

WIRES-X

*Yaesu System Fusion
and
Wires-X
for Beginners*

WIRES-X

- *Questions often asked:*
 - *What is System Fusion and what is Wires-X?*
 - *Are they the same thing or different?*
 - *What is this business about Rooms?*
 - *What is a Node Station?*
 - *What about exchanging audio, text and photo files?*
- *These are all good questions. Here are the answers.*

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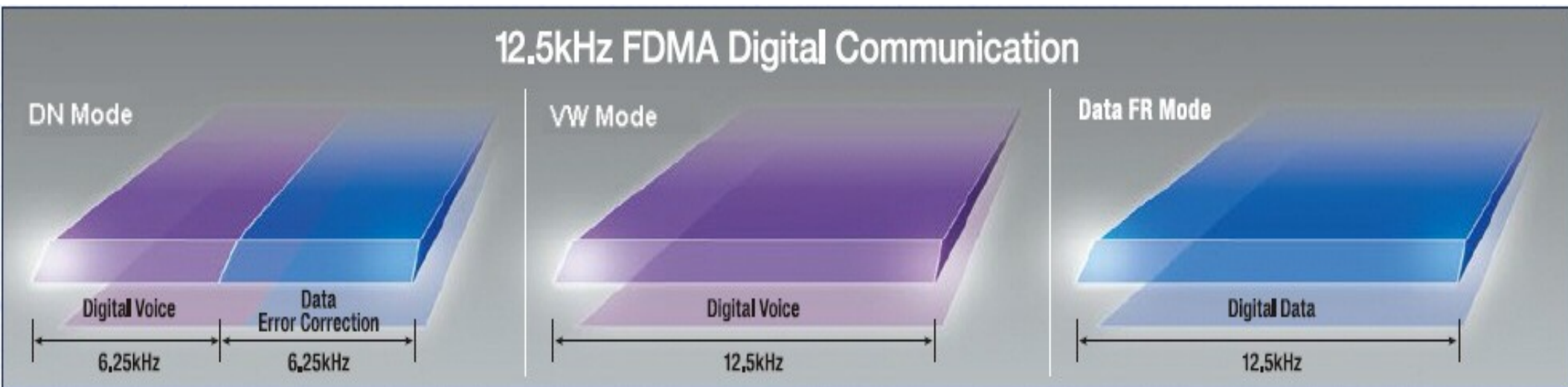
- *Fusion Digital is just another mode, like FM*
- *To use Fusion Digital, follow these steps:*
 - *Select the frequency you want to use*
 - *Select the mode*
 - *FM (analog)*
 - *DN (Digital Narrow)*
 - *VW (Voice Wide)*
 - *Press PTT and start talking*
- *That is all there is to it! You are now transmitting and receiving in digital mode (assuming you didn't select FM).*

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- *What are DN and VW?*
 - *DN means Digital Narrow*
 - *VW means Voice Wide*
- *Fusion transmits a bandwidth of 12.5 Khz*
 - *DN uses 6.25 Khz to send your voice and the other 6.25 to send data (GPS location information)*
 - *VW uses all 12.5 Khz to send your voice leaving no room for any data (No GPS location information sent)*
- *VW mode provides greater audio fidelity however DN provides greater error recovery.*

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C4FM (aka Fusion) is FDMA or Frequency Division Multiple Access



Data FR Mode is the high-speed data communication mode used for transmitting data. This mode is selected automatically when you send or receive files. It is not a mode you can manually select.

