

# Remote Control Your Station from Your Smartphone with TRX-Manager

by Ross Hevener, KG4VJZ

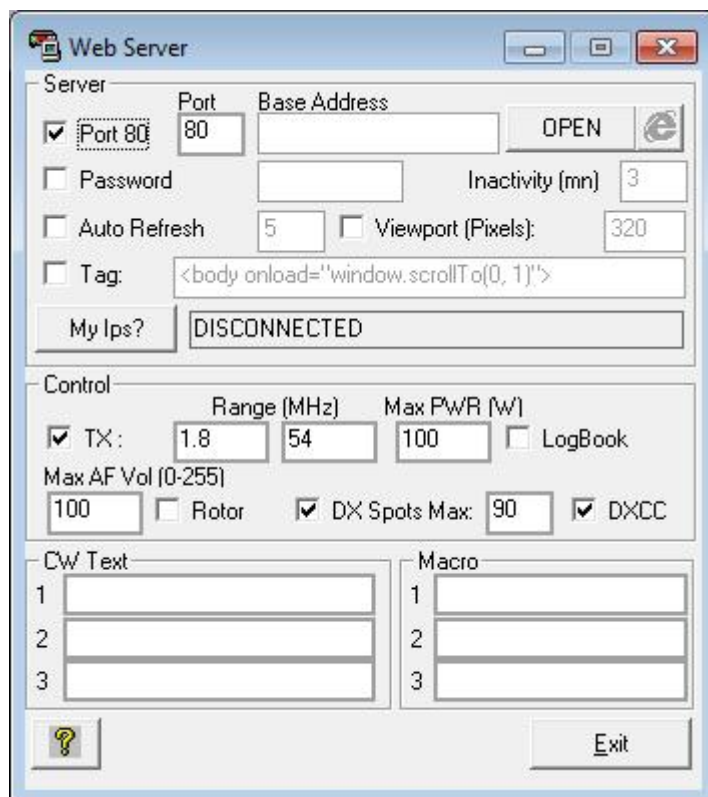
*Disclaimer: Setting up TRX-Manager for remote control with your smartphone is an involved process. But hey, we're hams, we love a good challenge! Additionally, portions of this article are necessarily vague, as no two setups are going to be exactly the same.*

This article will help you get up and running with TRX-Manager's "Web Server" remote control method. The TRX-manager Web Server allows you to remotely control your rig from virtually any device with a web browser and internet access, such as a smartphone, iPod Touch, or iPad. If you're using a smartphone, keep in mind that you will either need a Wi-Fi connection or an appropriate cellular data plan from your carrier.

## Getting Started



This article assumes that you already have TRX-Manager installed, and that your rig is already interfaced to your computer and working properly with TRX-Manager.

The first thing to do is to set up the TRX Web Server. To access this, go to Transceiver > Web Server. This will open the Web Server window.



TRX-Manager Web Server

This window allows you to configure various aspects of the Web Server. Before we configure anything, let's start the Web Server and get familiar with its functions. In the "Control" section, check the boxes for the aspects that you would like to control. In general, you will want to check "TX" so that you have the ability to transmit. You can also control your rotor if you have the necessary equipment.

Now, click the  button. This will start the Web Server. Next, click the  button. This will open the Web Server control panel in your web browser. When you do this the first time, you may get a warning that Windows Firewall has blocked some features. If this happens, simply click "allow access."

When it opens, you will see the basic rig functions that you can control. Take a few minutes to get familiar with the functions that are here. Once you've acquainted yourself with the TRX Web Server's capabilities (and limitations), let's move on to the next step.

You'll notice that your browser's address bar says "http://127.0.0.1/". This is an IP address that is reserved for loopback testing on your local machine. While this is great for testing, it won't let us access it from another computer or device, which kind of defeats the purpose of the web server.

