

IP2v (Verizon PTT) Test Procedure

1. Connect phone. Make sure the phone is open (it doesn't work if the lid is closed)
2. Connect RCI to the IP2v.
 - a. You can get the IP address from the IP2v by pressing and holding the adjuster knob for a few seconds, then bumping it until it displays the network settings.
3. Use RCI to do some setup
 - a. V5.19 instructions. Will probably change with later firmware versions:
 - i. Ports 3 and 4: may show active or timed out receiver. To fix that, set the COR to active high.
 - ii. Port 2 (the PTT phone):
 1. Set up routes. To get to the route editor, on the main RCI form, click on the route selection box just left of the gear icon, then right-click anywhere in the form that pops up.
 - a. Set up route 999 for type VoIP (RTP). The defaults (name of "---" and IP of 0.0.0.0 are OK). Select it as the route for the RTP resources on ports 5 and 6 (and if not using LinkTDS, also 9..12).
 - i. If you can't see port 5, from the VoIP Console menu select VoIP Settings, then near the bottom uncheck "Use dispatch console-style controls"
 - b. Similarly set route 998 for type SIP (with defaults) and select it for ports 7 and 8.
 - c. Set route 1 for POC and set it for the desired Verizon PTT test phone number (not the number of the donor phone connected to the IP2, but of another PTT phone to be used for testing) or group name. Label it "PTT Number". Select it for port 2.
 2. Personalities tab:
 - a. Set personality to "Splx Link"
 - b. Set controllable type to V750 or V860, depending on the type of donor phone
 3. Radio Name tab:
 - a. Set to "Verizon"
 4. Radio Type tab:
 - a. Adaptive audio delay on
 - b. Make sure is set for half-duplex, TX-priority.
 5. RX Activity tab:
 - a. Check "Resource Specific"
 6. Audio Levels tab:
 - a. Set the phone (port 2) RX audio level to about 970.
4. Make sure the IP2v is able to communicate with the phone:
 - a. From RCI's File menu select "Reset IP2". That will save settings and reset it.
 - b. In about 40 seconds, the IP2 should be restarted, RCI should reconnect, and the cell phone should power off then back on. During that time, RCI should display a yellow exclamation point warning symbol for port 2 to indicate that it is not yet ready to use. That symbol should go away within two minutes. If it does not, see Appendix A (Troubleshooting communications with the phone) below. While waiting, you can continue with the next step (setting up port 1, below).
5. Set up Port 1 (the LMR radio, Nextel PTT phone, etc). These settings will depend on what is being interfaced.
 - a. If not using a radio or the customer is supplying the radio, use an audio test box or test radio (such as a Nextel phone).
 - b. Adjust RX settings:
 - i. Optional: Disconnect ports 1 and 2 by making sure they are not in the same group.
 - ii. Set the port name to "LMR"

- iii. Set up the receiver access mode. Use COR if possible, else set it for VOX with a sensitivity of 5%.
- iv. Set RX audio gain:
 1. Using the T/R or RF I/O port on a service monitor (not the generate port – you could blow it out), generate a 1KHz audio tone deviated at 1.5KHz (for narrowband channels) or 3KHz (for wideband). Adjust the RX gain until the RCI level meter on the Audio Levels tab shows 40%.
6. Place a test call from the radio
 - a. Put ports 1 and 2 both into group 1 to connect them.
 - b. While watching the phone's display, key up the service monitor or a test radio (not the radio connected to the IP2v, but one on the same frequency). You should see the phone dial and indicate that it is transmitting. RCI should indicate that port 1 is receiving and port 2 is transmitting. Audio from the service monitor or test radio should be heard on the test phone (the one dialed by the donor phone).
 - i. If the phone dials but immediately returns to the main screen, make sure it has sufficient signal strength. If it is set up to use an external antenna and the connection is poor, it can cause this problem.
 - c. Adjust the port 2 TX gain to control the audio level heard on the phone.
7. Respond from the test phone to the radio or service monitor.
 - a. If using a service monitor, set it to receive. If using a test radio, just unkey.
 - b. While a call placed as described in the previous step is still active (they stay active for 20 seconds after last activity), key up the test PTT phone (the one that got called by the donor phone) and talk. The audio from the test phone should be heard on the radio, although the volume may be way off.
 - c. Adjust the port 2 RX audio gain until voice peaks are around 40%.
 - d. Adjust the port 1 TX audio gain until the volume heard on the test radio is OK.
8. Save settings from the file menu.

Appendix A (Troubleshooting communications with the phone)

The IP2v needs to be able to communicate with the donor phone through its USB connection. Notes:

- The phone type to be set correctly (step 3b2b above).
- Resetting the IP2v after setting the phone type (sometimes it works without this). RCI's File menu > Reset IP2v should save settings and cause such a reset.
- If the phone cycles power by itself when the IP2v is reset, the USB connection is probably OK.
- After resetting the IP2v and getting RCI to reconnect, RCI should show a yellow exclamation point warning symbol for port 2 for no more than 2 minutes while it cycles power to the phone and gets it ready to use. If that warning doesn't go away, something is wrong.
- To perform low-level debugging of the USB communications, connect a computer to the IP2v's serial port (the debug messages aren't visible via telnet), get to a root prompt and do the following:
 - `"cd /mnt/permanent/settings"`
 - `"vi debug_log.conf"`
 - `"i"`
 - `"DEBUG_V750_USB_CONNECTION"` (options useful for other kinds of debugging are `"DEBUG_V750_STATE_MACHINE"` and `"DEBUG_FLOOR_CONTROL"`).
 - `<esc> :wq <enter>`
 - Then reset the unit (if settings are already saved, can do this by typing "reboot").
 - As the IP2v starts up, it will print messages about its communication with the phone.
 - After debugging, turn off the debug messages with `"rm /mnt/permanent/settings/debug_log.conf"`