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- *After selecting DN or VW you can now access any Fusion capable repeater and be talking in digital mode.*
- *You could also select a simplex frequency.*
- *The ARRL bandplan has set aside two VHF simplex frequencies for digital communications.*
 - *145.510 Mhz*
 - *145.790 Mhz*

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- *Up to this point you have used your radio just like you would in FM mode but have been transmitting and receiving in Fusion Digital mode.*
- *So far you haven't used any Wires-X features in your radio.*
- *However if you used a repeater it's a good bet that you have been in a Wires-X Room.*

WIRES-X

- *What is a Wires-X Room?*
- *In its simplest definition a Room is a collection of Nodes.*
- *What the heck is a Node?*

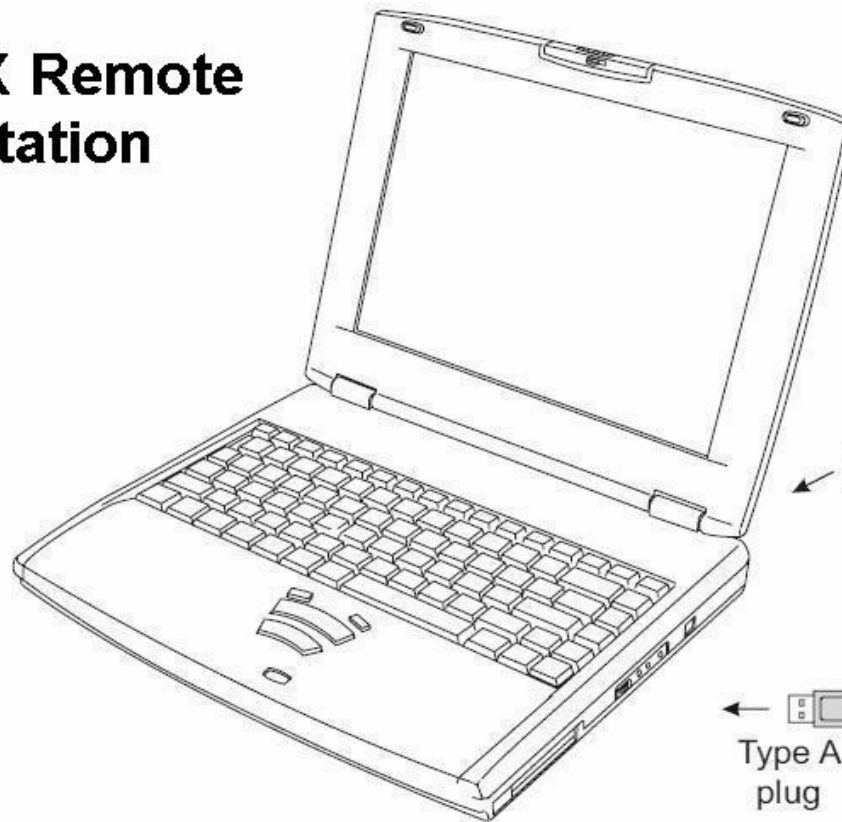
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- *A Node station is a ham who has purchased an HRI-200 interface box and registered the serial number on it with Yaesu.*
- *Upon receipt of this registration Yaesu issued a Node number and a Room number to that HRI-200 serial number.*
- *OK, I've got this box registered with Yaesu, now what?*

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- *An HRI-200 is one part of a node station.*
- *The other parts are an FTM-100 or an FTM-400 and a computer connected to the internet.*
- *A complete Node station is illustrated on the next page.*

Wires-X Remote Node Station

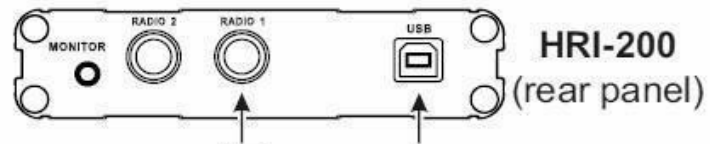
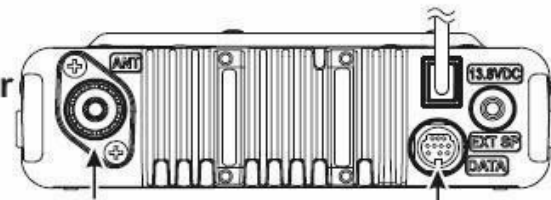


