

Remote Control HF Rig Over Mesh

Written by Jim Kinter, K5KTF - Last Updated Thursday, 25 April 2013 14:27

How to setup a remote control of a radio across the mesh

Items needed:

- Radio (Yaesu FT-897D used in this example)
- Phone Patch (Kenwood PC-1A used here)
- Mesh Node
- ATA VoIP Adapter (Grandstream HT286 used here)
- NTE6408 DIAC (could use NTE6409, 6411 or 6412, depending on the on-hook voltage presented)
- Short chunk of telephone cable with RJ-11
- Short section of small coax with 1/8" mono plug
- Cabling to connect phone patch to radio (setup specific)
- VoIP system (I used the Asterisk server already installed on K5KTF-USB with an extension setup for this use).

Details of my system, which may vary from your own setup:

I used 2 mesh nodes, K5KTF-USB which is a USB modified node, so I can connect a USB-to-serial adapter cable (PL2303 compatible) that already had the drivers and modules loaded to use the usb-serial cable. I used a separate node, K5KTF-FT-897D, for the VoIP connection. I may at some point move the serial connection over to FT-897D, once I get a spare serial port level shifter to have the CAT cable and the VoIP all one one node.

Also, I already have a VoIP system, Asterisk and Chameleon voice mail, already installed on K5KTF-USB, using callsigns as extensions (K5KTF=5583, NG5V=6458, CTECC=28322, etc), so a directory is not needed. Know the callsign/tactical, know their extension.

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First we connect all the hardware:

Whatever phone patch equipment you get will determine how it is connected. In this example, I acquired a KWD PC-1A at the most recent Belton swapfest for \$10. I saw 3 or 4 of these floating around up there for about the same price, so they are probably not hard to come by.

I wired my Turner Plus Three into the patch box, using just the 4 conductors (Mic/GND, PTT/GND), and tied the patch box to the radio's mic and external speaker jacks.



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Kenwood PC-1A Phone Patch Controller with a Linksys WRT54GL Wireless-G Broadband Router. The PC-1A is connected to the router's LAN port.



Diagram of the PC-1A showing the connection of the Linksys router to the LAN port and the power source to the power jack. The power switch is set to 'ON'.

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Save Changes

Reset Values

Default Values

Reboot

Node Name Password

Node Type Verify Password

WiFi		LAN		WAN	
Protocol	<input type="text" value="Static"/>	LAN Mode	<input type="text" value="1 hostDMZ"/>	Protocol	<input type="text" value="DHCP"/>
IP Address	<input type="text" value="10.12.228.20"/>	IP Address	<input type="text" value="10.51.144.81"/>	DNS 1	<input type="text" value="8.8.8.8"/>
Netmask	<input type="text" value="255.0.0.0"/>	Netmask	<input type="text" value="255.255.255.252"/>	DNS 2	<input type="text" value="8.8.4.4"/>
SSID	<input type="text" value="HSMM-MESH"/>	DHCP Server	<input checked="" type="checkbox"/>	<hr/>	
Mode	<input type="text" value="Ad-Hoc"/>	DHCP Start	<input type="text" value="82"/>	Mesh Gateway	<input type="checkbox"/>
Channel	<input type="text" value="1"/>	DHCP End	<input type="text" value="82"/>		
<hr/>					
Active Settings					
Rx Antenna	<input type="text" value="Diversity"/>				
Tx Antenna	<input type="text" value="Diversity"/>				
Tx Power	<input type="text" value="19 dBm"/>				
Distance	<input type="text" value="0"/>				
<input type="button" value="Apply"/>					

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Save Changes

Reset Values

Refresh

DHCP Address Reservations

Hostname	IP Address	MAC Address	
FT897D	<input type="text" value="10.51.144.82"/>	<input type="text" value="00:0b:82:08:73:86"/>	<input type="button" value="Del"/>
	<input type="text" value="- IP Address -"/>		<input type="button" value="Add"/>

