OMNI-VII

Model 588

One Plug

Users Manual

Revision 1.201

www.tentec.com

Table of Contents

Preface

For those of you who want more background information on what makes the OMNI-VII what it is today, then start from the beginning. Begin with the section titled “Introduction to the OMNI-VII Operating Modes”.

For those of you who want to just get the radio up and running in REMOTE mode, and want to install the OMNI-VII One Plug Graphical User Interface, then proceed to Minimum System Requirements section, and the Installation sections.

However, whichever path you choose to go, it is suggested that at some point in time that you do familiarize yourself with everything in this Users Guide, so that you can learn more about the OMNI-VII, and all of its fabulous features.

Introduction to the OMNI-VII Operating Modes

Before we get into the Ethernet specifics of the OMNI-VII, it is a good starting point to understand what this radio offers in terms of operating modes.

Some hams want to operate their rig just as they always have. This means different things to different hams. To some, this means rotating the knobs, pushing buttons, using their favorite keyer or their favorite microphone, hooking up their favorite headphone, and simply having fun. Others want to use their computer software to control the rig, log their contacts in their favorite logging program, and use the mouse to change the settings, and simply have fun.

With this in mind, the OMNI-VII was designed to be able to be used in different ways or “Operating Modes”. Each operating mode is designed so that the rig can be operated differently, taking advantage of control methods that will suit your use of the OMNI-VII. In some operating modes, some controls are available via the front panel of the OMNI-VII. This is suited to the ham that likes to control his rig just as he has always done. With the knobs, encoder turns, etc. In other operating modes, those same controls are only available via a serial or Ethernet interface. This is suited to the ham that has a computer control program he has run for years, and still wants to use this same computer program, and the same logging database, etc.

In general, the OMNI-VII has up to 6 distinct radio related operating modes. Each operating mode is entered by turning on the OMNI-VII while simultaneously depressing a front panel keyboard digit until visual indication on the display identifies which operating mode is being executed. Once the radio has been turned on in a given operating mode, from then on, when power is lost and reapplied, it will continue to start up in that same operating mode until the user selects a different operating mode.

Mode 0 – BOOT LOADER Mode

Yes, we mentioned modes 1 through 6, not 0. But in order to get the Radio operational modes to work, a BOOT LOADER mode determines what to do when power is applied to the OMNI-VII.

The BOOT LOADER mode will determine what operating mode is being/was selected, if any, and which of the operating modes are currently available or programmed. Based upon this information, the BOOT LOADER will either execute that operating mode or it will initiate a Master Reset or it will simply stay in the loader and tell you to make another choice.

The BOOT LOADER mode has other purposes also. It can be used to debug issues you are having with controls of the OMNI-VII. It is also used to update the other modes, to Flash Update the OMNI-VII. For more information on the BOOT LOADER mode, how to access it, and what it provides, see the section "OMNI-VII BOOT LOADER".

Mode 1 – RADIO MODE

The first radio related operational mode of the OMNI-VII is called "RADIO MODE".

"RADIO MODE" is entered by following these steps:

1. First, make sure the radio is powered off.
2. Press and hold the "**1**" digit on the direct entry front panel keypad.
3. Turn on the power (DO NOT RELEASE THE "**1**" DIGIT YET)
4. Normally, you should see:
   4.1 "VER xxxx-588 FLASH"
   On the top line, right side of the OMNI-VII
   Indicates the Version programmed of the Flash / BOOT LOADER
   4.2 "RETREIVING BOOT SETUP"
   On the second line, while the Flash is loading the setup
   4.3 The Second line then shows
   "EXECUTING SELECTED CODE"
   When the RADIO Mode code starts to execute you will then see
   4.4 Radio Mode Version on Top Left of the OMNI-VII "VER xxxx-588 **RADIO**"
5. NOW you can release the "**1**" Digit

The main RADIO screen of the OMNI-VII will then be displayed. RADIO MODE is described in the OMNI-VII Users Guide, including the form and functions. Please refer to it for operating instructions.

If for any reason you get other error messages, and you did not get the mode selected, then proceed to the explanation in the "OMNI-VII BOOT LOADER" section of this document for troubleshooting.

In RADIO MODE, the OMNI-VII is controlled via the front panel keyboard and encoders. Visual indications of settings and status are displayed on the main screen display. A menu is available that allows the user to set various other settings which are items that are changed seldom if ever, and are not available on the front panel.

The Ethernet port is NOT available in this mode of operation. However, the RS-232 port is available to retrieve a minimal set of information from the radio, and also to control a minimal amount of features, as was available in the Jupiter in standard transceiver operation. This allows the radio to be used with existing control and logging programs that were compatible with the Jupiter serial interface. Example programs that have been tested with this interface are N4PY, Commander CI-V, and HamRadioDeluxe.

Once in RADIO MODE, if power is lost and then reapplied, unless you choose a different operating mode. RADIO MODE will be reloaded, running with the same settings you had before the last power cycle was interrupted.

RADIO MODE is the best place to get familiar with the OMNI-VII's features and performance capabilities. These features are described more in detail in the OMNI-VII Operators Manual available on the Ten-Tec website http://www.tentec.com. Once you are comfortable with its features and want to try to connect remotely, read on in this manual because Remote Mode discussion is next.

Mode 2 – REMOTE Mode

The next radio related Operational Mode of the OMNI-VII is called "REMOTE MODE".

"REMOTE MODE" is entered by following these steps:

1. First, make sure the radio is powered off.
2. Press and hold the "**2**" digit on the direct entry front panel keypad.
3. Turn on the Power (DO NOT RELEASE THE "**2**" DIGIT YET)
4. Normally, you should see:
   - 4.1. "VER xxxx-588 FLASH"
     On the top line, right side of the OMNI-VII
     Indicates the Version programmed of the Flash / BOOT LOADER
   - 4.2. "RETREIVING BOOT SETUP"
     On the second line, while the Flash is loading the setup
   - 4.3. The Second line then shows
     "EXECUTING SELECTED CODE"
     When the RADIO Mode code starts to execute you will then see
   - 4.4. Radio Mode Version on Top Left of the OMNI-VII "VER xxxx-588 **REMOTE"**
5. NOW you can release the "**2**" Digit

The main REMOTE screen of the OMNI-VII will then be displayed.
If for any reason you get other error messages, and you did not get the mode selected, then proceed to the explanation in the "OMNI-VII BOOT LOADER" section of this document for troubleshooting.

In REMOTE MODE, the OMNI-VII is NOT meant to be controlled via the front panel keyboard and encoders. Very few visual indications of settings and status are displayed on the main screen display. A menu is available that allows the user to only set the Ethernet connection related settings, such as the IP Address of the radio, the UDP port to use, etc. NOT the same set of settings that was available in RADIO Mode. These functions are now only available for control over the serial port and/or the Ethernet port.

In REMOTE MODE, both the RS-232 and the Ethernet interfaces share basically the same communications protocol. This means that almost all commands that are available on the Ethernet are also available on the RS-232, with the exception of those required for sending audio over the Ethernet.

This command interface is built on top of the existing "Jupiter Mode" protocol. This means that the radio can be used with existing control and logging programs that are "Jupiter Mode" compatible. However, to take full advantage of the complete OMNI-VII software and hardware functionality's in REMOTE MODE, one will need to get updated versions of these and other vendors software. In the meantime, the OMNI-VII One Plug program supplied by Ten-Tec should be enough to get any ham's mouth watering for more.

In REMOTE MODE, the OMNI-VII is what is referred to as "Network Appliance", not a "Network Host or Client". This means that the OMNI-VII is addressable and controllable via the Ethernet, but it does not have a "web page" that is accessible via a web browser, nor can it browse other Ethernet web pages.

Please note the amount of data sent to/from the OMNI-VII for RIPing audio requires approximately 153Kbits/second bandwidth in both the uplink path and downlink path. This is greater than what a 56k modem, typically used for dialup Internet access, will permit. You can try it, but you will fail. Of course, you can control the OMNI-VII, get its status, or even run the "Monitor" function, without RIPing over a 56k modem.

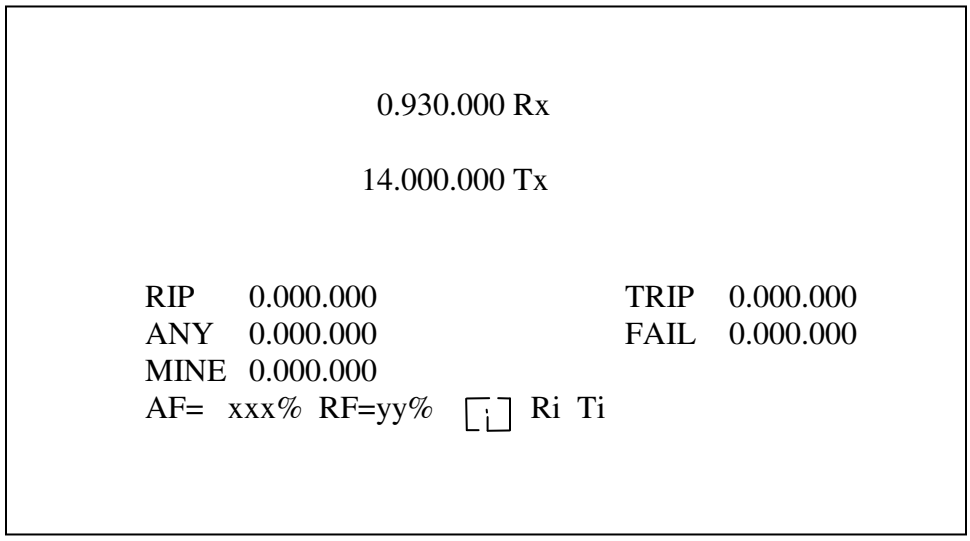
Modes 3 through 6

The remaining four modes are set aside for growth. All it takes is imagination to identify what these modes could be. Perhaps a slow-scan TV mode, after all, the display in the OMNI-VII is compatible with VGA colors. Perhaps another mode for completely built-in digital modes, such as connecting a keyboard to the back of the OMNI-VII, and having a built in main display chat session for FSK, or PSK31, or any other future digital mode. After all, this software is completely upgradeable in the field. The sky's the limit.

Currently, none of these modes are nailed down in stone, so suggestions are welcome.

Theory of Operation

In Theory, the OMNI-VII in REMOTE MODE is designed to be completely controlled remotely, and not via the front panel. The only controls available ON the radio itself then are those for setting up the Ethernet, display brightness, and volume. Otherwise, the entire set of controls that were used in the radio mode is now available completely through the serial or Ethernet interface. The following shows the layout of the main REMOTE MODE display screen:



This information is mainly provided to give you a small amount of information as to the state of the radio, and more information related to how well the radio is communicating over the Ethernet interface. These items will be explained in detail later.

The Ethernet adds a few extra abilities that the RS-232 serial port couldn't accommodate. With the added speed of the Ethernet and the ability to put larger amounts of data into packets, it is possible to stream audio from the OMNI-VII to the PC, and also from the PC to the OMNI-VII. This enables one to be able to perform CW and phone over the Ethernet. Note, however, given the reliability of the Ethernet, don't expect to have flawless communication as if you were sitting there controlling the OMNI-VII from the front panel. Packets will be dropped, Windows Updates will suck Ethernet time away, virus protection SW can cause problems by trickling away CPU time when you open up a mail message while streaming audio, etc. However, it will be a great way for you to stay in touch. To date, it has been used by people from various types of high speed internet connections. The only places that this communication methodology has failed are on Internet service providers who also will not permit control programs such as VNC or Voice-Over IP programs, which is typical of some satellite Internet services.

RIP is an acronym for Radio over IP. This is the receive audio that is heard via the OMNI-VII's speaker. In the case of the REMOTE Mode radio, this audio is then RIP'd from the OMNI-VII via the Ethernet to a computer for playback on the computer's speaker.

TRIP is an acronym for Transmit audio over IP. Normally, transmit audio comes from a microphone on the radio and is transmitted over the air by the radio. In the instance of the Ethernet, it is the audio recorded on a microphone on a computer, and then transmitted on the Ethernet in a packet for the OMNI-VII to subsequently transmit over the air.

Minimum Requirements for running the OMNI-VII One Plug Control Program

The current OMNI-VII One Plug software program was written with Microsoft Visual Basic 6.0 for Windows. It has been tested successfully on Windows 98SE, 2000, XPHome, XPPro, and VISTA. The Visual Basic Project and source code is available at http://www.tentec.com for download and modification to personal preferences or for porting to other languages and operating systems. Depending upon what level of control and use of the OMNI-VII over a remote connection is desired, a different level of minimum requirements for the host PC to run OMNI-VII is given below:

- Minimum System Requirements (for command and control ONLY):
  - Windows 98SE/2000/XPHome/XPPro/VISTA/Windows 7 (32 bit and 64 bit)
  - Pentium II 200MHz
  - 10Megabit Per Second Ethernet
  - 64K ROM
  - 4MB Available Disk Space
  - Windows Compatible Mouse
- Recommended System Requirements (for handling audio receive and transmits)
  - Full Duplex Sound Blaster Compatible Sound Card
  - Pentium III 1GHz (this is a guideline, has worked on 650MHz systems, and not on others)
  - Ethernet connection with minimum up/download speeds of 512kbps
- Recommended System Requirements (for handling higher speed CW Transmits using a standard mouse)
  - Pentium 4 1GHz

The above minimum requirements also depend upon what programs you run concurrently on the computer running the OMNI-VII One Plug Control Program. It goes without being said that the more programs you run simultaneous to running the OMNI-VII One Plug Control Program, the more CPU you will need.

This program doesn't really require a fast CPU, until you want to start transmitting CW using the standard GUI and a mouse. A mouse is actually a Human Interface Device (HID), meaning that it is not of a very high priority. For CW, it is important to hear the sidetone start and stop the instance the key is pressed and released. Due to the problems with getting immediate sidetone through a HID, it is hard to get Windows to start/stop the sidetone immediately upon mouse events. That is the main reason for needing a faster computer for transmitting CW.

That is also the reason why the CWType interface was provided. Ten-Tec is also offering an optional external USB CW Keyer Interface to provide the sidetones that high-speed CW users have come to expect. Thus making high-speed CW transmission possible through the Internet.

Ethernet Protocols

Every device on an Ethernet utilizes a MAC address and an IP address to communicate.
IP addresses are four decimal numbers ranging from 0 to 255 each, written as four numbers separated by a dot. E.g. 192.168.1.1 is an example of an IP address.

MAC Addresses are six hexadecimal numbers ranging from 0 to 255 each (0xff hexadecimal), written as six numbers separated by colons ":". E.g. 00:19:45:01:02:03 is an example of a MAC address. This number is interesting, but as a user you do not need to know anything about it, since it is hard coded in the hardware of the OMNI-VII upon shipment.

The OMNI-VII uses a packet format known as **User Datagram Protocol**, or **UDP**. As far as a user is concerned, it is just another piece of an address that must be known in order to communicate with a Network Appliance. UDP Ports are used to help the routers and the destination computer know what the data is, and what to do with it. Uses range from Port 80 used in HTTP for network pages, to Port 206 used by AppleTalk, to Port 92 used in printer server protocols.

For the OMNI-VII, there are only 3 Ethernet related numbers you need to know

1) Router/Gateway IP Address
2) The OMNI-VII's IP Address
3) UDP PORT
4) MAC Address (uh, I did say 3, well, 3 are set up or used by you, the MAC is hard coded)
5) PassCode (darned, another one, well, this is just a password you define, 0..65535, security)

Connecting to an OMNI-VII
Physical Connections

OK, now you've decided to give it a try. Hooking it up physically is easy.

You need one of two types of cables, either a standard Ethernet cable or a cross-over cable.

If you are going to connect the OMNI-VII directly to a PC, then you will need a cross-over cable.
If you are going to connect the OMNI-VII to a network, via hub, or a router, then you will need a standard Ethernet cable.

Note: You can still connect your RS-232 serial cable to a PC, even when communicating via the Ethernet, the serial port is still active, and can be used for purposes of logging, monitoring S values, logging activity of the OMNI-VII etc.

Connecting the OMNI-VII directly to a computer

This is the simplest method of connection. In this configuration, you use a crossover Ethernet cable to go from the OMNI-VII to a computer. Other than the other obvious connections, such as the antenna, power supply, etc., the hardware connection is complete. Do not connect the Ethernet cable yet, wait until instructed to do so.

Step 1: Determine your computer's IP address.

IP addresses are four decimal numbers ranging from 0 to 255 each, separated by a dot.

On a Windows based computer, your IP Address can be found in Network Connections; Local Area Network Connection Properties, General Tab; In the "This Connection Uses the following items:" window, you should scroll down until you find Internet Protocol TCP/IP Properties. If you don't find this, then you don't have networking capabilities installed on your computer. Please refer to your operating system to Add/Remove Windows Components for networking.