### Assign a Static IP Address

To fix this, you will need to assign your computer a static IP address. Portforward.com has very good guides on doing this, so I will refer you to these in the interest of not re-inventing the wheel.

Windows XP:

<http://portforward.com/networking/static-xp.htm>

Windows Vista:

<http://portforward.com/networking/static-vista.htm>

Windows 7:

<http://portforward.com/networking/static-win7.htm>

The screenshot shows the TRX-Manager web server control panel on an Android smartphone. The interface is organized into several sections:

- Header:** AT&T logo, signal strength, H+ battery, and time 7:47.
- TRX-MANAGER [KG4V]Z ICOM:**
  - RX - TX:** 14.221.00 | 14.221.00
  - STATUS:** 0W ANT1
  - AUTO USB WID:** RECEIVE (0°)
  - SPOT:** [PHONE CW]
  - METER (S-METER):** N/A
  - CONTROL:** UPDATE
- Frequency Adjustments:** +10, +100, +500, +5K, -10, -100, -500, -5K
- Filter and Volume:** AU-M (highlighted), FILT, VOL-, VOL+
- Mode and Tuning:** TX, RX (highlighted), ATU, TUNE
- Split and A/B:** SPLIT, UP1, A=B, A/B
- Other Functions:** VOX, METR, N/A, ANT
- Bandwidth and Notch:** NB, NR, NTCH, ATT
- Call Signs and Stop:** CW1, CW2, CW3, STOP
- MAC Addresses:** MAC1, MAC2, MAC3, SPOTS

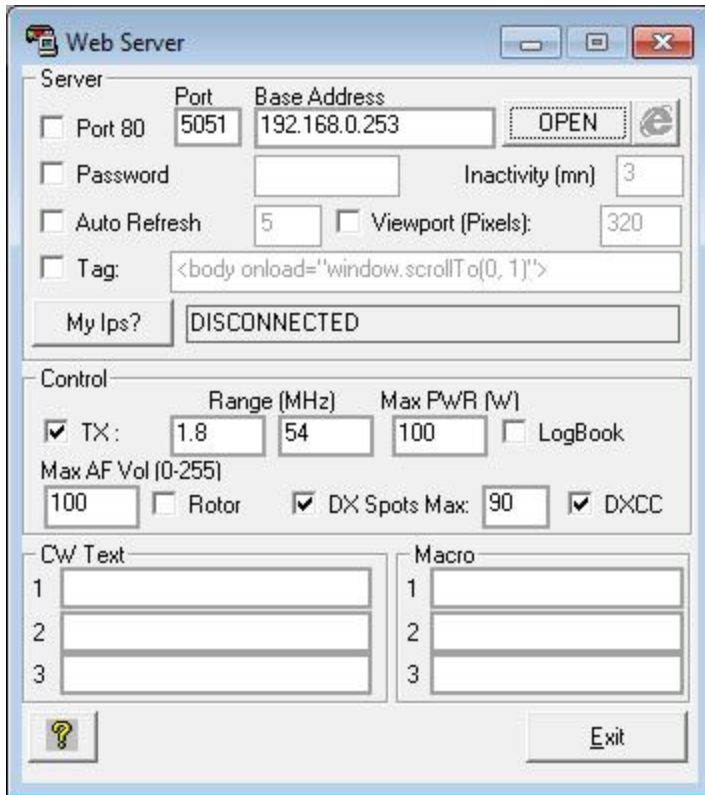
**Status Table:**

SET	DX Spot	Freq	Info	DX de	Time
SET (highlighted)	F6DEX	18.150.00	Best 73 and Good DX	F6DEX	20:00