Advertised Services

Name	Link	URL	
xK5KTF8	<input type="checkbox"/>	<input type="text" value="://FT897D"/> : /	<input type="button" value="Del"/>
	<input type="checkbox"/>	<input type="text" value="://FT897D"/> : /	<input type="button" value="Add"/>

Current DHCP Leases

there are no active leases

Port Forwarding

Interface	Type	Outside Port	LAN IP	LAN Port	
<input type="text" value="WAN"/>	<input type="text" value="TCP"/>	<input type="text"/>	<input type="text" value="- IP Address -"/>	<input type="text"/>	<input type="button" value="Add"/>

Now I get the 10.51.144.81 IP address for the radio. The radio is based on callsign, so for this

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~~Make sure you have the correct permissions on the Web page for the interface to the router~~

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Firmware Update

current version: 0.4.3

Upload Firmware

Download Firmware

Package Management

Upload Package

Download Package

Remove Package

openssh-sftp-client 4.5p1-1	<input type="button" value="Upload"/>
openssh-sftp-server 4.5p1-1	<input type="button" value="Remove"/>
ppp 2.4.3-8	
ppp-mod-pppoe 2.4.3-8	
rdisc6 0.5.1-1	
samba-common 2.0.10-4	
samba-server 2.0.10-4	
ser2net 2.3-1	<input type="button" value="Upload"/>
setserial 2.17-1	<input type="button" value="Remove"/>
swap-utils 2.12r-2	
tcptraceroute6 0.5.1-1	
wclibc 0.9.28-10	

Edit the config file. You only need one line for this to work

```
root@K5KTF-USB:/#
root@K5KTF-USB:/# cat /etc/ser2net.conf
5001:raw:600:/dev/usb/tts/1:4800

root@K5KTF-USB:/# █

root@K5KTF-USB:/# cat /etc/init.d/serial-897
#!/bin/sh /etc/rc.common
# Copyright (C) 2006 OpenWrt.org
START=51

start() {
stty -F /dev/usb/tts/1 4800
}

stop() {
```

PC-AT-ES-721fe a ttyoer

to be able to add a line to firewall to allow the ser2net to talk. just set internal and external ports

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Save Changes

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Port Forwarding

Interface	Type	Outside Port	LAN IP	LAN Port	
WiFi	TCP	2003	localnode	2003	Del
WiFi	TCP	6667	localnode	6667	Del
WiFi	TCP	80	192.168.0.230	80	Del
WiFi	TCP	110	192.168.0.221	110	Del
WiFi	TCP	25	192.168.0.221	25	Del
WiFi	TCP	587	192.168.0.221	587	Del
WiFi	TCP	8000	192.168.0.33	8000	Del
Both	UDP	5060	localnode	5060	Del
Both	Both	10000-2000	localnode	10000	Del
Both	Both	5004	localnode	5004	Del
WiFi	TCP	5001	localnode	5001	Del
WiFi	TCP		- IP Address -		Add

DMZ Server

Advertised Services

Name	Link	URL	
IRC Chat	<input checked="" type="checkbox"/>	irc://K5KTF-USB:6667/	Del
WWW	<input checked="" type="checkbox"/>	http://K5KTF-USB:80/	Del
POP3/SMTP	<input type="checkbox"/>	::K5KTF-USB:	Del
Winlink/F	<input type="checkbox"/>	::K5KTF-USB:	Del
VoIPoM (<input type="checkbox"/>	::K5KTF-USB:	Del
	<input type="checkbox"/>	::K5KTF-USB:	Add