For our example, let's assume you have determined your Computer's IP Address to be:
192.168.1.16

Step 2: Determine the IP address you want to assign to the OMNI-VII.

The IP Address of the OMNI-VII should look very similar to the Computer's IP Address consisting of the same first three numbers of the Computer. Then just pick a unique number between 1 and 198 for the fourth number of the OMNI-VII's IP address. You can actually pick anything up to, but not including 255, but best practice is to pick a number below 198.

The default RADIO IP Address for the OMNI-VII is 192.168.1.123
Unless you already have a network appliance utilizing this IP address, why not use the default and leave it alone.

Step 2 is now complete, the OMNI-VIIs IP Address we have set to **192.168.1.123**

Step 3: Determine the UDP Port you want to use for this given OMNI-VII.

UDP Port numbers range from 0 through 65535; however, UDP Ports from 0 to 49151 are "reserved". So you can pick any number from 49152 through 65535. Well, almost. Another constraint is that this number MUST BE EVEN. There, now you are done with the port number.

49152 (this is the default UDP port to use when the radio ships)

Step 3 is complete. The UDP Port we have chosen is **49152**

Now, pick a MAC address. Well, you don't pick it; it is hard coded for each network device. And your OMNI-VII has a given MAC Address that is unique to it, and no other device in the world is supposed to have this address. It identifies the manufacturer, and it also identifies this specific radio.

It is important to remember the three numbers that you will need to set up on the OMNI-VII Transceiver and the OMNI-VII One Plug PC Program:

1) The OMNI-VII's IP Address (ours = 192.168.1.123)
2) The computer's IP Address (ours = 192.168.1.16)
3) The UDP port to use (ours = 49152)

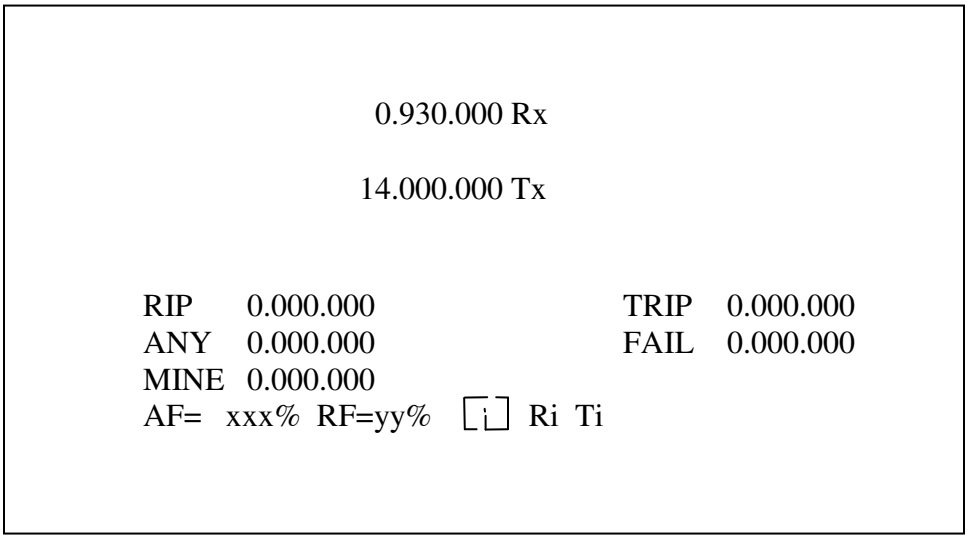
Now we will concentrate on setting up the OMNI-VII transceiver.
There are a few items in the OMNI-VII transceiver that you will have to set up, and a few things in the OMNI-VII One Plug computer program that you will have to set up.

For the OMNI-VII, these items are in the menu of the REMOTE MODE.
So lets get started with this step wise, first the steps to set up the OMNI-VII transceiver:

Step 4: Make sure the Ethernet Cable is NOT CONNECTED

Step 5: Apply power to the OMNI-VII, while holding down the "2" digit to put the OMNI-VII into REMOTE MODE.

You should see the OMNI-VII REMOTE MODE main display:



The "Ri" indicator should not be visible yet. (See "OMNI-VII Display in Remote Modes" for more information on what these numbers and Icons mean.)

Step 6: Press the MNU button and release. This will take you to the OMNI-VII menu display.

The REMOTE MENU display has the following menu items:

Display 50%

RADIO IPADDR	192
RADIO IPADDR	161
RADIO IPADDR	1
RADIO IPADDR	123
UDP CMD PORT	49.152
MAC ADDRESS	00 19 45 xx xx xx
G8WAY IPADDR	192
G8WAY IPADDR	168
G8WAY IPADDR	1
G8WAY IPADDR	16
NET PASSCODE	00.000

Use the Main Encoder button to select a menu item, and the Multi Knob Encoder to adjust the menu item. Change the RADIO IPADDR, UDP CMD PORT, and The REMOTE MENU Display to the values we determined earlier:

1) RADIO IPADDR, use the OMNI-VII's IP Address (ours = 192.168.1.123)
2) G8WAY IPADDR, use the Computer's IP Address (ours = 192.168.1.16)
3) UDP CMD PORT, use the UDP Port to use (ours = 49152)

Step 7: Press the MNU button and release. This will take you back to the OMNI-VII main remote display.
You should see the "Ti" Icon blinking Red, then White periodically. This means the OMNI-VII is attempting to communicate with the programmed value for the Router / Gateway. It will continue to do this until something answers back to the OMNI-VII.

Step 5: Now that the transceiver is set up, you can connect the cross over Ethernet cable between the OMNI-VII and the computer. If all goes well, then you will eventually see the "Ti" Icon quit blinking, and the "Ri" Icon displayed green, then white, and when the "Ri" first goes green, you should also see the "[I]" go green as well. Phew, we have successfully connected the OMNI-VII on a computer network.

The remaining steps are those needed to be taken to get the OMNI-VII One Plug Program communicating with this OMNI-VII. So you will need to finish the setup as outlined in "OMNI-VII One Plug Program", "Installation", and "NETCONFIG"

Connecting the OMNI-VII onto a Local Area Network

This is a little more complicated than simply connecting directly to a PC, but not by much.

In this configuration, you use a standard Ethernet cable (not a crossover) to go from the OMNI-VII to a hub or router or other network connection. Do not connect the Ethernet cable yet, wait until instructed to do so.

For the software, it is almost the same as connecting to a computer, except you will be identifying and using an internal router for its IP address instead of using a computer's IP address.

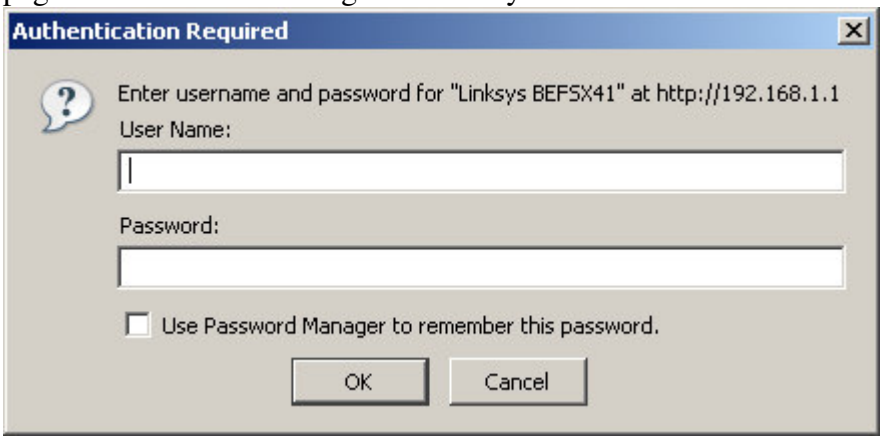
In order for any Network Appliance to talk to another Network Appliance/Client/Host on a network, they each must register themselves on the network. This is done by what is called a Gratuitous ARP. In order to do this, the Network Appliance, in this instance the OMNI-VII, must know the IP address is for the main Router or Gateway for this network. This address is then entered into the G8WAY IPADDR on the OMNI-VII transceiver menu.

Step 1: Determine your router's IP address.

Most home networks are setup with your router's internal address being:

192.168.1.1 (or possibly .199)

On most routers, your router's configuration setup can be accessed via this number. In Internet Explorer or Mozilla Firefox, type in the URL http://192.168.1.1 And most likely, the setup page for your router/gateway will appear. This is typically a password protected page. Such as the following for a Linksys router accessed via Mozilla Firefox:



If you do see the prompt for the username / password for the router, or you see the router's configuration setup, then you have the proper IP address.

If you don't see the password page or the routers configuration setup, then please refer to your router hardware's manual for information on determining what its IP address is and also how to access the settings for your router because you will need to know how to do this later.

Step 1 is now complete. For our example, the router's internal IP address we have is **192.168.1.1**

Step 2: Determine the IP address you want to assign to the OMNI-VII.

The IP address of the OMNI-VII should look very similar to the router's internal IP address consisting of the same first three numbers of the router. Then just pick a unique number between 1 and 198 for the fourth number of the OMNI-VII's IP address. You can actually pick anything up to, but not including 255, but best practice is to pick a number below 198.

The default RADIO IP address for the OMNI-VII is 192.168.1.123
Unless you already have a network appliance utilizing this IP address, why not use the default and leave it alone.

Step 2 is now complete, the OMNI-VIIs IP address we have set to **192.168.1.123**

Step 3: Determine the UDP port you want to use for this given OMNI-VII.

UDP port numbers range from 0 through 65535; however, UDP ports from 0 to 49151 are "reserved". So you can pick any number from 49152 through 65535. Well, almost. Another constraint is that this number MUST BE EVEN. There, now you are done with the port number.

49152 (this is the default UDP port to use when the radio ships)

Step 3 is complete. The UDP Port we have chosen is **49152**

It is important to remember the three numbers that you will need to set up on the OMNI-VII transceiver, the OMNI-VII One Plug PC Program, and also your Router/Gateway:

1) The OMNI-VII's IP Address (ours = 192.168.1.123)
2) The Router's IP Address (ours = 192.168.1.1)
3) The UDP Port to use (ours = 49152)

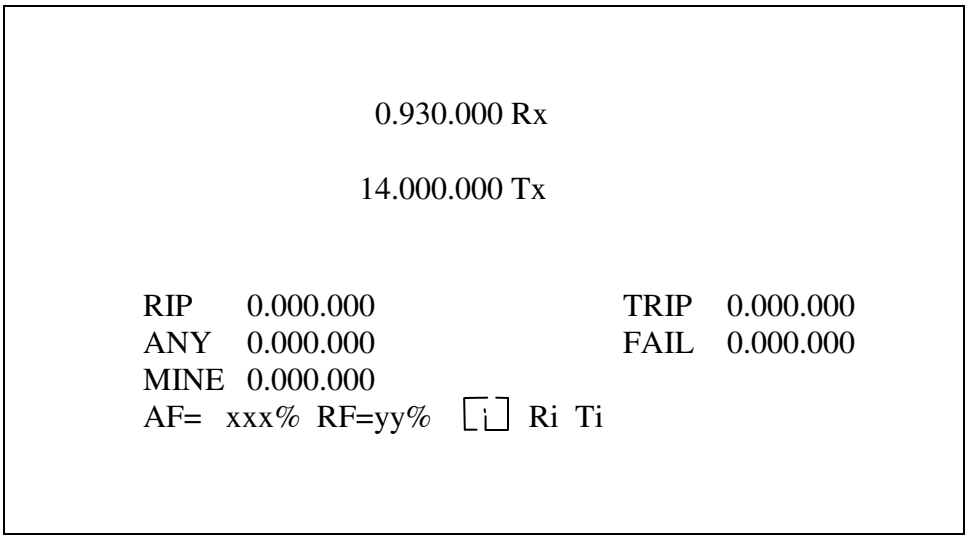
Now we will concentrate on setting up the OMNI-VII transceiver.
There are a few items in the OMNI-VII transceiver that you will have to set up, and a few things in the OMNI-VII One Plug computer program that you will have to set up.

For the OMNI-VII, these items are in the menu of the REMOTE MODE.
So lets get started with this step wise, first the steps to set up the OMNI-VII transceiver:

Step 4: Make sure the Ethernet cable is NOT CONNECTED

Step 5: Apply power to the OMNI-VII, while holding down the "2" digit to put the OMNI-VII into REMOTE MODE.

You should see the OMNI-VII REMOTE MODE main display:



The "Ri" indicator should not be visible yet. (See "OMNI-VII Display in Remote Modes" for more information on what these numbers and Icons mean.)

Step 6: Press the MNU button and release. This will take you to the OMNI-VII menu display. The REMOTE MENU display has the following menu items:

Display	50%
RADIO IPADDR	192
RADIO IPADDR	161
RADIO IPADDR	1
RADIO IPADDR	123
UDP CMD PORT	49.152
MAC ADDRESS	00 19 45 xx xx xx
G8WAY IPADDR	192
G8WAY IPADDR	168
G8WAY IPADDR	1
G8WAY IPADDR	1
NET PASSCODE	00.000

Use the main encoder button to select a menu item, and the multi encoder to adjust the menu item. Change the RADIO IPADDR, UDP CMD PORT, and The REMOTE MENU display to the values we determined earlier:

1) RADIO IPADDR, use the OMNI-VII's IP Address (ours = 192.168.1.123)
2) G8WAY IPADDR, use the router's Internal IP Address(ours = 192.168.1.1)
3) UDP CMD PORT, use the UDP port to use (ours = 49152)

Step 7: Press the MNU button and release. This will take you back to the OMNI-VII main remote display.

You should see the "Ti" Icon blinking red, then white periodically. This means the OMNI-VII is attempting to communicate with the programmed value for the router. It will continue to do this until something answers back to the OMNI-VII.

Step 5: Now that the transceiver is set up, you can connect the standard Ethernet cable between the OMNI-VII and the network. If all goes well, then you will eventually see the "Ti" icon quit blinking, and the "Ri" icon displayed green, then white, and when the "Ri" first goes green, you should also see the "[I]" go green as well. Phew, we have successfully connected the OMNI-VII on a local area network.

The remaining steps are those needed to be taken to get the OMNI-VII One Plug computer program communicating with this OMNI-VII. So you will need to finish the setup as outlined in "OMNI-VII One Plug Program", "Installation", and "NETCONFIG"

Connecting the OMNI-VII onto a network for WWW access

An example of this is when you want to run the UDP 588 PC software at home, and the OMNI-VII is at a different physical location, such as at your remote shack in the mountains. Or you are at work, or on vacation, and want to access your OMNI-VII at home.

In this configuration, you use a standard Ethernet cable (not a crossover) to go from the OMNI-VII to a hub or router or other network connection. Do not connect the Ethernet cable yet, wait until instructed to do so.

For the software, it is almost the same as in connecting to a Local Area Network, except you will be identifying and using the IP addresses of the router that the OMNI-VII will see, and the IP address of the gateway that is accessed from the World Wide Web. In some instances, the router mentioned and the gateway mentioned is actually one in the same device. An example of this could be your cable modem, or your DSL modem. In this case, the "Router" IP Address is the IP address of your cable modem that your computers see inside your Local Area Network. And the "Gateway" IP address is the IP address of your cable modem that is visible to the external World Wide Web. The OMNI-VII needs to know the internal "Router" IP address, and the computer that you will run the OMNI-VII One Plug PC Program from will need to know the "Gateway" IP address.

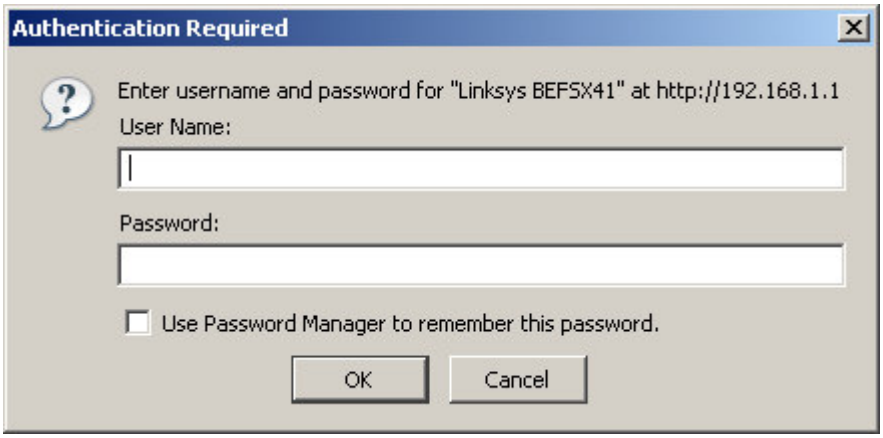
In order for any Network Appliance to talk to another Network Appliance/Client/Host on a network, they each must register themselves on the network. This is done by what is called a Gratuitous ARP. In order to do this, the Network Appliance, in this instance the OMNI-VII, must know the IP address is for the main router or gateway for this network. This address is then entered into the G8WAY IPADDR on the OMNI-VII transceiver menu.