LAN cable
(sold separately)
To Internet



Type B plug
Type A plug
USB cable
(supplied with HRI-200)

C4FM digital transceiver
(such as FTM-400DR)



To antenna

Coaxial cable
(sold separately)

10 pin plug

Mini-DIN digital cable
(supplied)

10 pin plug

E01

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- *With this Node station you can now create a Room in the Wires-X network.*
- *To do this, download the Wires-X software from Yaesu's website and install it on your Node computer.*
- *Now go to the Settings option and create a room using the Room Number you received from Yaesu.*
- *Give your Room a name up to 16 characters in length.*

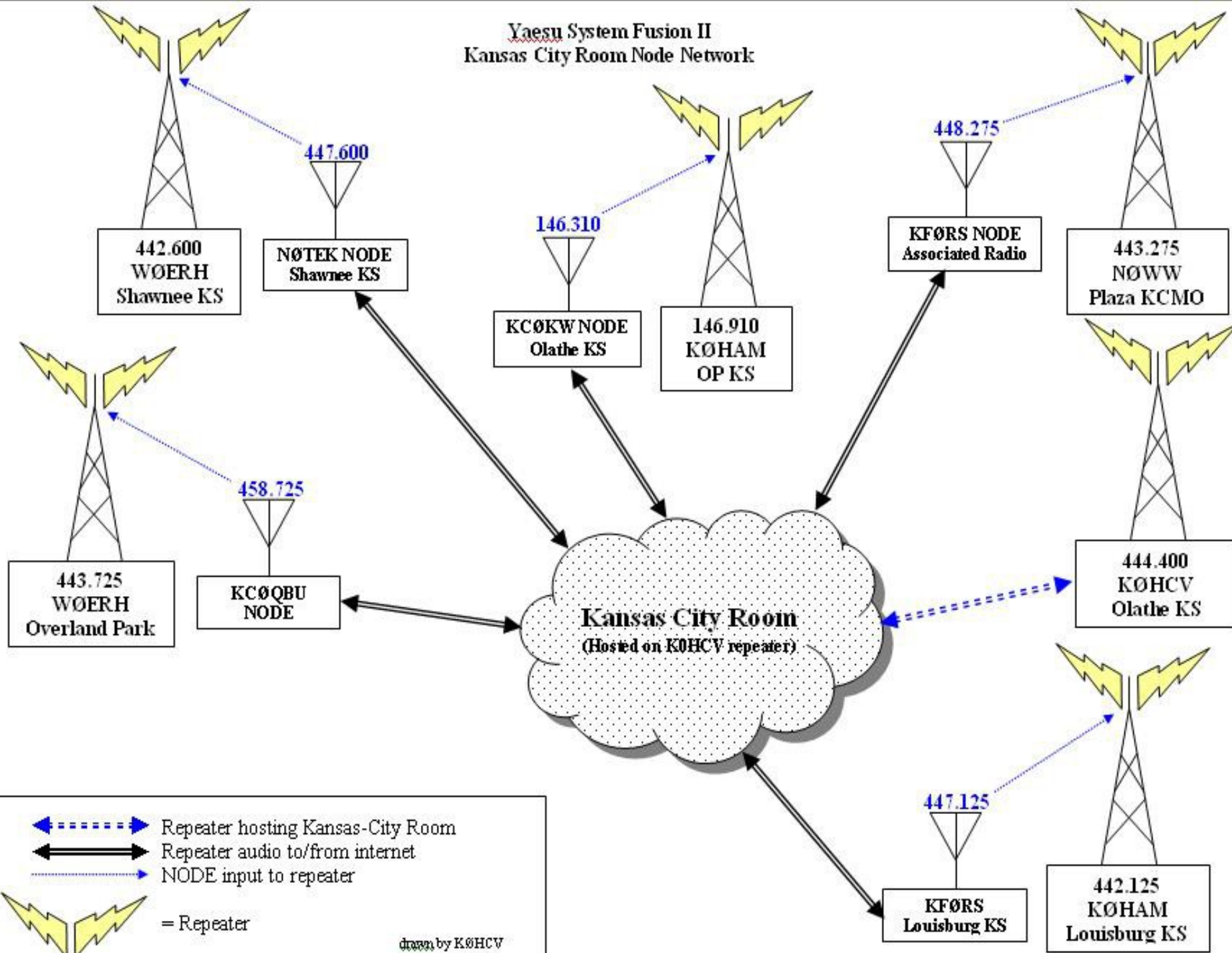
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- *Now any ham in the world can connect to your Room by pressing the Wires-X button on their radio and selecting your Room.*
- *But, there is one more way to use a Room.*
- *It can be used to link repeaters together.*
- *This is how the repeaters in the Kansas City Room are linked.*