DHCP Address Reservations

Hostname	IP Address	MAC Address	
	- IP Address -		Add

Current DHCP Leases

there are no active leases

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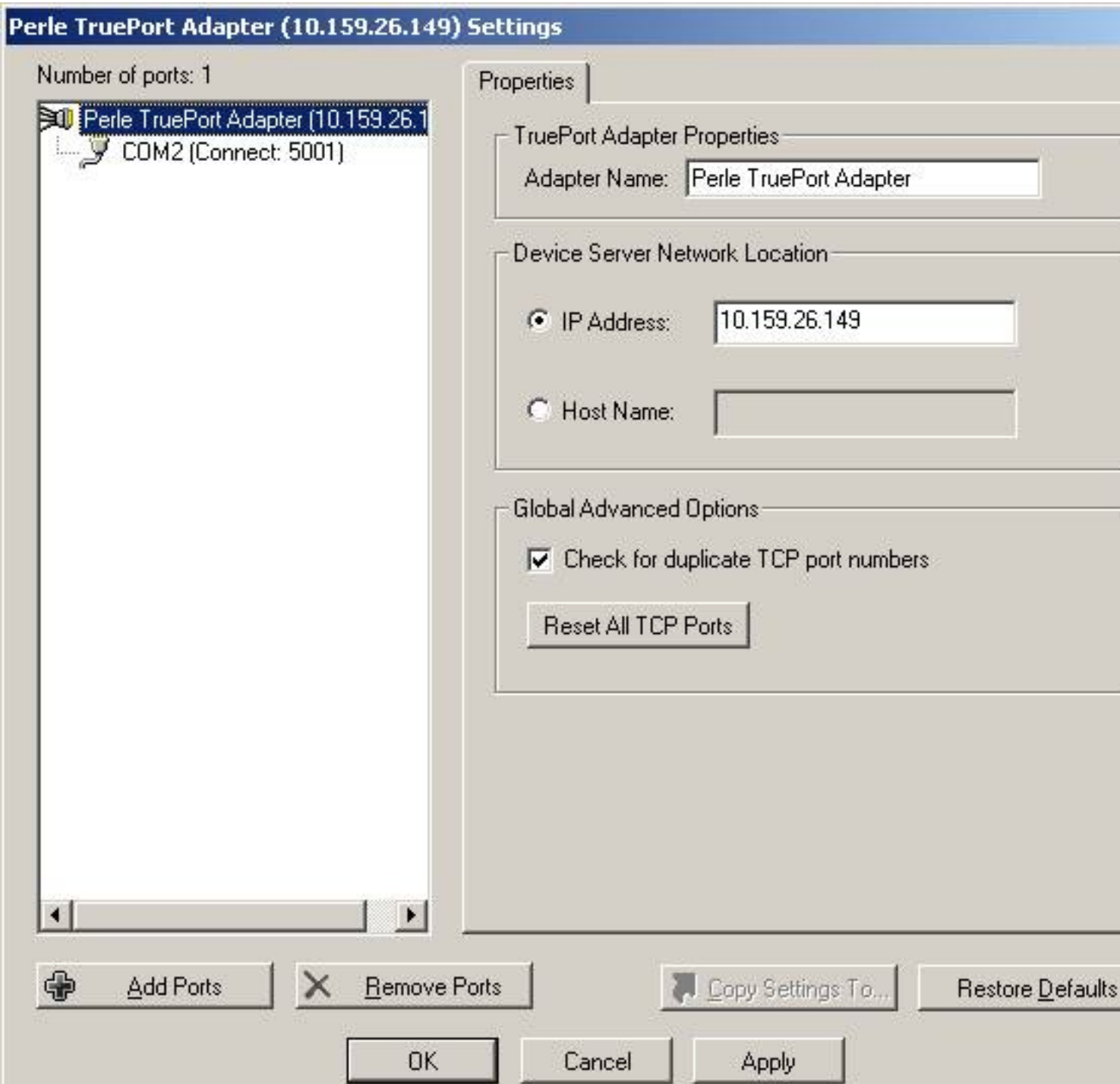
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Click on the Perle manager software or in Device Manager, open the settings for the TruePort