Copyright F6DEX <http://trx-manager.com>

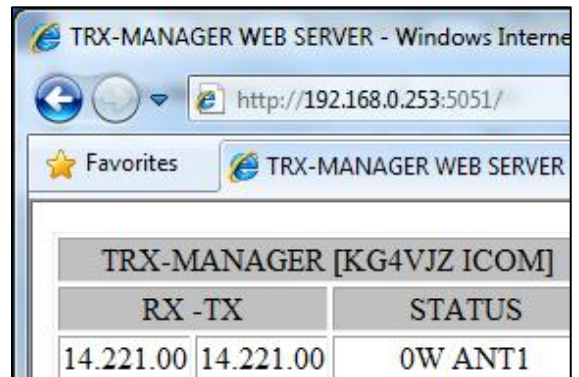
**TRX-Manager Web Server control panel as seen on an Android smartphone. Note that the available functions will vary from rig to rig.**

Once you have your static IP address set up, go back to the TRX-Manager web server window, and enter your new static IP address in the "Base Address" field. I would also highly suggest assigning a port. TRX-Manager uses port 80 by default, but it is best to use another port for security purposes. In general, any higher-number port (>3000) will work. I used port 5051.



TRX-Manager Web Server with static IP address and port specified

Now that this is set up, click the **OPEN** button again to start the web server, and click the  button to open the Web Server in your browser. If you're using a port other than 80, you will notice that the address bar has a colon followed by the port number at the end. This tells your browser to use that port rather than port 80, as port 80 is the default port for web browsing.



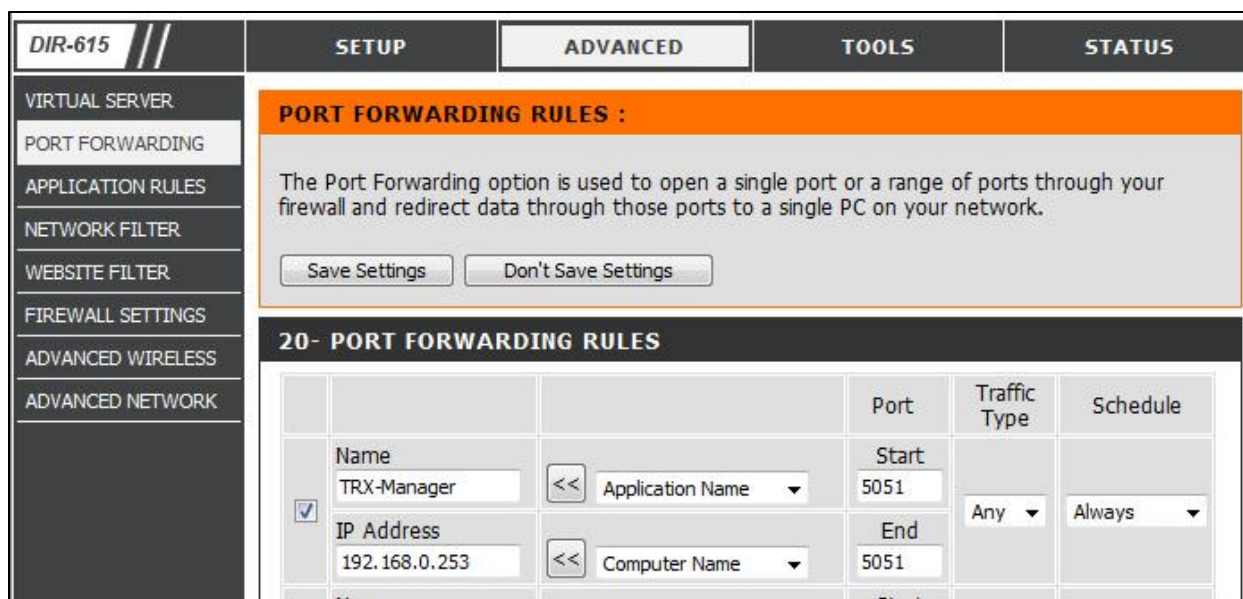
TRX-Manager Web Server running on a static IP address and port 5051

## Configuring Your Router

Now that you've got your static IP address and have the TRX-Manger Web Server running on the port of your choice, it's time to set up port forwarding on your router so that you can get into it from outside your local network. Unfortunately, I can't go into very much detail for this step because there are so many different routers, and it would be impossible to give step-by-step instructions for all of them. For specific instructions, consult your router's manual. PortForward.com also has specific instructions for a lot of routers.



