

# VoIP HACKS™

*Tips & Tools for Internet Telephony*



O'REILLY®

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## Wire Your House Phones for VoIP

You can use your home phone wiring to connect all your home phones to your VoIP service.

If you're happy with your VoIP service, you might want to consider replacing your existing land-line telephone service with that of your new VoIP TSP. This means you must provide a dial tone to all of your analog phones using the ATA instead of a connection from the phone company. Your problem is that most ATAs have only a single analog phone connector, limiting you to just one phone. Radio Shack sells two-wire phone splitters that you can use to connect two analog phones to the same jack—such as the one on your ATA—but this isn't an ideal solution. Who wants telephone patch cables snaking across the floor, anyway?



Emergency 911 service is required on all VoIP lines sold in the U.S. But since VoIP TSPs handle emergency call routing differently than the old Bell system, it's best to check with your TSP to determine how they handle 911 calls. This way, you'll know what to expect should you need to dial 911.

Fortunately, you already have all the wiring you need throughout your house to share a single VoIP provider's service with multiple analog phones. The phone wiring in most homes is a two-wire or four-wire cable that runs from the telephone company's point of entry, called the *demarc*, to various rooms in the house. In these rooms, a standard modular phone jack provides a place to connect a phone using an RJ11-equipped telephone patch cable. Modular jacks can support up to two phone lines, since analog residential telephony requires only two wires per line. The vast majority of telephone company subscribers use only a single phone line, though.

The analog wiring in the home provides a single-loop parallel circuit, which means that you can piggyback modular jacks off each other. If you need to connect a phone in a new room, you just locate the nearest modular jack and run the wiring to it, instead of running the wiring from the new room all the way to the demarc. In the same way, you can connect the ATA to any modular jack in the house, and all of the analog phones connected to the other jacks will be able to use the service provided through the ATA.

Before you do this, however, it's very important to disconnect the wires from the phone company at the demarc, because the electric current supplied over the phone-company lines could damage the ATA. It's best to find the demarc while your phone company service is active—that way, you can hear the dial tone disappear when you've disconnected the right pair of

wires at the demarc. Find your demarc, usually a gray or brown box mounted on the exterior of the building. Inside the box is a cross-connect terminal with screw taps. On one side of the terminal are the wires going into the building. On the other side are the wires from the phone company.

Carefully disconnect the wires from the phone company; the dial tone on the modular jacks inside the building should disappear. (You can take a cordless phone with you to the demarc to listen while you're working.) Even if your phone company lines are dead—that is, you have no phone company service—it's still a good idea to disconnect them. Disconnecting the wires from the phone company side of the demarc will prevent electrical damage to your ATA in the event the phone company turns the lines back on by mistake.



Don't accidentally disconnect your DSL line! If you have DSL Internet access from the phone company, you might not be able to disconnect your phone company voice service without inadvertently severing the DSL connection, too. Sometimes DSL runs on the same pair of wires as a traditional analog phone service. If you have DSL, it must be on a separate pair of wires from your voice phone line, or this hack won't work, and you will have disconnected your Internet service to boot! Cable Internet subscribers can hack without this worry.

If you're attempting this hack in an apartment, it might be a little tougher. Your lease agreement might prohibit you from making wiring changes like this. In some jurisdictions, the phone company itself or building codes might prohibit this type of wiring hack. If you're not sure, call the phone company and ask that a lineman come out to disconnect the wiring.

Once disconnected from the demarc, mark the pair of wires with a tag that reads, "Phone company: Do not reconnect." This will prevent a well-meaning phone company service technician from reconnecting your line and frying your ATA.

Assuming your phone company disconnect was successful, you can now connect the ATA into any RJ11 modular jack on the premises. This will let you hear the dial tone generated by the ATA and make VoIP calls through any phones that are connected to the other modular jacks throughout your home.

Most ATAs are designed to handle the power requirements of only a phone or two, so check with the manufacturer of your ATA to see if you can reliably connect more. I have two analog phones and two cordless phones

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(which receive their power separately, anyway) connected to an 8x8 DTA-310, and I don't experience any problems.



Devices that use analog modems to communicate on traditional phone lines, like older TiVo boxes and fax machines, can't be used with the analog service provided by an ATA. The fault lies with the analog-to-digital conversion of VoIP codecs, not with the modem itself.