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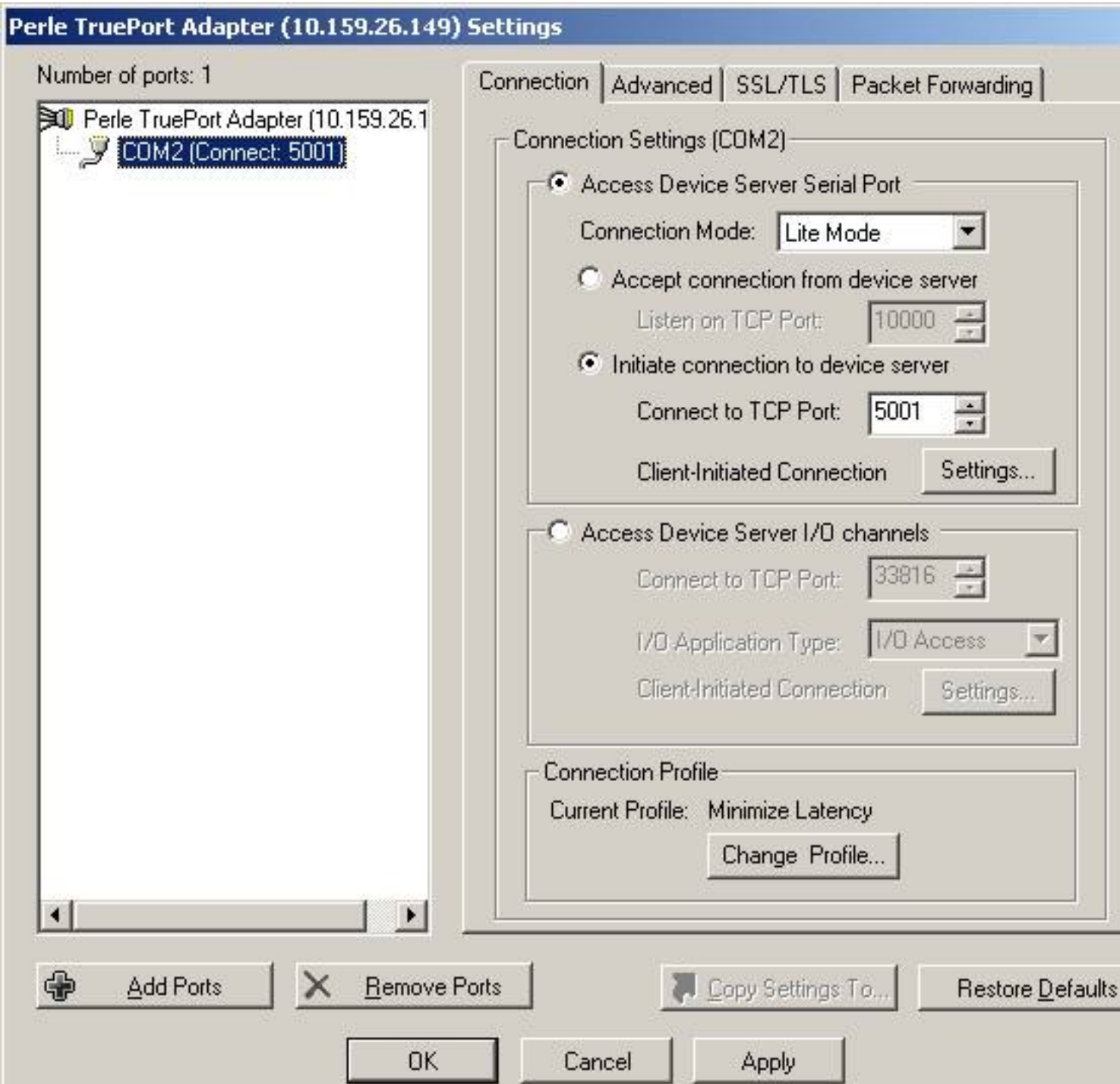
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Set either the 10.x.x.x IP or the node name under Host Name., then click on the COMx Port on