Forwarding port 80 on a Linksys router



### Forwarding port 5051 on a D-Link router

If you have everything set up correctly, you will now have the ability to access the TRX-Manager Web Server from outside of your home network. To do this, you will need your external IP address. There are several ways to get this. The easiest way is to go to <http://whatismyip.com>. You can also get your external IP address by opening the TRX-Manager Web Server window and clicking the “My Ips?” button (Note: This button is only visible when the web server is not “open.”). Once you have your external IP address, grab your smartphone and enter <YourExternalIP>:<YourTRXPort> in the address bar of the browser and the web server should load and allow you to control your rig.

## Dealing With a Dynamic IP Address

The challenge with your external IP address is that most consumer internet connections use a dynamic IP address. This means that your external IP address will change every so often. Luckily, there are several ways to deal with this.

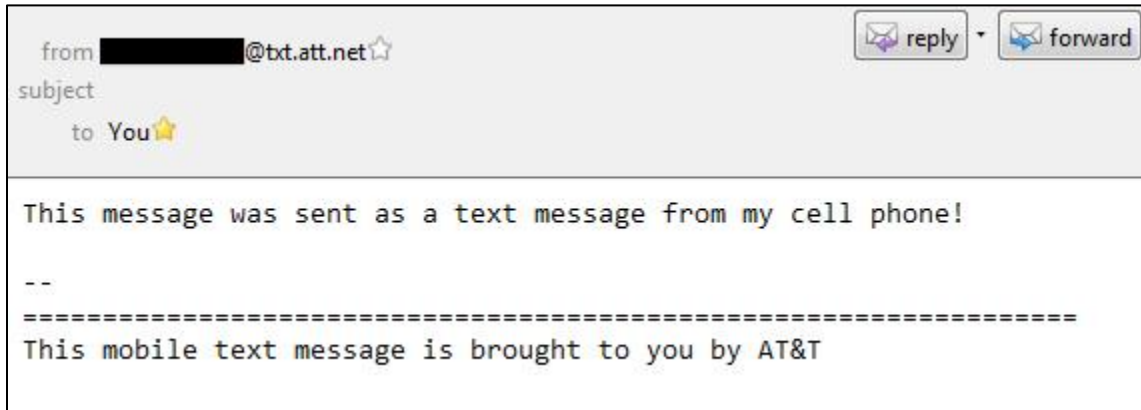
In my opinion, the best way to overcome this is to use a service like DynDNS (<http://www.dyndns.com>). I won't cover how to set up DynDNS, as that would be an article in and of itself. If you need instructions for setting up DynDNS, please refer to <http://www.dyndns.com/support/kb/dyndns.html>.

Alternately, you can use a program that auto-emails your IP address to you when it changes. TrueIP from HazteK Software is a free program that will do this. It is available at <http://w3.haztek-software.com/apps/trueip.html>.

TRX-Manager also has the ability to do IP auto-emailing, but this will only work if telnet remote control is enabled. This may introduce limitations to the program, so only use this if you are exactly sure of your configuration. If in doubt, use TrueIP.

If you decide to use an IP auto-emailer, a cool trick that you can do is to have the email sent to your cell phone as a text message. Most wireless carriers support sending text messages to your phone through

email. This is done by sending a message to a special email address that your carrier provides. For example, the address for AT&T Wireless is <YourPhoneNumber>@txt.att.net. If you don't know carrier's email address, the easiest way to find it is to send yourself an email from your phone. Simply compose a text message, and enter your email address in the "to" field rather than a phone number. After sending the text message, check your email and look at the "from" address. Enter this address in your IP auto-mailer.