For our example, we will assume you are using a cable modem for connection. At the location where you have the cable modem, is also the location that you will have the OMNI-VII connected. You will attempt to connect to the OMNI-VII from your hotel on vacation.

Step 1: Determine your cable modem's Internal and External IP addresses.

Most home networks are setup with your cable modem's internal IP address being:
192.168.1.1 (or possibly .199)

On most cable modems, your cable modem's configuration setup can be accessed via this number. In Internet Explorer or Mozilla Firefox, type in the URL http://192.168.1.1 And most likely, the setup page for your cable modem will appear. This is typically a password protected page. Such as the following for a Linksys router accessed via Mozilla Firefox:



If you do see the prompt for the username / password for the cable modem, or you see the cable modem's configuration setup, then you have the proper IP address.

If you don't see the password page or the cable modem's configuration setup. Then please refer to your cable supplier for information on determining what the IP address is and also how to access the settings for your cable modem because you will need to know how to do this later.

The cable modem's external IP address is easier to obtain. This can be obtained by either calling your internet service provider, or discussing it with whomever the network administrator is, or by going to a website that shows what IP address your are using to connect to the Ethernet, for example http://IPChicken.com . I propose to just go to IPChicken.com and see what it shows. From within TenTec, I see the following:

Step 1 is now complete. For our example, the Internal IP address is
192.168.1.1
And the cable modem's external IP Address is
70.150.121.98

Step 2: Determine the IP address you want to assign to the OMNI-VII.

The IP address of the OMNI-VII should look very similar to the Internal IP address consisting of the same first three numbers of the router. Then just pick a unique number between 1 and 198 for the fourth number of the OMNI-VII's IP address. You can actually pick anything up to, but not including 255, but best practice is to pick a number below 198.

The default RADIO IP Address for the OMNI-VII is 192.168.1.123
Unless you already have a network appliance utilizing this IP address, why not use the default and leave it alone.

Step 2 is now complete, the OMNI-VIIs IP Address we have set to **192.168.1.123**

Step 3: Determine the UDP port you want to use for this given OMNI-VII.

UDP port numbers range from 0 through 65535; however, UDP ports from 0 to 49151 are "reserved". So you can pick any number from 49152 through 65535. Well, almost. Another

constraint is that this number MUST BE EVEN. There, now you are done with the port number.

49152 (this is the default UDP port to use when the radio ships)

Step 3 is complete. The UDP port we have chosen is **49152**

It is important to remember the three numbers that you will need to set up on the OMNI-VII Transceiver, the OMNI-VII One Plug computer program, and also your router/gateway:

1) The OMNI-VII's IP address (ours = 192.168.1.123)
2) The router's internal IP address (ours = 192.168.1.1)
3) The gateway's external IP address (ours = 70.150.121.98)
4) The UDP port to use (ours = 49152)

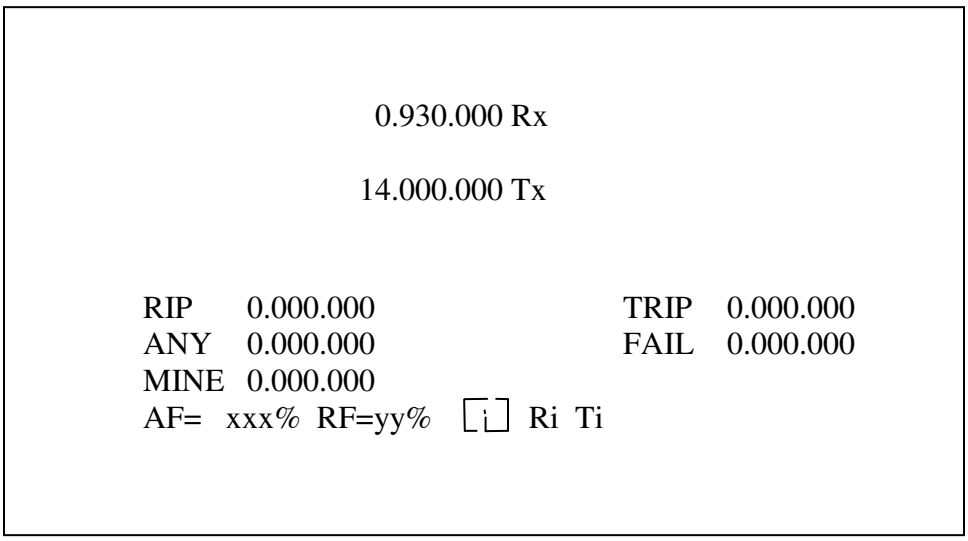
Now we will concentrate on setting up the OMNI-VII transceiver.
There are a few items in the OMNI-VII transceiver that you will have to set up, and a few things in the OMNI-VII One Plug computer program that you will have to set up.

For the OMNI-VII, these items are in the menu of the REMOTE MODE.
Let's get started with this step wise, first the steps to set up the OMNI-VII transceiver:

Step 4: Make sure the Ethernet cable is NOT CONNECTED

Step 5: Apply power to the OMNI-VII, while holding down the "2" digit to put the OMNI-VII into REMOTE MODE.

You should see the OMNI-VII REMOTE MODE main display:



The "Ri" indicator should not be visible yet. (See "OMNI-VII Display in Remote Modes" for more information on what these numbers and Icons mean.)

Step 6: Press the MNU button and release. This will take you to the OMNI-VII menu display.

The REMOTE MENU display has the following menu items:

Display	50%
RADIO IPADDR	192
RADIO IPADDR	161
RADIO IPADDR	1
RADIO IPADDR	123
UDP CMD PORT	49.152
MAC ADDRESS	00 19 45 xx xx xx
G8WAY IPADDR	192
G8WAY IPADDR	168
G8WAY IPADDR	1
G8WAY IPADDR	1
NET PASSCODE	00.000

Use the main encoder button to select a menu item, and the multi encoder to adjust the menu item. Change the RADIO IPADDR, UDP CMD PORT, and The REMOTE MENU display to the values we determined earlier:

1) RADIO IPADDR, use the OMNI-VII's IP address (ours = 192.168.1.123)
2) G8WAY IPADDR, use the router's internal IP address (ours = 192.168.1.1)
3) UDP CMD PORT, use the UDP port to use (ours = 49152)

Step 7: Press the MNU button and release. This will take you back to the OMNI-VII main remote display.

You should see the "Ti" Icon blinking red, then white periodically. This means the OMNI-VII is attempting to communicate with the programmed value for the router / gateway. It will continue to do this until something answers back to the OMNI-VII.

Step 5: Now that the transceiver is set up, you can connect the standard Ethernet cable between the OMNI-VII and the network. If all goes well, then you will eventually see the "Ti" icon quit blinking, and the "Ri" icon displayed green, then white, and when the "Ri" first goes green, you should also see the "[I]" go green as well. Phew, we have successfully connected the OMNI-VII on a local area network.

The remaining steps are those needed to be taken to get the OMNI-VII One Plug computer program communicating with this OMNI-VII. You will need to finish the setup as outlined in "OMNI-VII One Plug Program", "Installation", and "NETCONFIG"

OMNI-VII One Plug PC Program
Installation

Installation of the OMNI-VII One Plug software is easy.

First, the OMNI-VII One Plug PC Program is available for download from Ten-Tec's http://www.tentec.com web site.

Once you have found it, and downloaded it, there is a setup.exe which installs the program for you. This handles installing the OMNI-VII One Plug computer program, the UDP588 Users Guide, and the associated required windows DLLs and drivers.

Sometimes, you may have more up to date windows DLLs and drivers already on your computer, such as Winsock or VB DLLs. If this is the case, then the installation process will tell you that you have a newer version already installed, and ask if you want to overwrite it. Answer the question so that you keep your existing files intact. This means that you will keep your more up to date file, rather than over-writing it with an older version which may not be compatible with something new you have installed.

The installation program will create a "START MENU" item under the "Ten-Tec" group called OMNI-VII One Plug. In this group is the link to the OMNI-VII One Plug computer program.

If you want to update to a newer version of the OMNI-VII One Plug computer program, then it is highly advised that you remove the existing version first. There is an uninstall program for the OMNI-VII One Plug program in the same Start Menu location that you find the link to run the OMNI-VII One Plug Program. Remove it, and then run the new OMNI-VII's install program.

SOUND CARD CONTROLS

The One Plug computer program will attempt to connect to the sound card in use. This is so that the One Plug program can send audio it receives from the OMNI-VII to the computer's speakers. It also uses the sound card to capture microphone audio to send to the OMNI-VII for transmits. If One Plug cannot connect with the sound card then it will inform you with an appropriate message and not allow RIP to occur. If One Plug can connect with the sound card, but it cannot obtain control of the volume controls, then it will let you know via a pop up message the first time that this error condition is encountered. On subsequent re-starts of the One Plug program this error message will not be shown. However, on the CONSOLE display, there will be a message in the area where there is usually the PC VOLUME control. More on this in a later section.

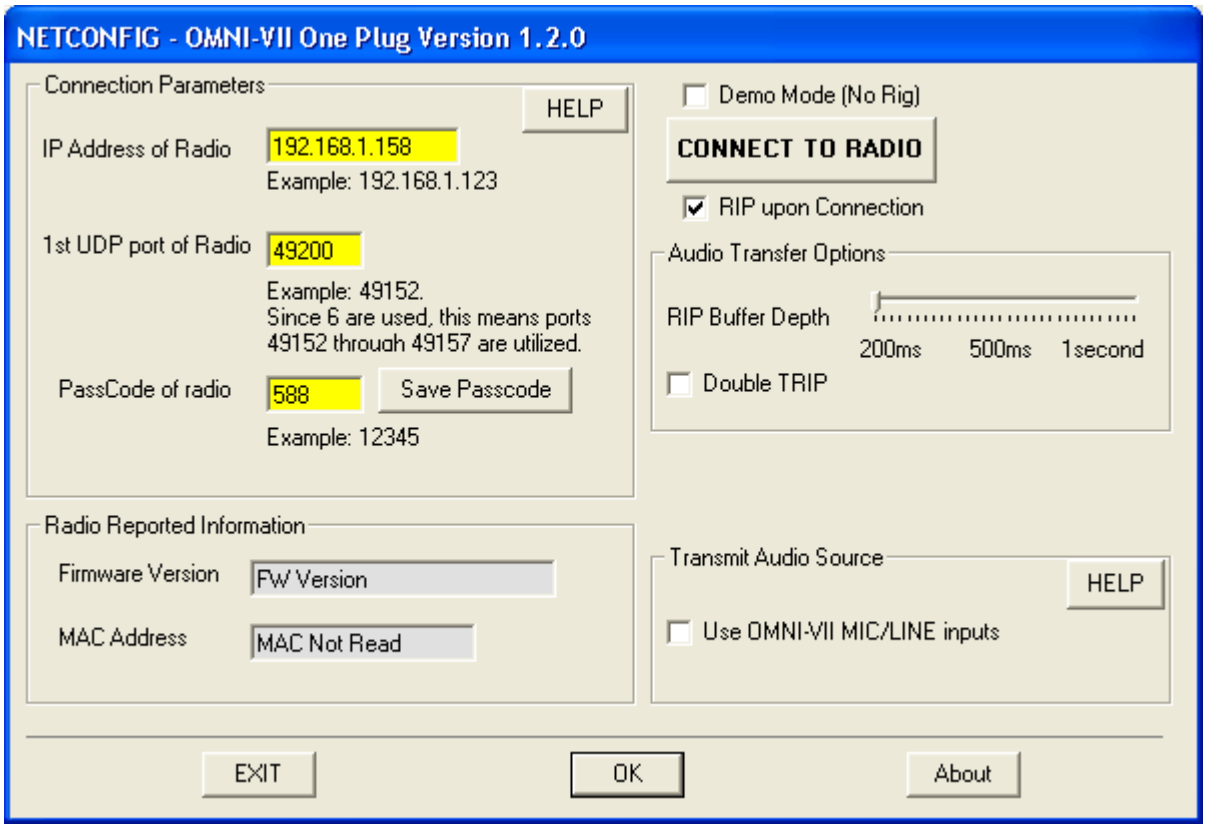
If all goes well, all features will be available and visible. As the One Plug program adjusts the PC volume, you can watch its subsequent level change in Windows Volume Control dialog box, or in the case of Vista, it will be shown as a program in the Mixer dialog box.

NETCONFIG

If you have not already installed the OMNI-VII One Plug program, then you should do so now. This is performed by running the setup.exe supplied with the OMNI-VII One Plug Installation Package, which is also found on the http://www.tentec.com web site.

Once the OMNI-VII One Plug computer program is installed, run it. This is found at: “START”, “All Programs”, “OMNI-VII One Plug”, “OMNI-VII One Plug”. When you click on it, you will get the OMNI-VII One Plug programs NETCONFIG display.

Below is a representative display of the NETCONFIG window that you will see when you start up the OMNI-VII One Plug program.



The OMNI-VII One Plug program allows you to run the program and see what controls are available and how they work without actually connecting to a radio. To do this, you can enter “Demo Mode”, by left-clicking the mouse on the “Demo Mode” Checkbox, then click OK. You will then be able to see the entire program, but no radio is required.

Once you have your connections working, you can check the “RIP upon Connection” check-box. Next time you attempt to connect, it will automatically start RIPing, and switch to the CONSOLE window once connection is established.

Connection Parameters

The first thing to do is identify what OMNI-VII you want to connect with. This includes entering data into the following fields:

IP Address of Radio: Here you type in one of two IP addresses

If you are connecting to the radio directly, or you are on the same Local Area Network as the radio, then you will type in the IP address of the radio.
From our earlier examples of "Connecting the OMNI-VII directly to a computer " and "Connecting the OMNI-VII onto a Local Area Network ", this number is what we identified as the IP address of the radio:

192.168.1.123

If you are connecting to the radio from an external World Wide Web address, then you will type in the Gateway's external IP address.
From our earlier example "Connecting the OMNI-VII onto a network for WWW access", this number is what we identified as the Gateway's external IP address:

70.150.121.98

UDP port of Radio:

From our earlier examples, this number is what we identified as the UDP port address is:

49152

PassCode of Radio:

From our earlier examples, this number is what we identified in the OMNI-VII transceiver's menu as NET PASSCODE as:

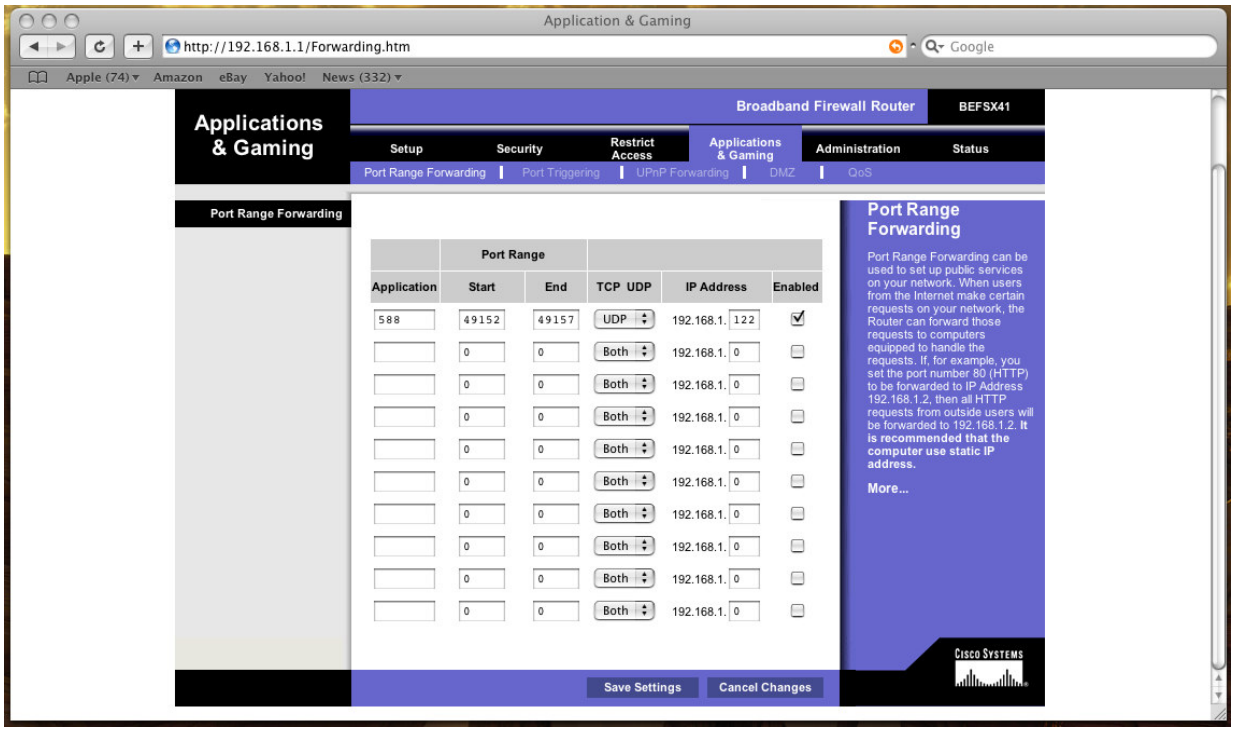
0

Note: The PassCode of the Radio is not remembered automatically. This is your "password" that you typically should enter every time you run the program. But, if you do want to have the program remember your passcode automatically, then once you have entered in a PassCode, then press the "Save PassCode" button, and it will be remembered the next time you run the OMNI-VII One Plug GUI.