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- *In order to link repeaters together we must have one Node station for each repeater we want to link.*
- *The Node station programs their Node radio with the repeater input and output so now every transmission to and from the repeater is fed to the other node stations via the internet.*
- *Each of these Node stations are connected to the same Room thus linking the repeaters together.*
- *A diagram of the KC Room is on the next page.*

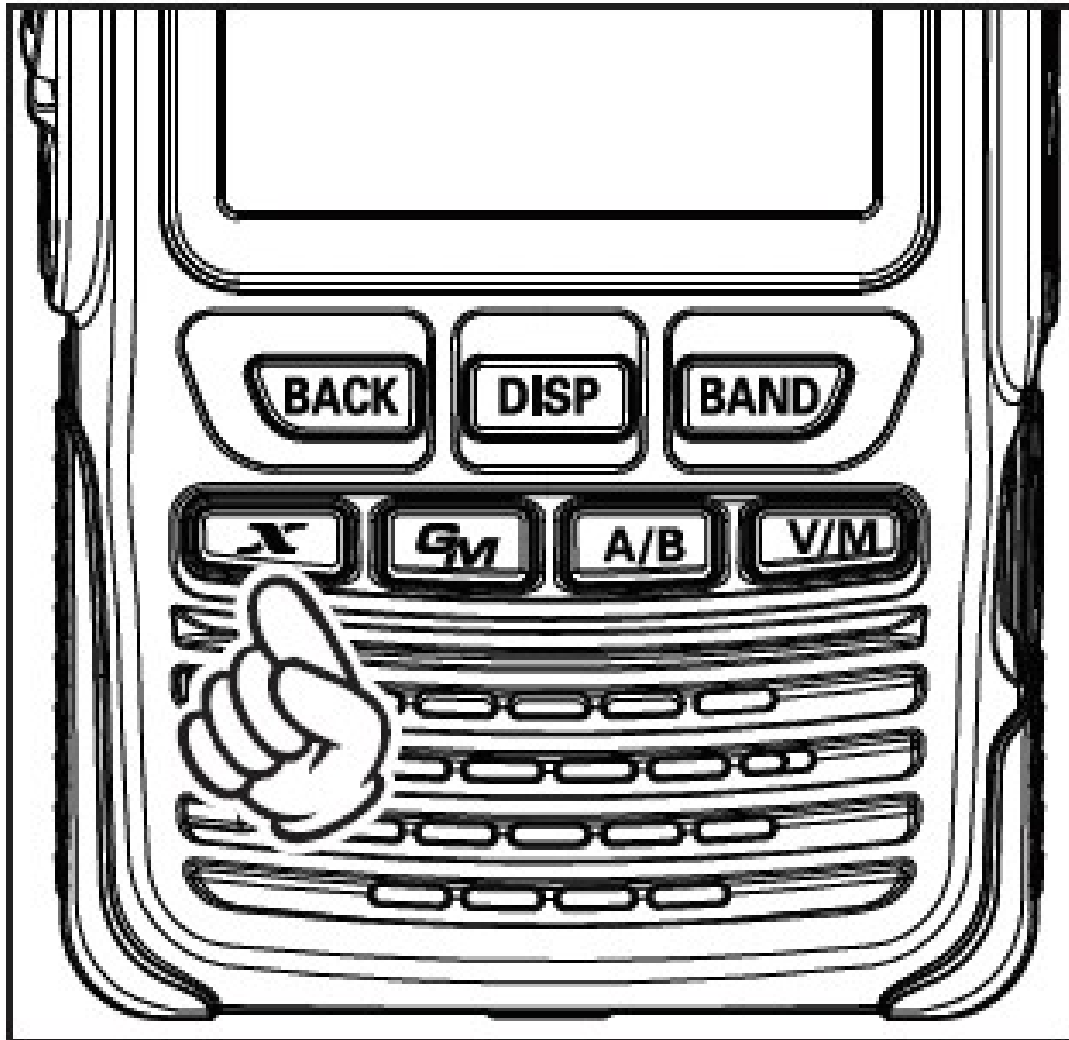
Yaesu System Fusion II
Kansas City Room Node Network