Send a text message to your email and check the "from" address

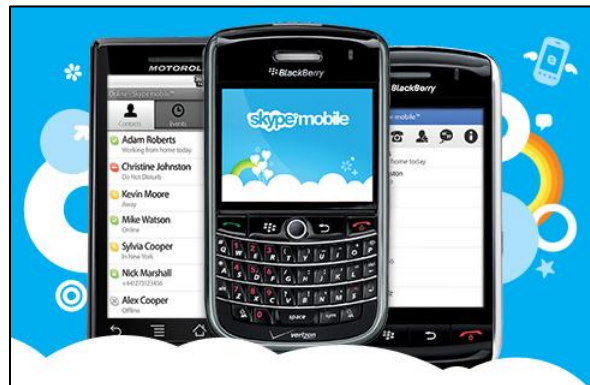
## Setting up Audio

Now that you've got everything configured on the network side, it's time to set up a way to get audio to/from your smartphone. To do this, you'll need to have the sound card in your shack PC interfaced to your rig. You'll also need a way to key the rig if you want to transmit. You do want the ability to transmit, right? (Of course you do!)

The easiest way to do this is to use a RIGblaster or a similar soundcard interface, as this will handle both the audio interfacing and keying the rig. It's also possible to connect the rig audio directly to your soundcard and key the rig with VOX. Once again, I can't go into specifics because there are so many possible setups...