Once you have entered in the appropriate "connection" information, you should then attempt to connect with the radio. Connection only means that you have communicated with the radio, and it has responded appropriately. To do this, click the "CONNECT TO THE RADIO" button.

If all goes well, and you don't have the RIP or CONSOLE check-boxes checked, then you will see the Firmware version, MAC address, and the radio IP/UDP port fields turn GREEN, and you will also see the firmware version installed and the MAC address for the OMNI-VII.

If you are accessing the OMNI-VII via a cable modem or other device that means you are doing it through a World Wide Web connection, then you will need to make sure that your cable modem either passes the UDP packets through to the OMNI-VII. Most will block "unsolicited" UDP packets. Meaning that if the radio doesn't start the communication, then the cable modem won't pass it through. To get communications to work in this event, you will need to enable port forwarding on your cable modem or external router. To do this, you will need to enter your cable modem or router's setup. The following is a sample of what it looks like on a LinkSys router:



Enter an application name (we chose 588). Then enter a port range. For the OMNI-VII, we use 6 ports, starting with the UDP CMD port. So enter in Start=49152, and End=49157. Make sure the TCP/UDP selection is only on UDP. Set the IP address to the ending number we chose which is .123. Then click on Enabled, and Save Settings.

There, you are done, and now you are an expert in UDP port forwarding. If you have a second OMNI-VII that you want to connect, pick another name, another start/end UDP port range, and an IP address, and enter it above, and you are done.

If after doing ALL of the above, it still fails, then you may need to verify the proper radio IP address (or use the router/gateway if the radio is sitting behind a router or gateway), or you may need to verify the UDP port, or PassCode. From there, it is a matter of verifying if you have the

OMNI-VII set up with the proper numbers as shown above, and if you are behind a router/gateway, verifying that the router/gateway is set up for UDP port forwarding if necessary.

Exit will completely exit the OMNI-VII One Plug program.

Note: the IP address and the UDP port will be remembered for the next time you start up, but NOT the PassCode.

Once you have a successful connection (you see green as shown earlier), press OK to enter the program CONSOLE window.

Note the radio should only be accessed by one OMNI-VII One-Plug program at a time for audio streaming. If another computer is already streaming audio from the OMNI-VII, this One Plug execution will tell you that the OMNI-VII is already in use, and that you should try to connect again later.

There is a short cut around this though, so that you can go to the CONSOLE to monitor the OMNI-VII. This will allow you to watch where your OMNI-VII is being used.

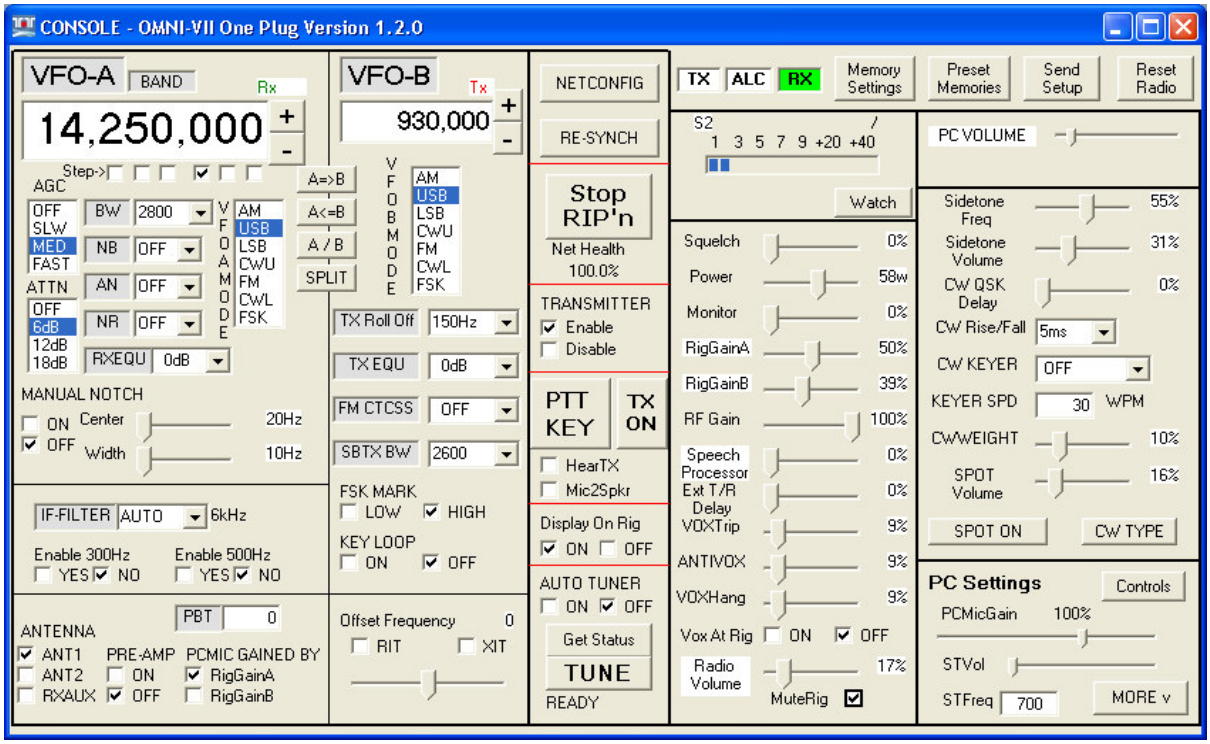
If you get the error message stating that the OMNI-VII is already in use, then click on the OK to the error message, and then click on the X to the NETCONFIG screen, NOT the OK button on the NETCONFIG screen. This will invoke the CONSOLE, but not allow RIPPING until the other program has released the OMNI-VII for usage and stopped RIPPING. This is good if you want to monitor the radio usage, and log where it has gone, when, etc.

Transmit Audio Source

This feature is utilized by those who want to use the physical mic or line connection on the OMNI-VII for the source of their transmit audio. This is useful for people who control the rig through in REMOTE mode, yet they are local to the rig and can easily utilize the hand mic connected to the front of the radio. Or for those who want to utilize a third party software for the audio path to the rig for transmit, such as Skype, SJPhone, or others.

OMNI-VII One Plug CONSOLE

The main functions of the OMNI-VII One Plug program are provided through the CONSOLE page. It looks as follows:



General Functionality

The left column basically indicates receiver controls and functions.

Most are self-explanatory. Operating the radio basically involves clicking on a selection, the selection will go yellow while the PC sends the command to the OMNI-VII, and then it will go back to white when the OMNI-VII has echoed back the new setting in effect. Some items are limited, and some have influence on other settings, so it is possible to select a setting, and then get a different number back. For instance, the OMNI-VII will not allow you to pick a DSP filter wider than the forced I-F filter. For example, you select an I-F filter of 6000, and then try to select a BW of 6500. The OMNI-VII will reject the request for 6500, and return 6000 instead.

Some controls also have a quick up/down method of entry. These appear as a “reverse” button. Such as NB. Left click on it to decrease the selected value, and right click it to increase the selection.

Two items have the capability to be adjusted, then locked. These items are Radio Volume, and PC Volume. Perform a Left Mouse Click over the white background text for either, and the item will appear with a strike through the text. This means the adjustment item is no longer able to be adjusted.

The second column indicates transmit functions/modes. If you are not operating split, the VFOA mode and frequency are used in transmit, otherwise if you are in SPLIT mode, then the VFOB mode and frequency are used in transmit.

Transmit Audio Source

One item in the second column relates to how you have the Transmit Audio Source selected in NETCONFIG. That control allows the OMNI-VII to transmit voice □enerated by the controlling PC's mic via TRIP, or to use audio injected into the radio via the physical mic or line input connections. In either case, transmit is initiated with PTT ON or PTT KEY on the One Plug GUI, or with the physical MIC or other "keys" physically on the OMNI-VII.

Using Local Mic Input when Remote

When Use Audio At Rig Location is selected, transmit audio comes from the physical mic or line input connections on the front and rear panels of the OMNI-VII. The mic gain and or line gain are then applied to the OMNI-VII audio depending upon whether you have the TX AUDIO SRC selection set to RIG MIC or RIG LINE. Hence, utilize MIC GAIN or LINE GAIN to adjust the gain applied by the OMNI-VII.

Adjusting the Myriad MIC gains when Remote

When Use Audio At Rig Location is not selected, transmit audio comes from the PC mic on the remote computer aka "TRIP". Originally, this was the only method for transmitting audio via the Ethernet. When using TRIP, "TX AUDIO SRC" now changes to "PC MIC GAINED BY" with selections RigGainA and RigGainB. Also, the Mic Gain and Line Gain menu items now change to RigGainA and RigGainB.

Utilize these same controls to adjust the respective gain as is applied in the OMNI-VII.

This does not affect CW.

There is a menu item in the PC Settings for adjusting the PC Mic Gain. This is a field that allows you to handle a very hot mic, whereby you would adjust the PC MIC Gain down to a very low value, and then utilize the RigGainA to get proper ALC action. Adjusting PC MIC Gain is also used to help weak mics by adjusting it to a > 100% value. This item is also used when it is desired to cut down on the amount of background noise pic'd up by very hot mics, such as newer digital USB microphones.

Re-Synching

The middle column has controls for “RE-SYNCH”ing the displayed information with the current radio settings, a button to go back to the NETCONFIG screen, and then controls that allow you to START RIP’n, which basically means you want to hear at the PC what the radio receiver is picking up. Transmit is also enabled/disabled and invoked in this column. You can even control the optional auto tuner if it has one built in.

S-Meter and Power Meter

The next column has an Smeter which also doubles as a power meter / SWR meter. During receive, the “Smeter” text is replaced with the current S-Unit, and the scale shows the value visually. During transmit, the “Smeter” text is replaced with a measurement showing both forward power and reflected power. The scale changes to 0..100% appropriately. Below the scale will be an SWR calculation.
There is a little ticker is shown in the upper right corner of that box. If it is toggling between / and \, and the SUnit value is white background, then communications are still good.

ALC Meter

There are two indicators that can be used to determine if the OMNI-VII is transmitting within ALC limit. There is an ALC LED indicator that indicates if the OMNI-VII is having ALC action. There is also an ALC meter for voice modes that appears below the SWR Meter. The length of the bar varies, but it indicates the selected forward power. When it is present, and is displayed in the “shorter” height mode, then it shows that the forward power is not being affected by ALC, and the scale shows the amount of forward power measured compared to the selected forward power. When it is present and is displayed in the “taller” height mode, then it shows that the forward power is in ALC, and the scale again shows the amount of forward power measured compared to the selected forward power.

Watching Your RIG Activities Remotely

If you aren’t RIPing, and still want to monitor the OMNI-VIIs activities, you can press the Watch button, and you will monitor the settings in the OMNI-VII. This is useful for monitoring a rig remotely, or for monitoring while you are controlling it with a different serial program.

How To Transmit VOICE or CW

Voice transmits are carried out by getting the MIC audio, pressing the PTT/KEY button in the middle column, and voice data is sent to the OMNI-VII, and it transmits over the air based on the settings in this panel.
CW transmits are carried out by pressing the PTT/KEY button, and the OMNI-VII generates the CW waveform appropriately, hence ensuring the OMNI-VII’s signature CW waveform structure is intact.

Special Function Keys

You are able to utilize the following keyboard keys to control the rig also:

- F1 – function adjustable in "CONTROLS"
- F2 – function adjustable in "CONTROLS"
- F3 – function adjustable in "CONTROLS"
- Page Up – function adjustable in "CONTROLS"
- Page Down – function adjustable in "CONTROLS"
- Cursor Left – Decreases Main VFO Frequency by Step Size
- Cursor Right – Increases Main VFO Frequency by Step Size
- Cursor Up – Increases Step Size
- Cursor Down – Decreases Step Size
- F12 – Starts/Stops transmits
- Print Screen (PrtScrn) – Starts transmit mode
- End – Stops Transmits, enter Receive mode

Miscellaneous

For most radio functions, it is simply press the mouse on the item you want to change, and it is changed like you would in any Windows program.

There exist two VOLUME controls. In the upper right is the volume of the PC speakers, and in the bottom of the next to last column is the radio volume. I suggest that if you are operating this radio remotely, that you always keep this at zero. And in fact, as an added precaution, I would put a set of headphones into the headphone connector, in case you accidentally change the radio volume to max and aren't around to hear it. Your neighbors may inform you if this occurs.

You can directly enter in the frequencies you want to go to use for your main VFO or your sub VFO.

You can use the + or – next to the main frequency to increment it or decrement it. If you hold mouse button while on the + or – sign, the rate of change will increase.
Some items are simply point and click, such as the AGC.

Other items are selecting a drop down arrow, and then clicking on the setting, such as for BW or RXEQU.

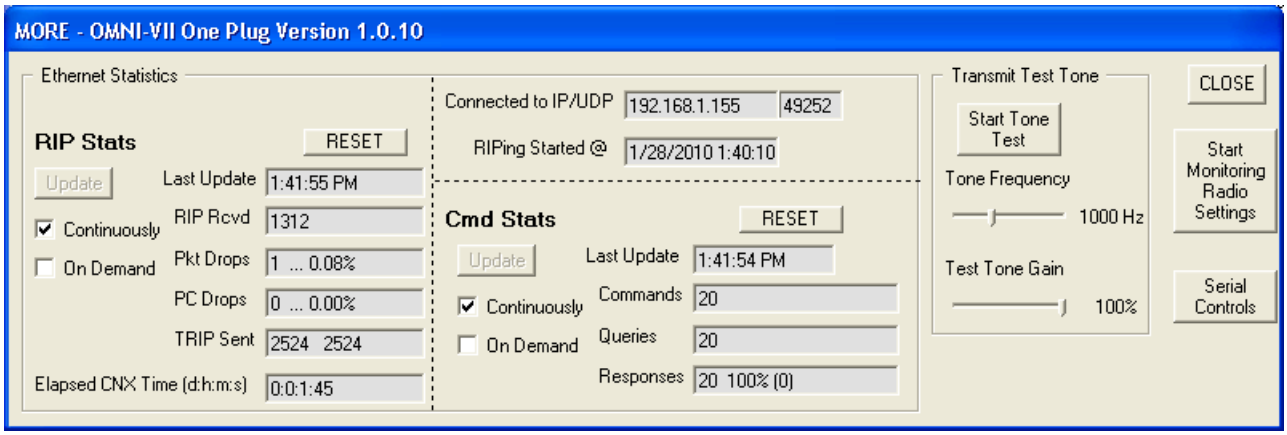
Some items have a special increment/decrement function that allows you to use the left cursor to decrement the current setting, or use the right cursor to increment the current setting. These are indicated with a reverse button, such as the NB button. Notice how it looks like an inverted button.

ALL functions that control a feature in the radio will go "yellow" when you adjust it, and will only go back to "white" background when the OMNI-VII responds back with the new value.

If you want to listen to the audio that the OMNI-VII is receiving off air, then you can click on the "RIP START" button. You can stop RIPing by click that same button again; it is now labeled "RIP STOP".

While you are away, you can turn on or off the display of the OMNI-VII by selecting the appropriate "DisplayOnRig" selection in the center column. If any key is pressed on the OMNI-VII front panel however, the display will automatically be turned back on.
While you are away, you can also turn on or off the Speaker Audio of the OMNI-VII by selecting "MuteATRig" selection in the fourth column. If any key is pressed on the OMNI-VII front panel however, the audio at the speaker will automatically be turned back on.