WIRES-X

- *So, even though you haven't pressed the Wires-X button on your radio, you have most likely been in a Wires-X room.*
- *Say you don't want to be in the room the repeater is connected to. You can push the Wires-X button on your radio and instruct the Node station to send you a list of other Rooms.*
- *Then you can select another Room and transfer the Node to that Room.*

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Pressing the red Wires-X button sends a connect request to the node PC.

If you don't connect, try again. Your radio transmits only 1 request and if it is not recognized simply try again.

If your request is successful you will see the following Screen.

Note: The following examples apply to the FT-2DR.

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This screen displays the information about the node and room you have connected to.

Name of the **node** you have connected to.

Touch here to get a list of rooms to select from.

Name of the **room** you have connected to along with the number of nodes currently connected.

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This is your initial search screen. It lists 5 “categories” you can assign names to.

These will initially be blank as shown here.

After you select a room you can add it to a category then give that category a name to save it for future reference.

Touch the Search & Direct button to enter your search criteria.

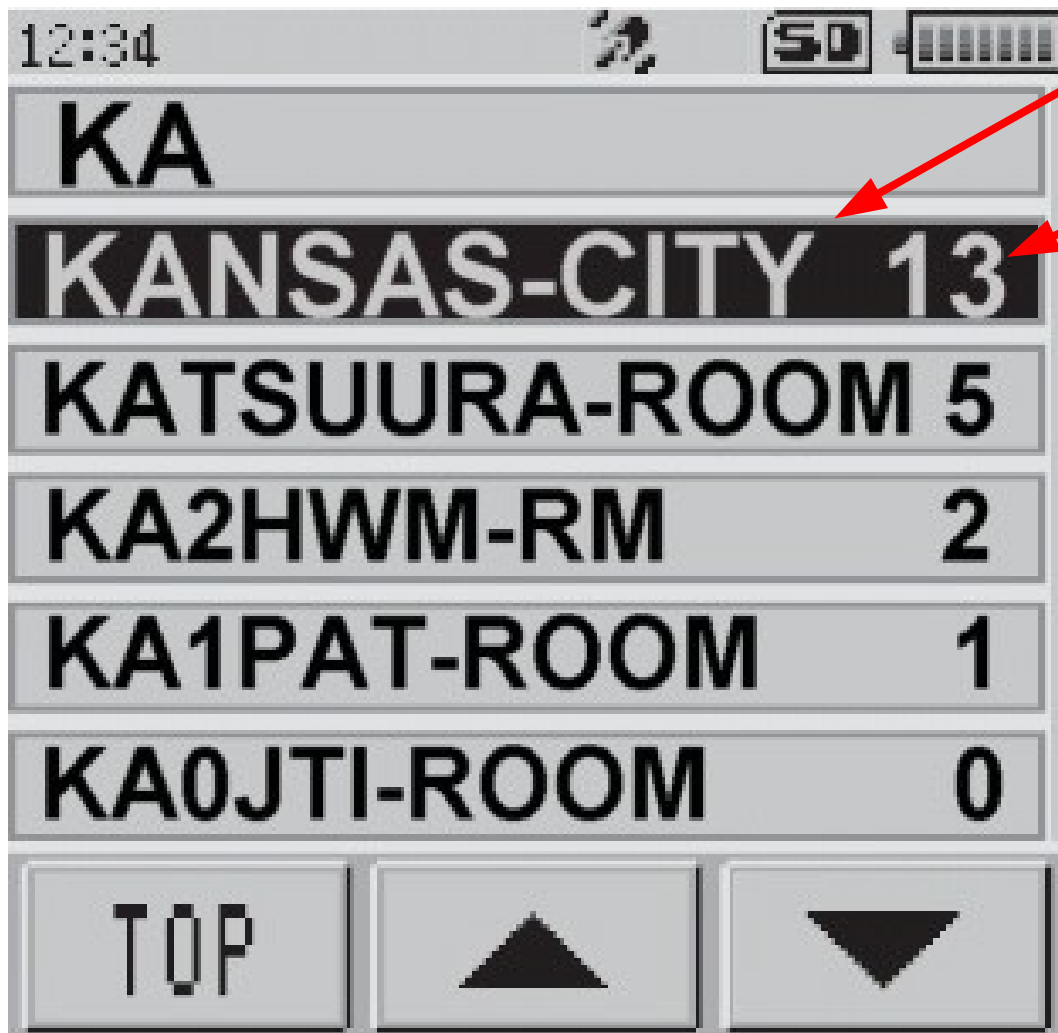
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Here you enter all or part of a room name and press the ENT button.

You will get a list of rooms that begin with your search criteria.

WVES-X



Room name

Number of other nodes currently connected to that room.

All rooms that begin with your search criteria will be listed.

You can then select the room you wish and you will be connected to that room.

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- *If you do decide to change rooms, be aware of the consequences!*
- *Changing to another Room removes the repeater you are using from the linked repeaters.*