All right, now that you've got your soundcard interfaced and you have a way to key the rig, it's time for the home stretch! There are several ways to get audio going between your smartphone and your rig, but in this guide I'm going to cover how to do it using Skype. I chose Skype because it's free, relatively easy to set up, and is available for most major smartphone/tablet platforms.

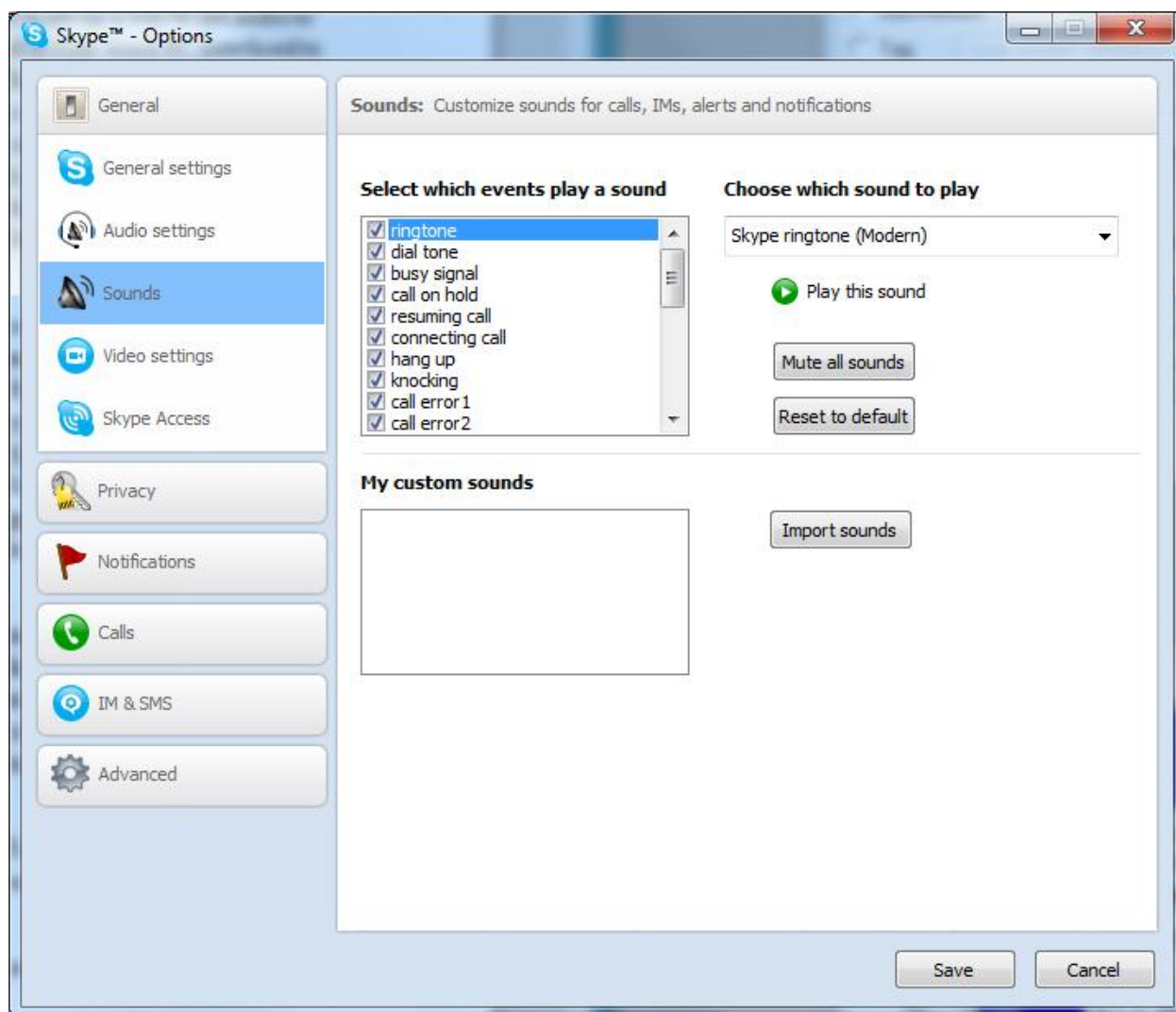
Skype is currently available on Android, BlackBerry, iPhone/iPod Touch/iPad, and Symbian. As of this writing, Skype isn't available for Windows Phone 7, but it has been confirmed that it is coming to WP7 in the near future. This should come as no surprise considering that Microsoft recently purchased Skype.