While you are RIPing data, you can see the status of the packets coming in. This will help you determine if you are actually getting data or not. To see the status of the packets, click on the MORE button on the lower right hand side of the screen, and you will see the statistics on the lower left of the MORE screen.



When you have Started RIPing, you can click on the "UPDATE" button, to see the statistics change, or you can monitor them continuous by selecting the "Continuously" bullet, next to UPDATE button. Note: This can cause some errors in communications, so if you can "hear" the audio, you don't need to continuously monitor the packet statistics. Only use it to see if you are really getting data, how many are good, etc. Note: You will hear audio, and still get errors in packets. Only when the packet error rates get above 5% are you really having a big problem.

In order to transmit, you can click on the PTT/KEY button. Speak into your microphone on your desktop, and this will cause the radio to transmit. If you don't want push to talk, but push to start talk and subsequent push to stop talk, then push the PTT ON button and release it, all the while you will now be transmitting, when you are done talking, simply push it again.

Sending CW

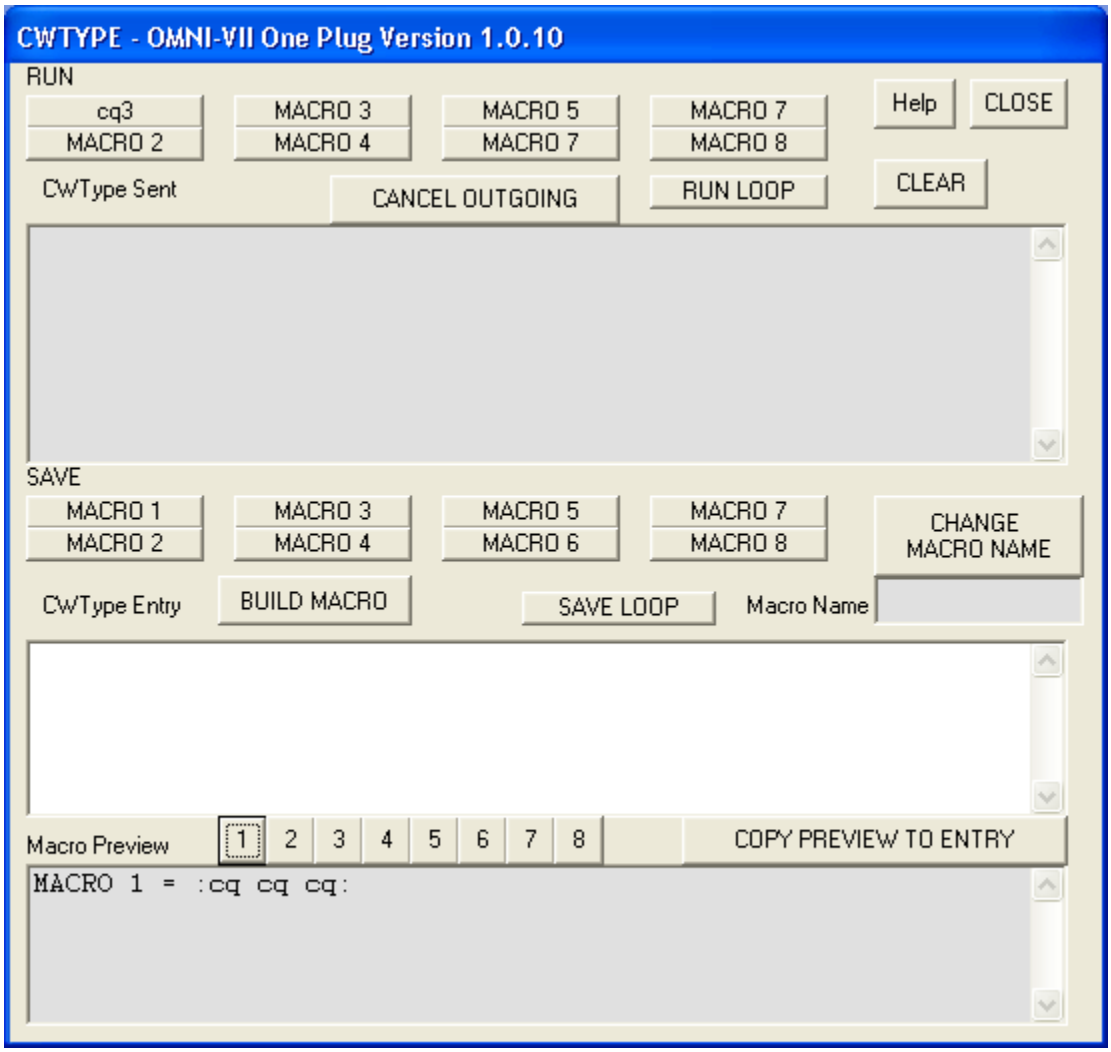
If you want to send CW manually, then you will click the left mouse button over the PTT to start a dit or dah, and then release it to stop the dit or dah. You can monitor this transmission by listening to your speaker.

Due to the delay in the internet (approx 300-500ms depending upon your connection), you will notice delays between when you have started to send a DIT to when it actually is heard over the air, and also when you hear it on the PC. To help with this, there is a PC setting with STVOL in the lower right side of the screen. This allows you to hear the CW tone generated by the PC at the PC.

CWType

CW characters can also be transmitted using the keyboard. A screen is provided that will allow you to type text into it that will be sent to the radio and converted to the appropriate DIT/DAH pattern.

This is invoked by pressing the CW TYPE button on the right hand column.



With the CWType Interface, to send CW, left-click the mouse on the CWTPE Entry Window, and then start typing with the local keyboard. The characters are then sent to the radio for it to send out at the selected CW settings.

There is a limited typeahead feature in the OMNI-VII. However CWType will allow you to continue to enter in as much as you want into the CWType Entry field, and when it is sent ot the radio, you will see it the characters leave the CWType Entry field, and go to the CWType Sent field. It gives you a way to know which characters are pending, and which characters have been sent to the OMNI-VII for transmission. Remember though, there is a typeahead buffer in the OMNI-VII also, so you may several more characters in the CWType Sent window that have not actually been transmitted. However these characters are still in the OMNI-VII typeahead buffer, and will get sent in order. When you want to terminate any number of pending characters from being sent, there is a Cancel Transmit button in the CWType screen that will cancel any outgoing characters buffered in CWType, and also already stored in the OMNI-VII.

CWType Macros

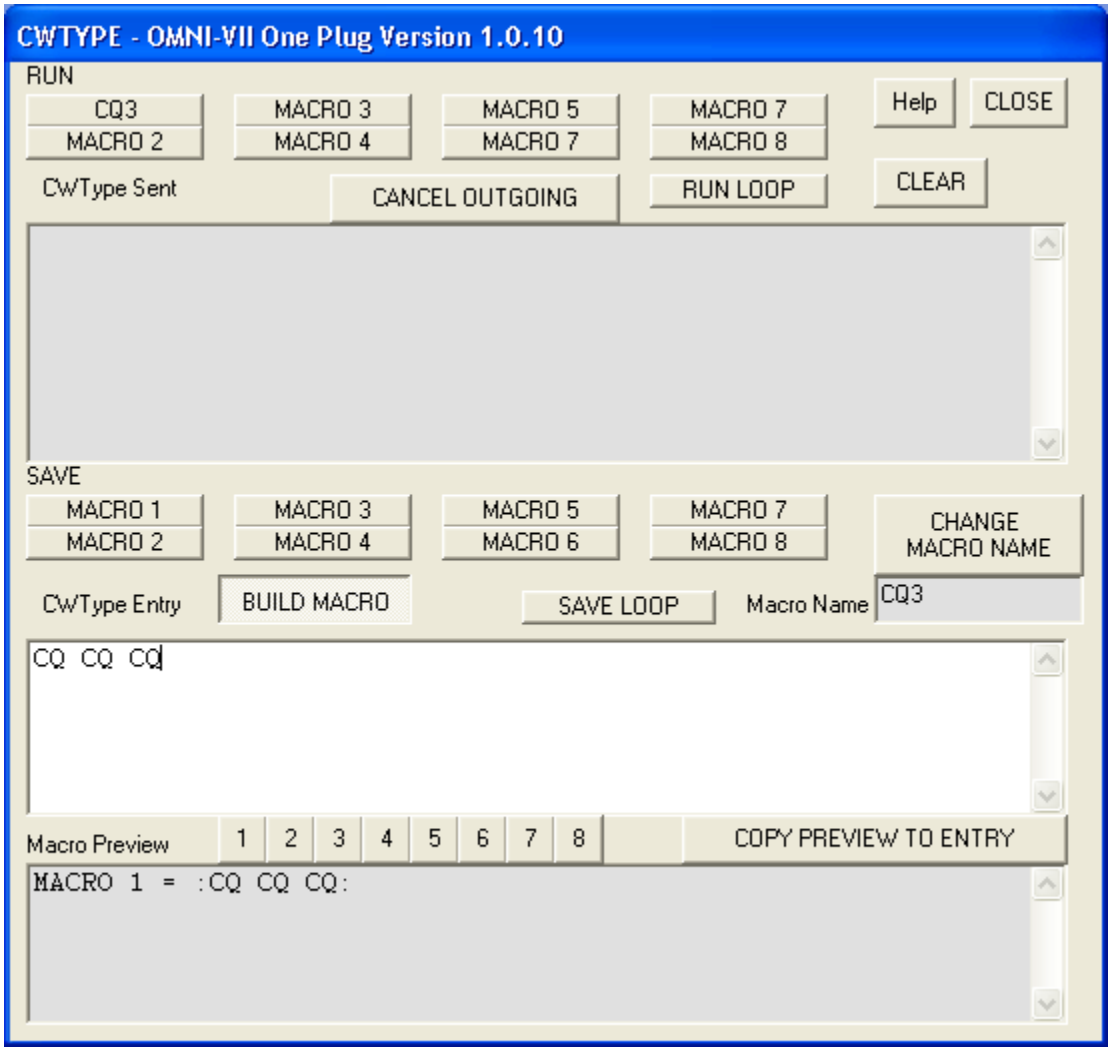
CWType provides the use of up to 8 macros. These macros can then be run at any time by clicking on the associated RUN "MACRO n" button.

CWType provides a way to cancel your outgoing CW, in case you have keyed up a large macro, and want to stop it. Just left-click the mouse on the "Cancel Outgoing" button and the macro will be cancelled, and the OMNI-VII will be instructed to stop sending whatever is in its CW buffer.

CWType will provide the interface for the optional Ten-Tec keyer to USB converter box. This box will take as input a CW keyer from a paddle, provide the user with a CW sidetone for him to key by, and tell the OMNI-VII One Plug program to send CW characters.

To create a macro, left-click the mouse on the Macro Builder window, and click on Build Macro. Then type in the text you want to be saved in the macro. You have normal editing capabilities, cut, paste, and delete, backspace that you can perform on this text.
If you want to give a name to this Macro, then click on CHANGE MACRO NAME, and then enter the text you want in the MACRO NAME text box.
Once completed, left click the mouse on the associated SAVE "MACRO n" button you want to store it in, and then click Build Macro again.
Once saved, you will see the name of the macro in the RUN section of the dialog box will have changed to the Macro Name you entered into the MACRO NAME Text box.
To be able to send CWType again, left-click the mouse on the CWTYPE Window, then start typing again and what you type will be sent out.

Example.
1 – Click on BUILD MACRO
2 – Click on the CQ Type Entry box, and type in CQ CQ CQ.
3 – Click on Change Macro Name
4 – Click on the Macro Name Text Box, and type in CQ3
5 – Click on SAVE "MACRO 1"
6 – To return to a running mode where you can send CW, Click on BUILD MACRO again.
You will end up with the following:



The Macros can be stacked. Meaning that you can click on RUN “MACRO 2”, and while it is still running, click on RUN “MACRO 5”. Macro 2 and 5 will both run to completion in the order of the data in 2 first, then 5.

The contents of the Macros can be previewed two different ways.
Either Click on the Number of the macro you want to preview to the right of the Macro Preview Text, or you can simply hover the mouse cursor over the Name of the Macro in the RUN section of the dialog box.

The Macro that is shown in the MACRO PREVIEW can be utilized to build another macro.
For example, if Macro 2 has CQCQ and you want to build a CQ3 out of it, you can preview Macro 2, Click on BUILD MACRO, Click on COPY PREVIEW TO ENTRY, and you will see that the CW Type Entry now has the CQCQ text. Just type in the third CQ, type on CHANGE MACRO NAME, type in CQ3, and then click on the SAVE “MACRO N” that you want this one saved to.

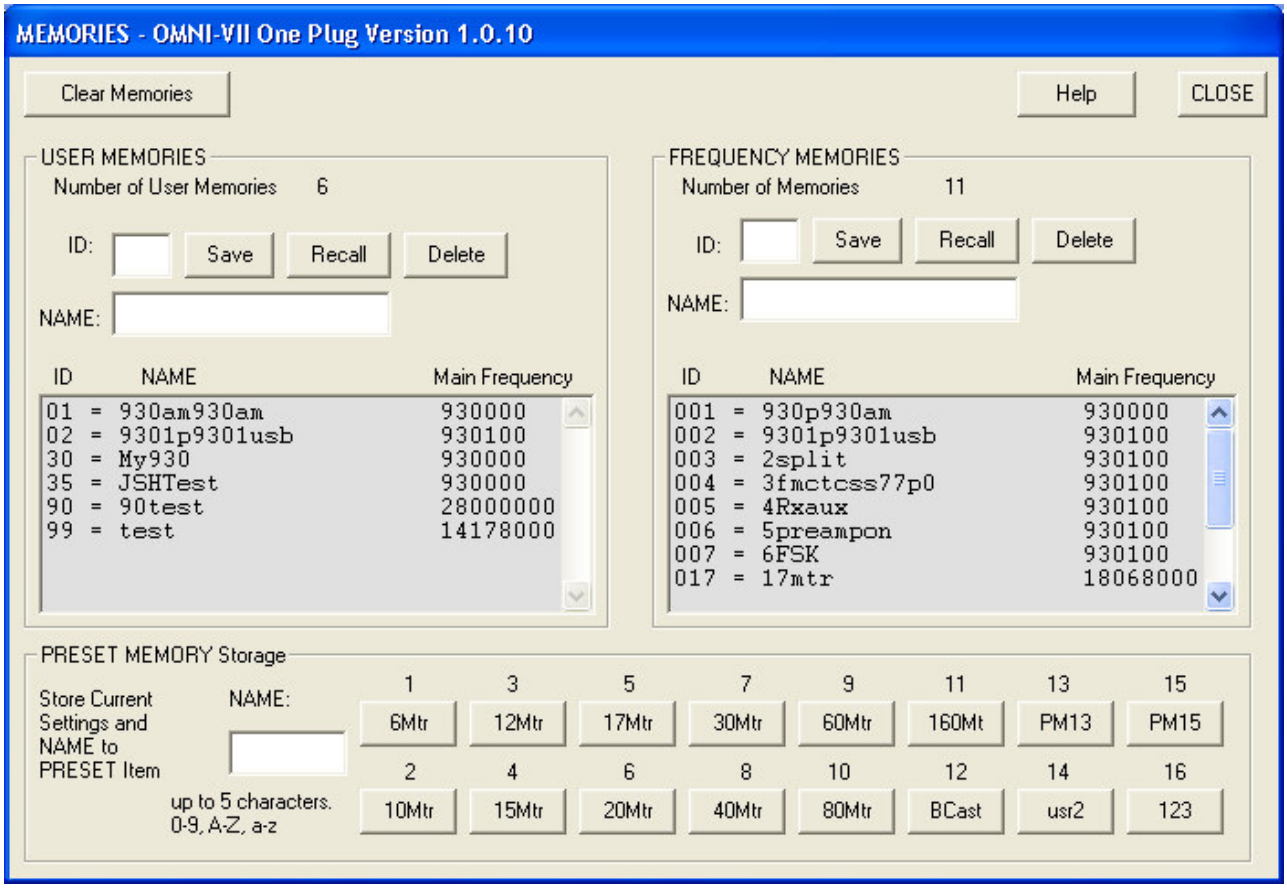
CWType Supported Characters and Procedural Signals

The OMNI-VII through CWType supports the standard alpha numeric character set for A through Z and 0 through 9. It also supports several special symbols, and some of these relate to known procedural signals.