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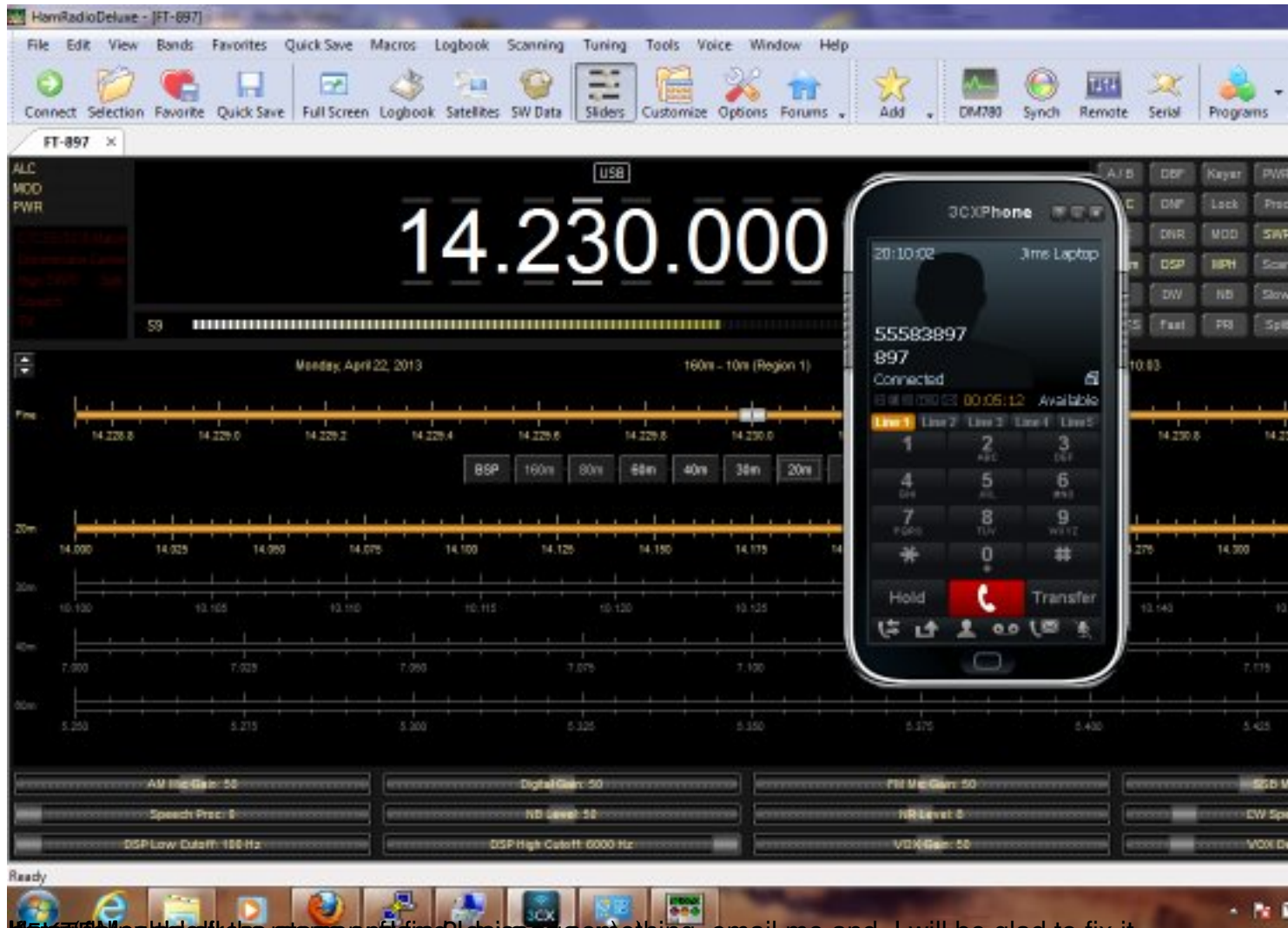
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For this device to be able to connect to the PC, you need to copy the settings to the device. The 'Connect to TCP Port' is 5001 (a separate port).

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Helpful? If you find the steps and/or find 21 days (or more) anything, email me and I will be glad to fix it