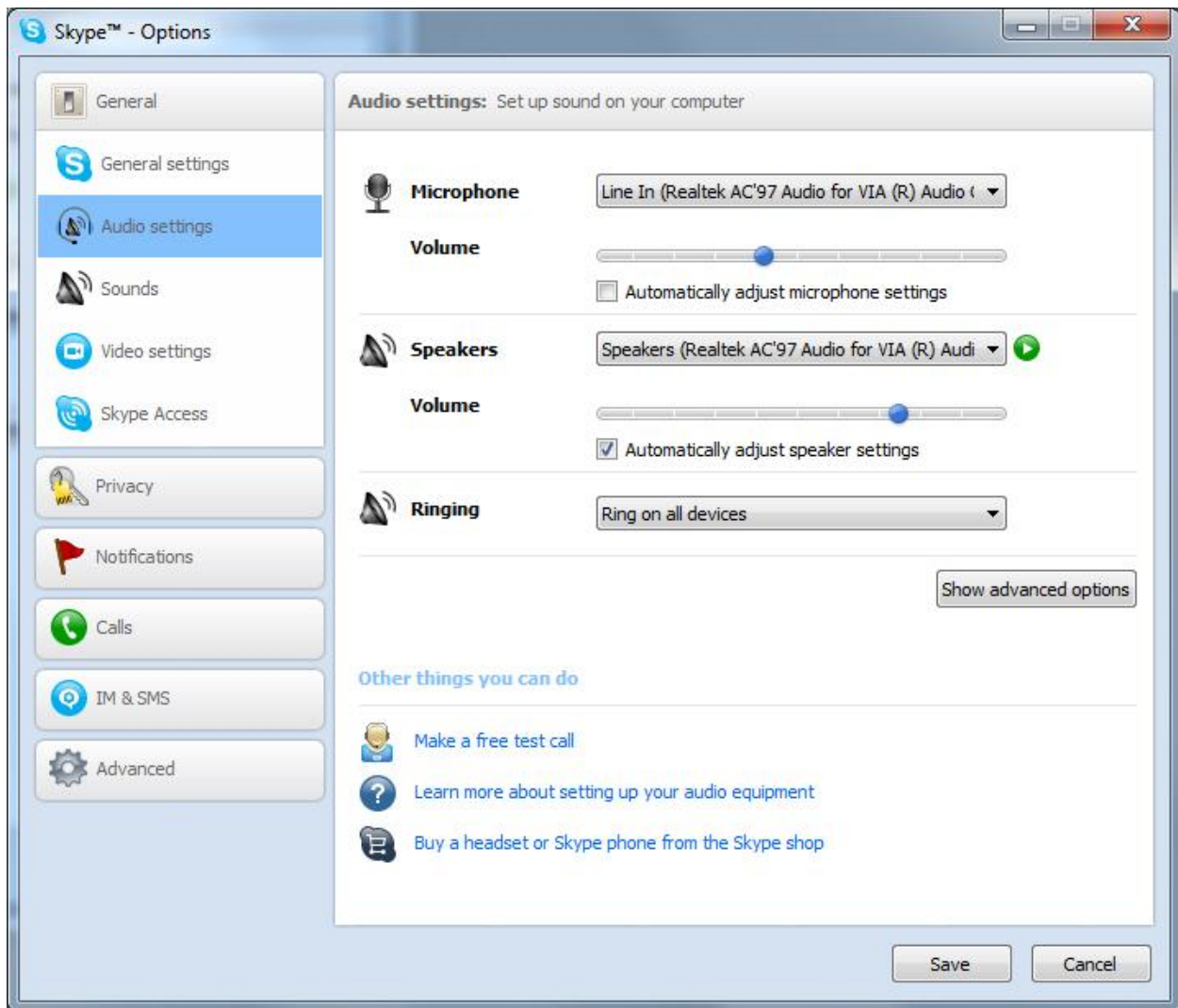
Skype is available on most major smartphone platforms