Symbol	Code group	Name	Procedural Signal
“	.-..-.	Quotation mark	AF
‘	.----.	Apostrophe	WG
(	-.--.	Open parenthesis	KN Back to you
)	-.--.-	Close parenthesis	KK
+	.-.-.	Plus sign	AR End of Message
*	._…	Asterisk/Multiply	AS Wait
,	--..--	Comma	MIM
-	-….-	Hyphen or single dash	DU
.	.-.-.-	Period	AAA
/	-..-.	Slant/Divide By	DN
:	---…	Colon	OS
;	-.-.-.	Semicolon	KR
=	-…-	Equal sign	BT Separator
?	..--..	Question mark	IMI
@	.--.-.	At symbol	
_	..--.-	Underscore	IQ
!	---.	Exclamation point	
>	…_._		SK End of contact
<	.-.-		AA All after
%	-.-.-		KA
&	…-.		SN Understood
[	.-..-		Warning

OMNI-VII One Plug MEMORIES

The OMNI-VII One Plug program allows you to save setups, and recall them later. There are three types of memory setups that can be stored. Below is the current MEMORIES window. ***(See Addendum A for reference to Rig Memories)***



USER MEMORIES

User Memories are basically a snapshot of the entire setup. 100 of them are allowed to be stored and recalled. This is available via the "MEMORIES" button in the CONSOLE. These values are stored in "USERXX.INI" files in the folder chosen during installation of One Plug. The xx represents which ID it refers to, 0..99. These are not removed during the uninstall process. Each one has a name associated so that it can be easily identified later.

FREQUENCY MEMORIES

Frequency memories basically are a snapshot of the items needed to get to an operating mode and frequency quickly. There are only 6 items remembered in these memory locations.

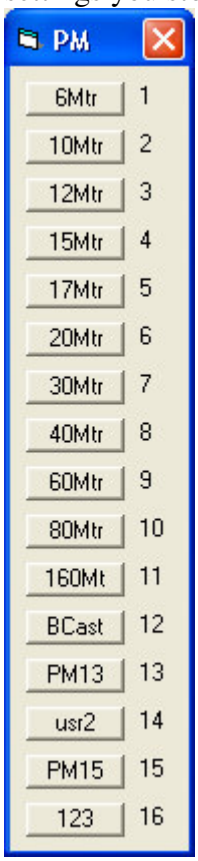
1. VFOA frequency
2. VFOA mode
3. VFOB frequency
4. VFOB mode
5. SPLIT state
6. AGC mode

This is similar to how band-stacking registers are stored and operated on within the OMNI-VII in radio mode. 1000 of them are allowed to be stored, and recalled. This is available via the "MEMORIES" button in the CONSOLE. These values are stored in "FREQXXX.INI" files in the folder chosen during installation of One Plug. The xxx represents which ID it refers to, 0..999. These are not removed during the uninstall process.
Each one has a name associated so that it can be easily identified later.

PRESET MEMORIES

Preset Memories contain the same type of settings as found in the Frequency memories. It gives you the ability to create a set of 16 memories. To save the settings into a Preset Memory, type into the Preset Memory NAME field a 5 character/digit name, and then press the Preset Memory button associated to which memory you want it stored. Accessing these memories is the true reason for having this third set of memories.

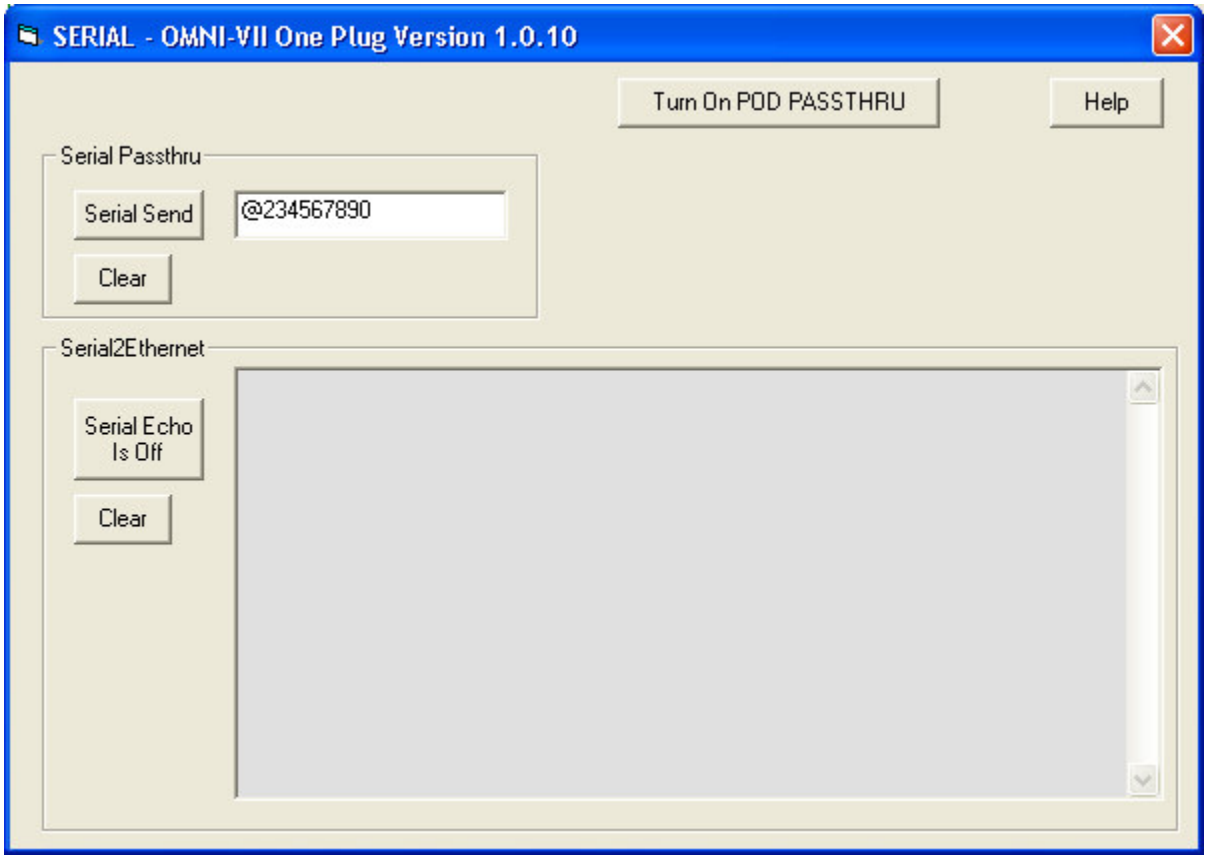
Left-mouse click on the "Preset Memories" button that resides at the top right of the CONSOLE window. This will bring up the Preset Memory hot window. You will then see the Preset Memory numbers with the names you selected. Left-mouse click the name you want, and your memory settings you stored will now be transferred to the OMNI-VII



SERIAL PASS THRU MODE

The OMNI-VII in REMOTE mode provides a way to control serial devices. This is done by sending to the OMNI-VII a command telling it to send out on the serial RS-232 port a command packet of n bytes. Thus it is possible to control any device that has a serial control interface on it. For example a SteppIR antenna controller. This mode also allows the OMNI-VII to send back to the OMNI-VII One Plug program any serial data it receives on its RS-232 port. Currently, this port is only set up for 57600 baud, 8 bits, 1 stop, and no parity.

A simulation of this is available in the extended CONSOLE area, accessible by pressing MORE in the lower right corner of the CONSOLE page.



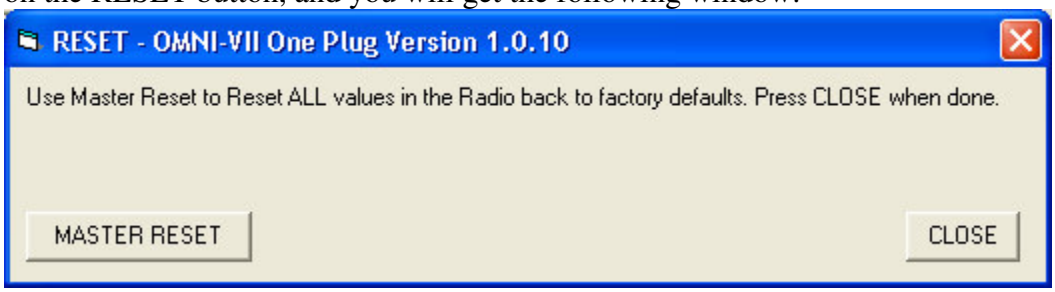
Simply connect up the OMNI_VII serial port to a computer that is running a terminal emulator such as hyperterm or procomm. Type into the text box next to the SERIAL SEND button a text string you want to go out the serial port, then click on SERIAL SEND, and you will see it arrive at the other computer's hyperterminal program.

Then, to watch Serial Echo work, you can click on Serial Echo Is Off button, and it will be turned on. Then type in the Hyperterminal window on the other computer, and you will see that text appear in the OMNI-VII One Plug window.

The interface in the OMNI-VII One Plug program is provided for testing purposes only, and shows how it can be implemented for even more uses by enterprising developers. An off the wall implementation would be to put a Winkeyer on the serial port, and have it control the radios T line remotely. Wow, typing into the OMNI-VII One Plug window, having it send a "SerialPassThru – A" command, and having that go to the serial port for the Winkeyer to control the character transmission.

MASTER RESET REMOTELY

If you get your radio into a state that it simply won't transmit or receive in, then it is probably a setting that you have changed that is not apparent. You can do a Master Reset remotely by clicking on the RESET button, and you will get the following window:



Either click on MASTER RESET or click on CLOSE.
If you do select MASTER RESET, then wait a minute or so before you try to communicate with the radio again.

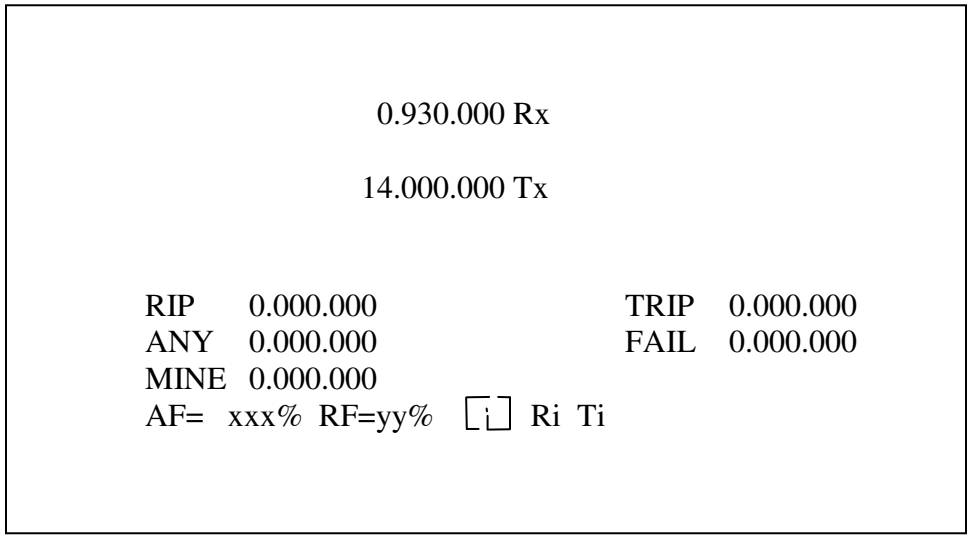
WARNING: This will also clear any memories you have already loaded into the OMNI-VII.

POD PASS THRU

The OMNI-VII when it is operated in REMOTE mode provides a way to pass the remote pod control through to a PC. This particular interface will only work on the RS-232 interface, not the Ethernet interface. This mode is already available on the Orion, and follows the same mechanisms for invoking it, and using it. This mode allows a PC control program to know what pod key is pressed, and then act upon it.

OMNI-VII Display in Remote Modes

As you have seen, there is not much displayed on the OMNI-VII in REMOTE MODE.



The top number is the main frequency in Hz, and if it is setup for Rx or RxTx

The 2nd number is the sub frequency in Hz, and if it is setup for Tx.

RIP = Number of Streaming Radio Over IP Packets the radio has sent.

ANY = Number of Internet Packets the radio has seen, destination = anyone.

MINE = Number of Internet Packets the radio has seen, Destination = this OMNI-VII's IP address and MAC.

TRIP = Number of TRANSMIT over IP Packets the OMNI-VII has been told to transmit over the air

FAIL = Number of times the Ethernet Network Interface Controller (NIC) chip has failed and had to be reset. Can happen on over-busy and/or bad network installations.

AUDIO = The AF Audio Level. (Same as on the RADIO MODE)

[I] = Icon indicating successful Ethernet communications
Color = White, OMNI-VII has never successfully communicated
Color = Green, OMNI-VII has had successful communication

Ri = Icon indicating Ethernet packets Received
If not shown, then the OMNI-VII has never seen any incoming Ethernet communication

Color = White, OMNI-VII has received Ethernet packets in the past
Color = Green, OMNI-VII has just received a packet with Destination = This OMNI-VII's IP address and MAC
Color = Yellow, OMNI-VII has just received a packet, not intended for the OMNI-VII.

Ti = Icon indicating this OMNI-VII has transmitted an Ethernet packet on the Ethernet
Color = White, OMNI-VII has transmitted an Ethernet Packet in the past.
Color = Red, OMNI-VII has JUST recently transmitted an Ethernet packet on the Ethernet
So between the counters, and the Icons, it should be easy to see
if communication is being attempted by the OMNI-VII ("Ti" flashing),
has the OMNI-VII seen any communication on the Ethernet, ("Ri" flashing)
has the OMNI-VII seen any communication destined for the OMNI-VII. ("Ri"=Green in color)

Updating the OMNI-VII transceiver firmware

The OMNI-VII transceiver firmware can be updated serially or via the Ethernet. The update process is very similar to the Orion. The method to enter the BOOT LOADER is different, so refer to the BOOT LOADER section in this specification. Once you have learned how to handle getting into the BOOT LOADER, then you can proceed with the update process.

The first thing to do is to download the latest software update from the Ten-Tec http://www.tentec.com website. Follow the same process to download, and setup the OMNI-VII transceiver firmware update software.

The first difference for the OMNI-VII transceiver firmware is that it will install your update program and new .ruf radio update file in :
C:\Program Files\Ten-Tec\OMNI VII Firmware Update

The second difference for the OMNI-VII transceiver firmware update process is that you are able to program the OMNI-VII firmware either over the serial port or over the Ethernet port.
The default settings of the update process are to program over the serial port.

If you want to change the setup to program the OMNI-VII over the Ethernet, then perform the following steps:

1. In the MAIN screen of the “Ten-Tec Flash32 Flash Update Utility”, select “Settings” “Setup”
2. In the “Setup Communications” screen, select “Ethernet”
3. Then make sure that you have selected the correct
   3.1. IP Address of radio
   3.2. UDP port of radio
   3.3. Passcode of radio
4. Then select “OK”

Select “Process”, then “Update Radio”. If you utilize the Ten-Tec Flash 32 update utility to program other radios, then you may need to adjust the directory to find the update file for the OMNI-VII .ruf file. Verify that the directory is:
C:\Program Files\Ten-Tec\OMNI VII Firmware Update
Once you are pointing to the right directory, then select the appropriate:
588RadioVxxxx.ruf file
You should see that the OMNI-VII indicates that it is erasing sectors, then programming. The process typically takes 100 seconds or so to program over the serial port, and around 40-60 seconds to program over the Ethernet port. Sometimes longer though due to network traffic.

When completed, the radio will boot itself back into the operating mode it came out of. E.g. if it was in RADIO MODE, it will return to RADIO MODE. If it was in REMOTE MODE, it will return to REMOTE MODE.

OMNI-VII BOOT LOADER

The OMNI-VII BOOT LOADER is used to update the software in the OMNI-VII in the field. It is entered different ways.

Forcing BOOT LOADER Mode

The first way to enter the BOOT LOADER is to:

1. First, make sure the radio is off
2. Press and hold the “0” digit on the band change keypad.
3. While holding the “0” digit, Turn on the Power (DO NOT RELEASE “0” YET)
4. When you see a status line at the top right of the OMNI-VII radios screen stating the version of the Flash “VER xxxx-588 FLASH” AND you also see the status line indicating that a “KEY IS PRESSED”. THEN you are forced to stay in flash mode, and you can release the “0” digit.