- *That repeater is no longer linked with the others.*

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- *Some repeater owners don't mind if you change Rooms. Others do not want you to do that since it removes that repeater from the linked system.*
- *Before changing rooms you should always make a transmission indicating your desire to change to another room. There are other people who may want to stay in the current room and you don't want to change it without their knowledge.*

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- *In the case of the Kansas City Room never change any Node station to another Room.*
- *We expect all of our repeaters to be linked at all times. (This applies to our backbone repeaters)*
- *If you do, the Node station is programmed to automatically return to the Kansas City Room after 5 minutes. This will happen even if you are in a QSO with another station.*

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- *These are the main features of Fusion and Wires-X that we have used so far.*
- *There are a few other nice features that haven't really been explored yet.*
- *Fusion Digital has the capability of sending files over the air.*
- *You can send audio files, text files and picture files.*

WIRES-X

- *To send or receive files you need to use the News feature of Wires-x.*
- *Delving into this is beyond the scope of this presentation. Just be aware that the options are there and explore them at your leisure.*
- *Check out my presentation on “Using the NEWS feature of Wires-X” on the Files page of the Kansas City Room website.*
- *Visit kansascityroom.com to download this presentation in pdf format and for more information.*

WIRES-X

[Home](#) [Repeaters](#) [Coverage Maps](#) [Operating Etiquette](#) [Files](#) [Nets](#) [Links](#) [Credits](#) [Contact Us](#)

Welcome to the Wires-X

Kansas City Room

*Featuring Yaesu System Fusion II repeaters
covering the Kansas City Metro Area*

*Hosted by KØHCV on the 444,400+ repeater in Olathe Kansas
DTMF # 28952*

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Questions?