You'll need two Skype accounts, and two Skype installations, one on your shack PC, and one on your smartphone. Let's set up Skype on your PC first. Download and install Skype from <http://skype.com>. Once you have Skype installed, log in with one of your accounts. I recommend making an account that you only use for your remote station. You wouldn't want your cousin trying to start a video chat with your shack PC while you're in the middle of sneaking into a bathroom stall at work to make a QSO with that rare DX station, would you?

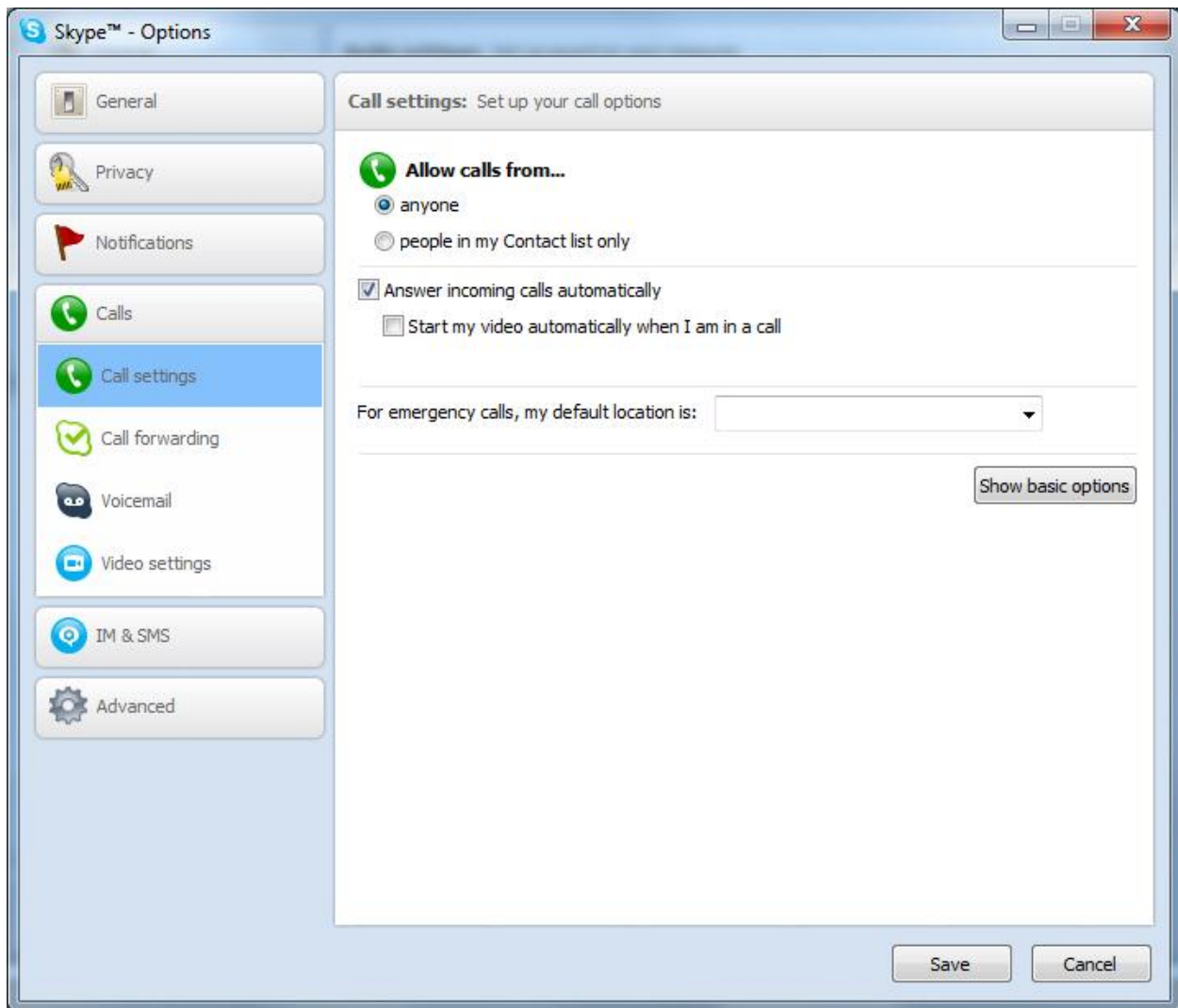
Once you're signed into Skype on your shack PC, you'll want to turn off all of Skype's notification sounds so that these don't accidentally go out over the air. (It's also a good idea to turn off your Windows system sounds for the same reason.)



To do this, go to Tools > Options, then select "Sounds" from the "General" category on the left pane of the options window, and click "Mute all sounds."



Next, select “Audio settings” from the “General” category, and select the appropriate devices to use for your microphone and speakers. In general, you’ll want to select “Line In” as your microphone, and leave “Speakers” selected for your speakers, but this will vary depending on your setup.



Finally, select the “Calls” category, then select the “Call settings” subcategory, click the “Show advanced options” button, and check “Answer incoming calls automatically.” Click the “Save” button and that concludes the Skype setup on your PC.

Now all that’s left to do is set up Skype on your smartphone if it isn’t already installed from the factory. The installation process varies depending on which platform you are on, but you can go to <http://skype.com/m> in your smartphone’s browser and it will point you in the right direction.

Once you have Skype installed on your smartphone, sign into your second Skype account, place a “call” to your Skype account on your shack PC, and switch out of Skype, leaving it running in the background. Navigate to your TRX-Manager Web Server address in your phone’s browser. You should now be able to control your rig via the Web Server interface, while sending and receiving audio through Skype.

Congratulations! Your smartphone is now an extension of your shack!