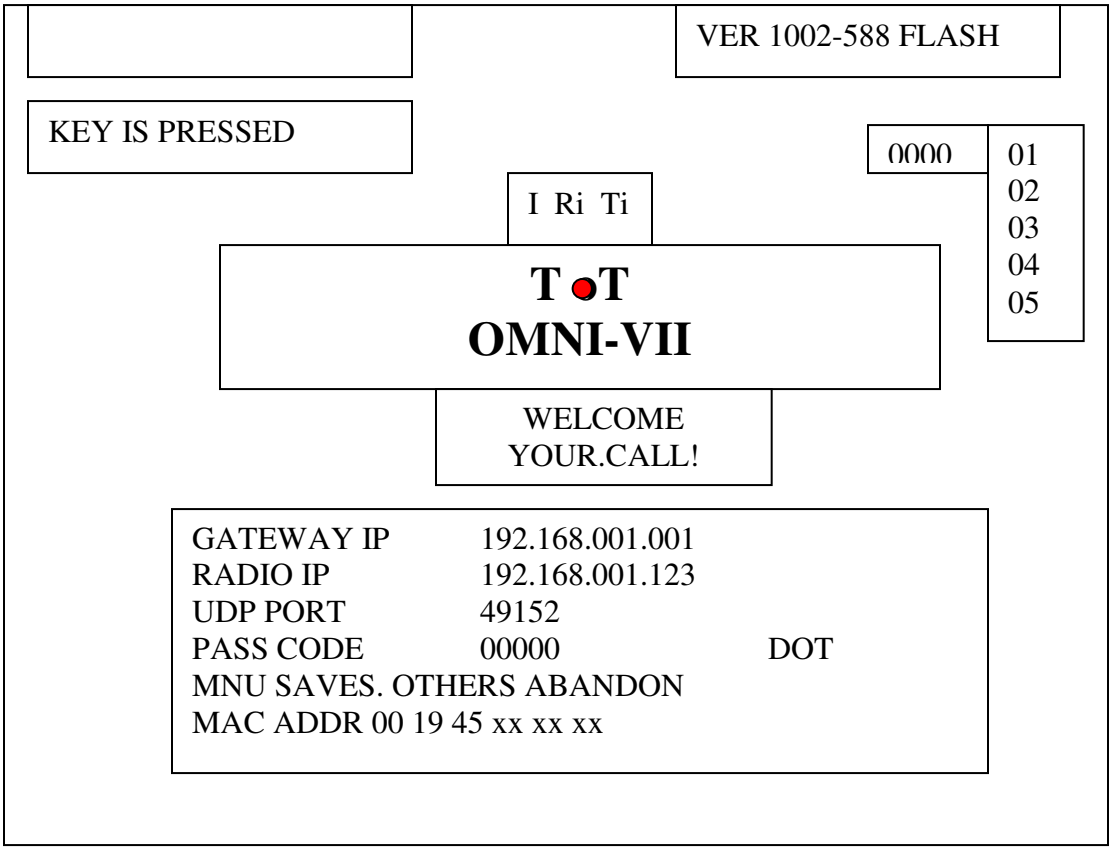
BOOT LOADER Entry via Remote Ethernet Flash Update

If you are running the radio remotely, over the Ethernet, then you will be to update the radio over the Ethernet. In this instance, getting into the BOOT LOADER is handled automatically by the update program that updates the entire set of Operating Modes 1 through 6 in the OMNI-VII. There is no physical step that you as a user need to take to get it into BOOT LOADER mode.

NOTE: Even though you are able to update the OMNI-VII over the Ethernet, it is still suggested that you try to do it locally via serial or the Ethernet connection whenever possible. The Ethernet poses far too many error conditions that can and will occur, whereby individual-programming commands can get lost, and the update may fail. Forcing you to attempt it several times. And a very realistic possibility will be that you will lose contact with the OMNI-VII until you are able to physically go to the OMNI-VII and update it locally.

BOOT LOADER Menu

There are parameters that can be modified within the BOOT LOADER. Pressing the MNU key while in the BOOT LOADER accesses these. The following display will be shown:



You then use the main encoder to cursor through the adjustable items, and the multi knob to adjust these items. They include:

Your Welcome Text of: YOUR.CALL!
(Adjust to any string you want. Your Name, Your Call, etc.)
Gateway IP
Radio IP
UDP Port
PASSCode
DOT (yep, you can even change your dot color during boot up, imagine that, now aren't you glad you read this entire manual down to almost the last page? ;)

Once you have made your changes, Press MNU again to save. If you have messed it up, don't worry, just press any other key and your changes will be abandoned.

NOTE: The IP address and UDP port don't take effect until you press MNU again.

BOOT LOADER Diagnostics

The BOOT LOADER provides several different ways to diagnose problems with the unit.

The BOOT LOADER provides a "STATUS LINE" which is the line that you have already seen indicate "KEY IS PRESSED". If you noticed when you forced the OMNI-VII into BOOT LOADER by pressing the "0" digit and holding it down during power on, you will have seen the "KEY IS PRESSED" string, followed by the "KEY WAS PRESSED" string when you released the "0" digit.

You can diagnose any key to see if it is working properly or not. Press it, and you will see "KEY IS PRESSED" while holding it, and then it should return to "KEY WAS PRESSED" when you release it. If it doesn't return to "KEY WAS PRESSED", then you may have a key sticking.
It also provides a diagnostic code that indicates which key is being pressed.
To the right of the STATUS LINE, is a Key Press Indicator string of 4 digits. Normally, this string shows 0000 when no key is being pressed. The first two digits will go to 01 when a digit is pressed, and the second two numbers will indicate which key is being pressed.

Code	Key	Code	Key	Code	Key	Code	Key	Code	Key
00	AGC	0A	3	14	*	1E	NCH	28	8
01	SPL	0B	*	15	PWR	1F	ENT	29	*
02	RIT	0C	MODE	16	1	20	MNU	2A	ATTN
03	SWP	0D	6	17	*	21	MIC	2B	7
04	A=B	0E	*	18	TUNE	22	9	2C	DOT
05	*	0F	M>V	19	4	23	*	2D	MULTI
06	ANT	10	2	1A	*	24	SPO	2E	PBTBW
07	A/B	11	*	1B	ALT	25	0	2F	AFRF
08	*	12	V>M	1C	REV	26	SP		
09	STEP	13	5	1D	XIT	27	NR		

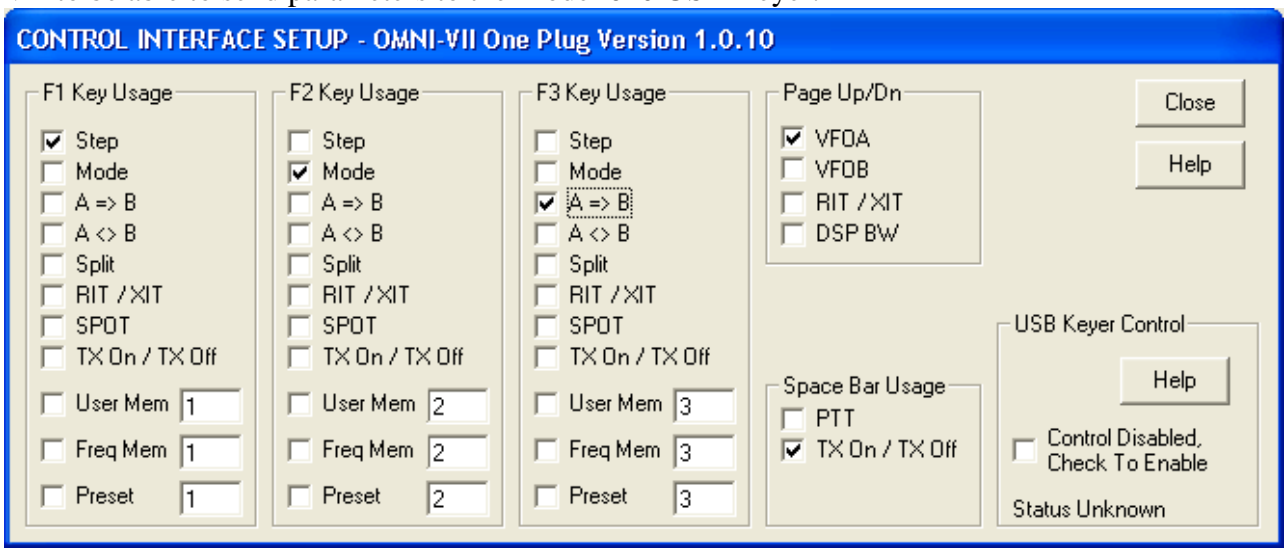
The encoders can be diagnosed via messages on the STATUS LINE. If you rotate the encoders left or right, you will see the following message:

Encoder	Rotate Right Message	Rotate Left Message
RIT / XIT	ENCODER A R	ENCODER A L
MULTI	ENCODER B R	ENCODER B L
PBT/BW	ENCODER C R	ENCODER C L
AF/RF	ENCODER D R	ENCODER D L
MULTI	ENCODER E R	ENCODER E L

There is a column of two digit hexadecimal numbers to the right of the Key Press Indicator. These values are related to values read from a PLD. They are used internally to identify other hardware characteristics and are subject to change, so they are not defined within this specification.

CONTROLS INTERFACE SETUP MENU

The Controls Interface Setup Menu allows you to define the usage of the F1, F2, F3, Page Up/Down, and the Space Bar keys on the computer's keyboard. This page also allows the OMNI-VII to be able to send parameters to the Model 610 USB Keyer.



Keyboard Key Definitions

The following Keys have the option of having the following functionality performed when pressed. Make the selection for the specific key on the Controls Interface Setup menu accessed from the Console page.

- F1, F2, F3 Key Usage
  - Step
  - Mode
  - A->B
  - A<>B
  - Split
  - RIT/XIT
  - SPOT
  - TX On / TX Off
  - User Memory Select
  - Frequency Memory Select
  - Preset
- Page UP/Down (performs an increase/decrease event on):
  - VFOA
  - VFOB
  - RIT/XIT
  - DSP BW
- Space Bar
  - PTT
  - TXOn/TXOff

USB Keyer Control Enable

The Model 610 USB Keyer will permit the usage of a paddle or a keyer to send CW characters to the OMNI-VII for on the air transmit. The Model 610 USB keyer gets enumerated on the Computer as a keyboard, so no special drivers are required. Just connect the Model 610 USB Keyer to a USB cable, and connect the USB cable to the Computer, run One Plug, go to CWType, and start using your paddle/keyer to send CW. The Model 610 USB Keyer can also be used with Notepad. A great tool for someone to practice CW without a rig.

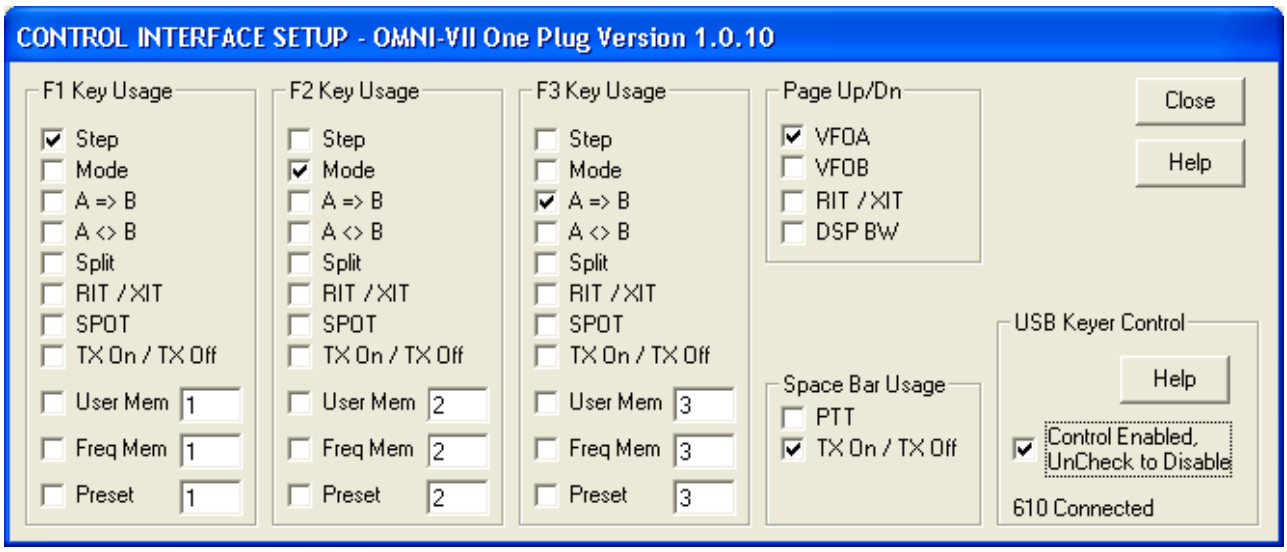
Certain CW functionality parameter changes can be programmed into the Model 610 USB Keyer. This means that when One Plug is set up to utilize a Model 610 USB Keyer, it will send a USB command to the Model 610 for the given parameter.
Normally One Plug does not send these parameters out. It must first be enabled.
To do this, perform the following:

1. Connect the Model 610 USB Keyer to a USB cable.
2. Connect this USB cable to the computer that you are going to run One Plug on.
3. Click on the "Enable" checkbox in the USB Keyer Control panel of the CONTROLS SETUP dialog box of One Plug. (The status below the button should read "Status Unknown" before you click the checkbox.)
4. If the Model 610 USB Keyer is properly connected the status below the Enable box will change to "610 Connected".
5. From this point onwards, One Plug will send a USB command to the 610 whenever the following parameters are modified within One Plug:
   - CW Weighting
   - Sidetone Frequency
   - CW Speed
   - Keyer Volume (not visible on CONSOLE window unless the 610 is enabled and successfully connected)

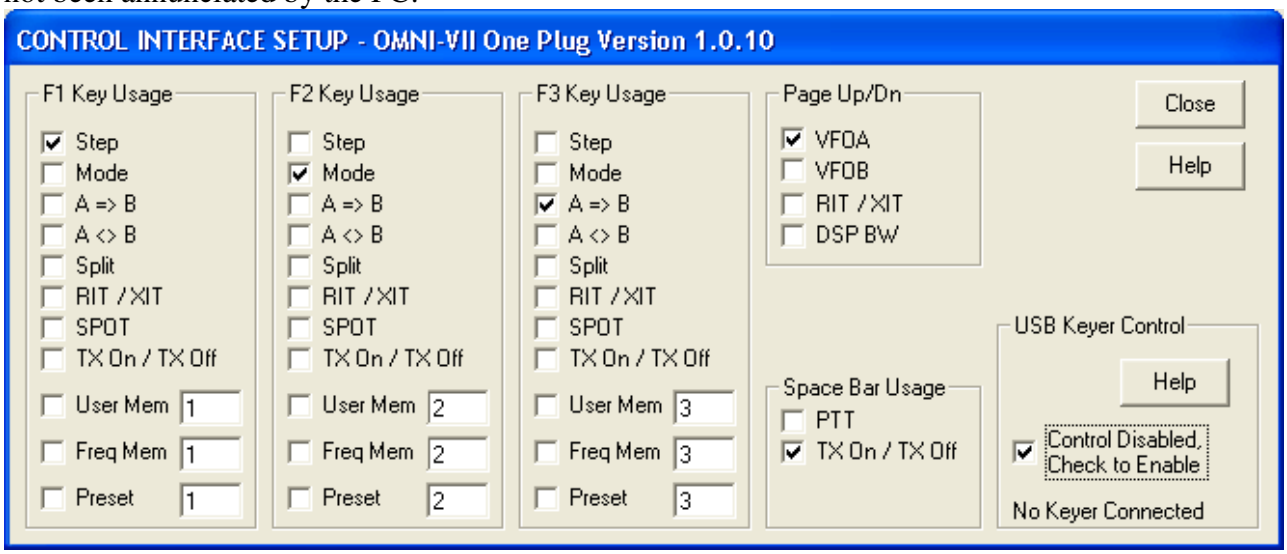
   Note, these parameters are for the 610 itself. Meaning how the audio is played on the 610 for each of the given features. This command is also sent to the OMNI-VII so that it too will perform the same functionality for each parameter as it has always been performed.

Regardless of whether the 610 is set to enabled or not in the One Plug GUI, the user will be able to connect the 610 to his computer, and still use it to send CW in the CWType menu.

