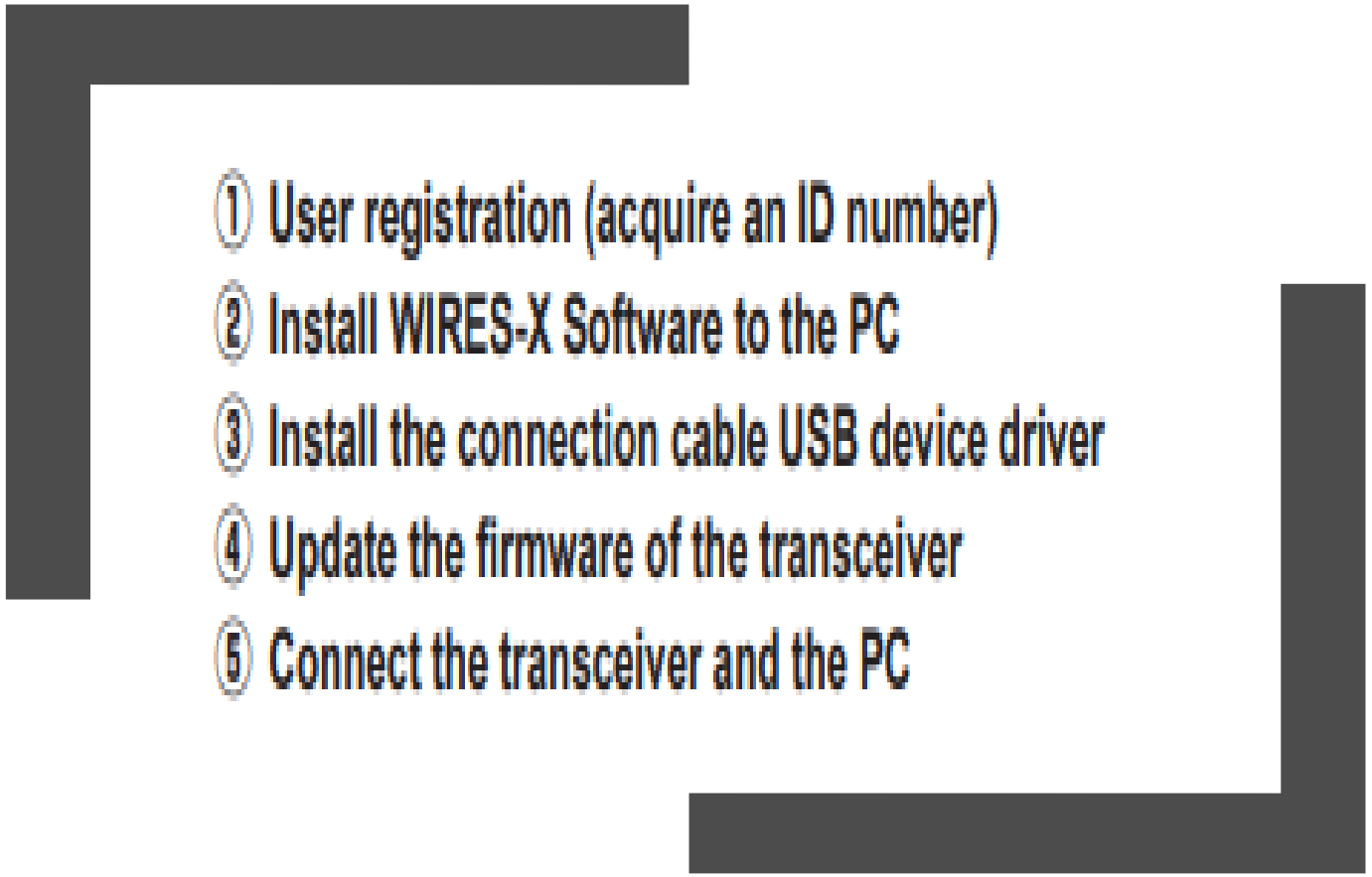
Different ways to connect to the same net!



America Link room YSF-89804, Wires-X #21080; FCS-00190, FCS-00290, and FCS-00039

WIRES-X Portable Digital Node (PDN)/HRI Mode: **User Registration assigned by Yaesu**

WIRES-X Portable Digital Node (PDN)/HRI Registration



- Registration Date : 24 Apr 2019
- Web Member ID : KB4JHU
- Password : **********
- WIRES-X Node ID : 50292
- WIRES-X Room ID : 60292
- HRI-200 Serial No / Radio ID : E5G3r
- Callsign : KB4JHU
- Node Location:
- Country : USA
- State : Tennessee
- City : Tullahoma
- Classification : INDIVIDUAL

https://www.yaesu.com/jp/en/wires-x/regist/index.php - Registration Link

Getting Started: Talk Groups and Rooms

DMR Talk Groups:

TG 91 – Worldwide - Saturday's @ 1700 UTC (1600 DST)

TG 3147 – Tennessee Statewide - Friday 9pm EST Statewide Net

Yaesu Fusion Rooms/Wires-X:

YSF 95984 – Southeast-Link (Wires-X #43389) Saturday 6pm CST

FCS-00290, YSF-89804, Wires-X #21080; FCS-00190, FCS-00290,

and FCS-00039 all Americas Link access

Fusion Node: KT4QF-ND #33225

Room #21000 - CQ-AMERICA Yaesu System Fusion Net Sunday 3pm CST

Echolink:

Node 68581 - YL Chattanooga Net Monday 8PM EST

Node 617991 - K4EGC - MTARS Nets 9PM CST Tuesday/Thursday

Node 232256 - N4UUJ-L– Tracy City ARES Net 730pm CST Tuesday

Alabama Link Multi Mode Communications Network

Kentucky D-Star Net
REF056B
Thursdays
7 PM EDT/23:00 UTC

Net Time: 7:30 - 11 pm Eastern Time

145.470 -

470 ARG
East Tennessee

Echolink Node
During The Net
769846
GlobalDX

WB4GBI
REPEATER SYSTEMS

AMATEUR RADIO GROUP

Connect with us on any of the following Modes:

Local Repeater 145.470 / 118.8 Tone Usually Off

DMR Brandmeister TG 31669

Echolink Node 769846 *GLOBALDX*

Allstar Node 44102 "Global DX System"

YSF Reflector 04162 "US - Global DX"

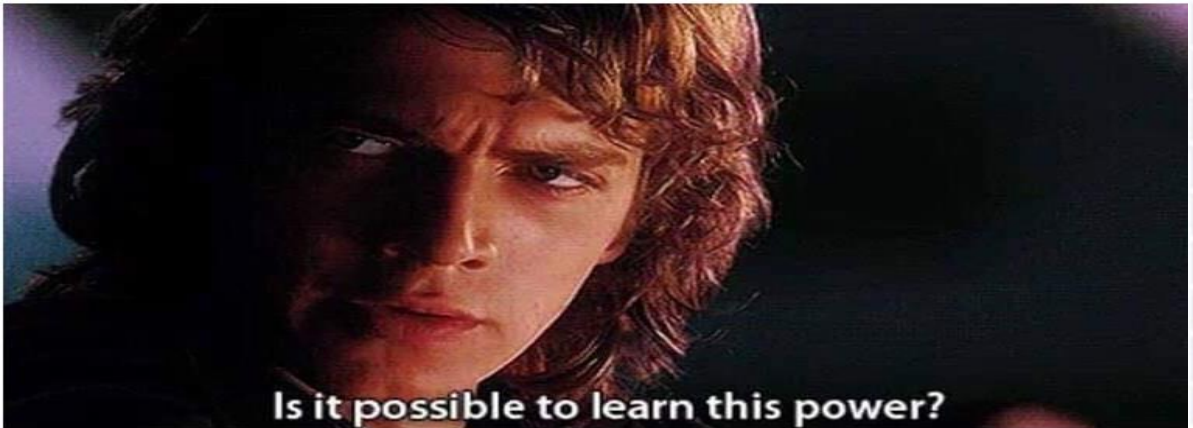
Wires-X Node 40626 "GLOBAL-DX-SYSTEM"

Links Provided by:

KE0KEY James - Founder of GlobalDx

KD4CR Charlie - Founder of Tennessee Digital ARG

WB4GBI Tim - Repeater owner



TAG Digital Voice Radio

Wednesday Night Net Coverage

7:30 pm (ET) System Fusion on Wires-X Room --SOUTHEAST-LINK (43389)

YSF Reflector YSF95984 - USSOUTHEASTLINK (openspot/Pi-STAR)

8:00 pm (ET) D-STAR on Reflector 30A (REF030A)

8:30 pm (ET) DMR on Brandmeister Talk Group 31133

For more information, see either TAG (TN AL GA) Digital Voice Radio Group Facebook,

https://lmarc.net/club/resources-tools/nets/

or Twitter TAG (TN AL GA) @KA4RVT_DV

Repeater Type	Location	Callsign	Frequency	Notes
Fusion	Lookout Mountain GA	N4LMC	442.6500	Wires-X --SOUTHEAST-LINK (43389)
Fusion	Signal Mountain TN	N4LMC	442.7250	Wires-X --SOUTHEAST-LINK (43389)
D-STAR	Dalton GA	KA4RVT C	145.3300	REF030A
D-STAR	Lookout Mountain GA	N4LMC C	145.1600	REF030A
D-STAR	Signal Mountain TN	W4RRG B	444.7250	REF030A
DMR	Chattanooga TN	W4DMM	440.5125	CC1, TS2, TG 31133
DMR	Chattanooga TN	W4DMM	443.8250	CC1, TS2, TG 31133
DMR	Dalton GA	W4DMM	442.1750	CC1, TS2, TG 31133
DMR	Evensville TN	KK4GGK	440.7250	CC1, TS2, TG 31133
DMR	Lookout Mountain GA	N4LMC	444.7125	CC1, TS2, TG 31133
DMR	Oswald Dome TN	W4DMM	443.8250	CC1, TS2, TG 31133
DMR	Signal Mountain TN	W4PL	444.1500	CC1, TS2, TG 31133

Web Links:

- Wires-x bible: https://www.hamoperator.com/Hamoperator/WiRES-X_Bible/WiRES-X_Bible.html
- Fusion Help : http://www.hamoperator.com/Hamoperator/Fusion_Help.html
- Comparison of Hotspots: https://toshen.com/ke0fhs/hotspots.htm
- Yaesu Wires-X Info: http://systemfusion.yaesu.com/wires-x/
- Wires-X ID List - https://www.yaesu.com/jp/en/wires-x/id/id_usa.php
- Wires-X Yahoogroups: https://groups.yahoo.com/neo/groups/wires- x/info
- Getting started with Wires-X: https://www.yaesu.com/jp/en/wires-x/node/index.php
- Wires-X Facebook page: https://www.facebook.com/groups/wiresx.fusion/
- Repeaters/Nodes: https://www.repeaterbook.com/repeaters/feature_search.php?type=YSF&state_id=%25&band=%25
- Map of active nodes: http://wires-x.xyz/wires-x-map.php
- Coverage Map: http://www.ve2dbe.com/rmonline.html

Questions??

Note: Several sides taken from Brian Donavan, K2AS Wires-X presentation and from various googled internet sites

Michael Glennon – KB4JHU

Tullahoma, TN

Email: KB4JHU@ARRL.NET