Below is the CONTROL IF window when the 610 is properly enabled and connected:

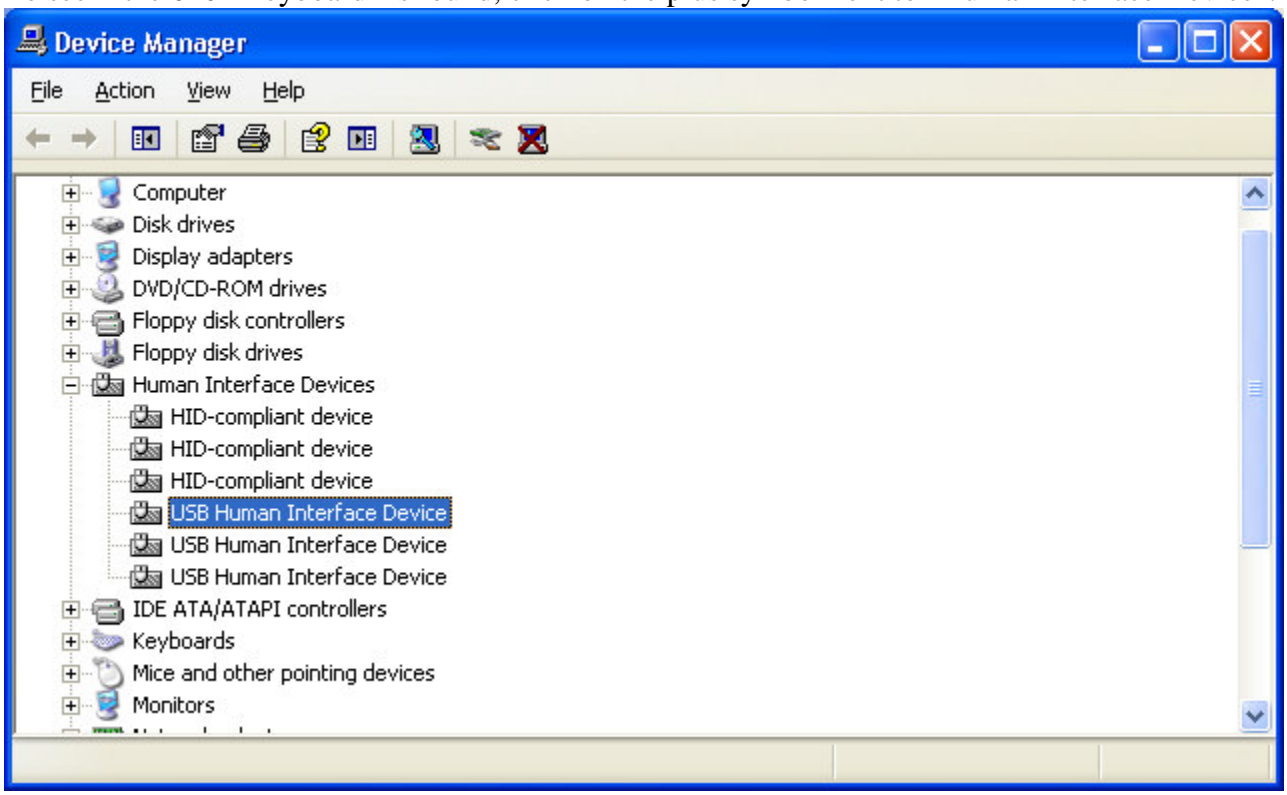


Below shows what the CONTROL IF window will show when the 610 is enabled, yet the 610 has not been annunciated by the PC:

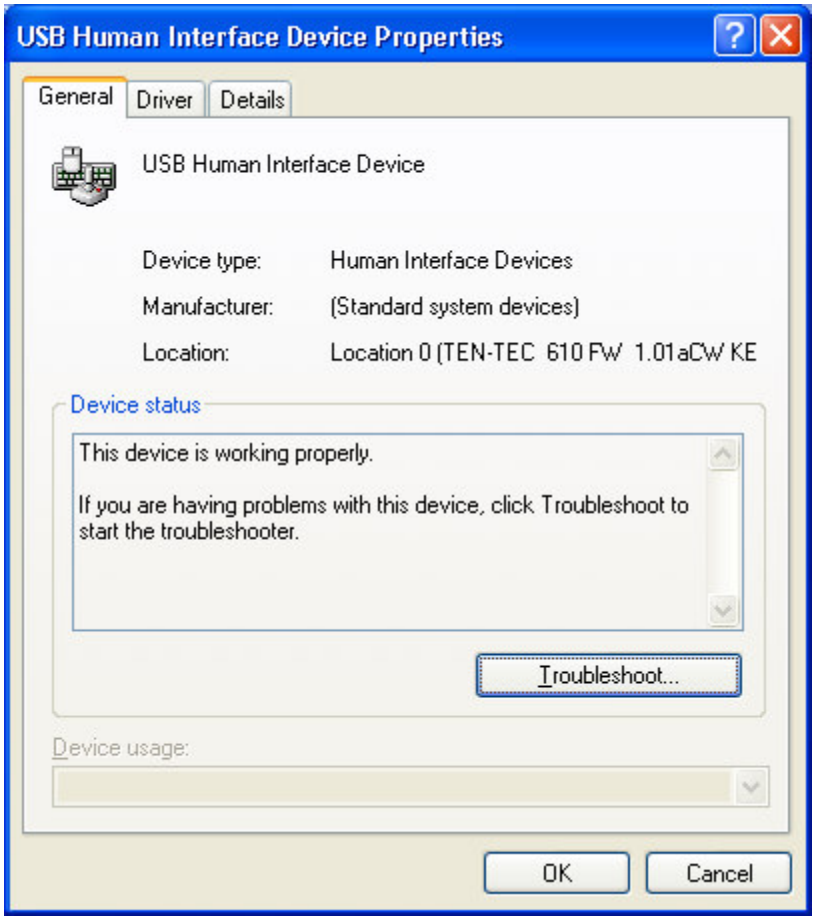


If the above display is shown, then you will not be able to use the 610 connected to work with One Plug or the OMNI-VII.

The 610 will enumerate as a standard HID device. To see if your computer has found the 610 you can look in your computers Hardware Manager. In XP, this is found at:
Start - > Control Panel -> System - > Hardware - > Device Manager.
To see if the 610 “Keyboard” is found, click on the plus symbol next to “Human Interface Device”.

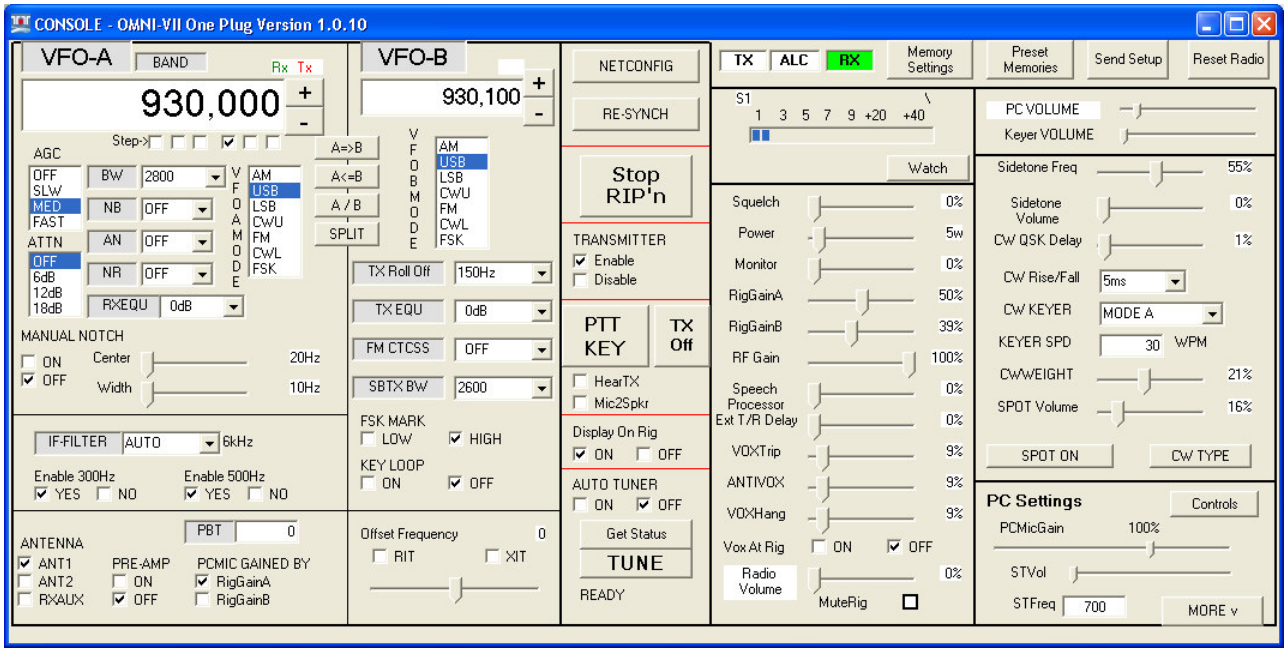


Double Click on each of the “USB Human Interface Device” items under Human Interface Devices, one at a time, until you see:



This shows that TEN-TEC 610 with FW 1.01a is installed on this computer.
If similar is not found, click cancel and continue until all devices in the Human Interface Device section has been scanned.
The 610 should enumerate on any PC or Linux Box that recognizes standard keyboards. No special driver is required.

Below is the CONSOLE window when the 610 is properly connected, Note the Keyer Volume slider bar that now resides under the PC Volume slider in the upper right section of the CONSOLE window:



Basically it is the same as a local keyboard, so go to the CWType window, and start keying. To utilize the full functionality of the 610, follow the instructions as defined in the 610 Users Manual.

Document Revision History

Date:	Doc Revision	GUI Revision	Modifications
March 1, 2007	1.001	1.0.1	• Modified the location where the OMNI-VII One Plug Program gets installed. • Modified the location where the Memory.ini files get stored. • Updated the screen shots to show version 1.0.0 as released
March 28, 2007	1.002	1.0.2	• Added Demo Mode selection on NETCONFIG display. • Added Save Passcode button on NETCONFIG display. • Added CWType macros. • Added Signal Strength Watch button to watch the signal strength without having to RIP audio.
June 5, 2007	1.003	1.0.3	• Added reference to “RIP upon Connection” • Added the updated CONSOLE Window • Added capability to Lock the Radio Volume and PC Volume (strike through text = locked) • Added “Watch” reference to monitor the radio’s activities and signal strength / transmit activities. • Added Reference to F1, F2, F3, Page Up, Page Down, and Cursor Control functions. • Added “Cancel Outgoing” to the CW Type buffer. Cancels current pending and also those in the OMNI-VII’s CW Type buffer. • Removed Sound Card Calibration. • Added the updated MEMORIES window. Including the Preset Memory Definition setup. • Added the updated MORE window • Added the new PRESET MEMORY window • Added the updated RESET RADIO window

July 19, 2007	1.003	1.0.3	• Added references to compression • Added references to transmit audio source • Added references to ability to utilize local audio for transmit audio. • Added updated screens • Added way to turn on / off the rig display • Added way to control the gain level of the PC microphone, able to adjust it by 1% to 200%. • Added reference to the procedural signals supported.
August 13, 2007	1.005	1.0.5	• Added ALC Bar under S-Meter/Pwr-Meter for Voice Modes • Allow CWType Text to be entered continuously without stopping • CWType now occurs by entering CW text into the CWType Entry Window. Same window used for creating Macros. • Added Mute AT Rig Control
September 13, 2007	1.006	1.0.6	• Added reference to requirement for a full duplex sound blaster compatible sound card • Modified compatibility to 98SE, not the original 98. • Added section Sound Card Controls • Added Explanation for Lock TRIP to RIG Timing in Netconfig dialog box. • Added F12 to start/stop transmits
December 15, 2007	1.007	1.0.6	• Updated with 1.0.7 screen shots • Added more CW Macros, for a total of 8 • Added ability to name CW Macros. • Added ability to preview CW Macros.
March 12, 2009	1.008	1.0.8	• Added Description of Controls Interface Setup Menu • Added Description of USB Keyer Interface Connection Enumeration and Control
August 23, 2009	1.009	1.0.9	• Modified URL to TenTec to http://www.tentec.com • Updated One Plug displays with 1.0.9 version displays. • Added Print Screen key presses will put

			the OMN_VII into transmit mode (Special Function Keys) • Added End key presses will put the OMNI-VII back into receive mode (Special Function Keys) • Added TX On / Off capability to F1, F2, F3 function keys. • Added more complete description of the Model 610 USB CW Keyer.
January 28, 2010	1.010	1.0.10	• Added note that Windows 7 is supported. One Plug V 1.0.10 has been tested with Windows 7 32 bit and 64 bit. • Updated One Plug displays with 1.0.10 version displays. • Changed wording for FREQ and USER ini files being stored in an installation folder, instead of showing a specific folder. With 1.0.10 One Plug the customer can change the installation folder.

May 23, 2014	1.200	1.2.00	• Page 24 – Replaced the NetConfig display with V1.2.00 NetConfig.
			  • Removed Options:
			  • Compress RIP, Compress TRIP
			  • Lock TRIP to RIG Timings
			  • These three are now forced on all the time
			  • Added Adjustment Item:
			  • RIP Buffer Depth
			• Page 27 – removed section referring to Audio Compression and Lock TRIP to RIG Timing functions that are no longer applicable.
			• Page 29 – Replaced picture of CONSOLE page. (NetHealth)
			• Page 38 – Added reference to Addendum A with regards to Rig Memories added in Version 1.2.00
			• Addendum A – Added Addendum A to identify changes in V 1.2.00 OnePlug.

May 27, 2014	1.201	1.2.00	• Added Minimum Ethernet connection Requirements to page 9 • Added references in Addendum A about changes made to protocol are in the Programmers Reference Manual

Addendum A – Changes made from OnePlug Version 1.0.10 to Version 1.2.00

Ethernet Audio Handling

The main purpose of Version 1.2.00 OnePlug was to improve the audio handling via the Ethernet. Various items went into this, including:

* Rewrote several parts of the code to help alleviate PCs that were bogged down by the activity in all of the forms during RIP/TRIP.
* Removed support for uncompressed RIP and TRIP, always runs as compressed audio now for both RIP and TRIP. Refer to the Programmers Reference Manual V1.011 for reference to the compression types Methods supported by the OMNI-VII. (added a bit to the ?T query for Compressions Only)
* Removed option to "Lock TRIP to RIG Timing", OnePlug is now always driven by the OMNI-VII's data packet rate for audio. Keeps them both in synch.
* Simplified the Ethernet Audio Handling code by removing repititious events required to checking compression levels.

NetHealth

NetHealth indicates how “healthy” the Receive audio over IP is working. It shows a value between 0.0% and 100.0%. OnePlug knows how many packets have been received, and how many have been dropped. This NetHealth indicator is basically a running average indicator based on the last 100 good received packets. A value of 100% means that OnePlug has received and processed 100% of the audio items required to fill the speaker buffers with sound. Meaning, that OnePlug has received all packets expected for a period of time. A value <100% means that this % of packets has been received successfully and played on the speaker buffer successfully. It is a weighted average so that losses stay shown longer than they really occur. This prevents a lost packet from going to 99% then back to 100% too fast to see visually. This feature consists of a display readout that is located below the “START/STOP RIP” button.

RIP Buffer Depth Adjustment item in NetConfig

Added RIP Buffer Depth Adjustment to NetConfig. This gives the customer an adjustment for the amount of buffering OnePlug provides of incoming RIP audio before it is played on the Speaker. Normally, to keep the communications as real time as possible, one should try to run at minimum value, but can be increased when desired to help receive audio handling on networks that experience high amountsof jitter or continued loss of packets.

Rig Memory Store and Recall

Added the ability to store and recall the memories actually stored in the rig. These memories are available for recall in the OMNI-VII in either Remote mode (Via OnePLug or another CAT program) or in Radio Mode, using the front panel controls for memory recall. This function does not affect the memories stored on the PC. This is performed on the Memory Settings Page referred to in section entitled “OMNI-VII One Plug MEMORIES”
To have the OMNI-VII store it’s current settings to a given memory
1 – Ensure the OMNI-VII is set up to the items you want to store.
2 – From OnePlug’s CONSOLE display, press the “Memory Settings” button (on the top row, to the right of the RX/TX lights).
3 – Pick the number of the OMNI-VII’s memory that you want to store the settings to (a value between 0 and 99), and enter this number into the ID number field in the Rig Memories section.
4 – Press Store.

To have the OMNI-VII recall a set of settings from one of it’s given rig memories
1 – From OnePlug’s CONSOLE display, press the “Memory Settings” button (on the top row, to the right of the RX/TX lights).
2 – Pick the number of the OMNI-VII’s memory that you want to recall the settings from (a value between 0 and 99), and enter this number into the ID number field in the Rig Memories section.
3 – Press Recall
The OMNI-VII will now be set to what it had stored in the selected memory, and these settings will now be transferred to the current setup in OnePlug. You may store this to one of the PC memories if desired, e.g. Frequency memories, User Memories, or even Preset Memories.
The commands to perform a memory recall/store are defined in the Programmers Reference Manual V 1.011.

Note1: OnePlug Version 1.2.00 can be utilized with rig firmware version 1.035, but the rig memory recall/store functions will not work. Audio streaming will work, but not as well as it does with firmware version 1.036.

Note2: Firmware version 1.036 can be used with OnePlug 1.0.10, but to use this combination, one must enable "Compress RIP", and "Compress TRIP", and "LOCK TRIP to RIG Timing" on the NETCONFIG display. Otherwise the OMNI-VII running Version 1.036 will not RIP audio.