

A Guide to VoIP Adapters



Introduction to Learn More: A Guide to VoIP Adapters

A VoIP adapter is a simple and easy-to-use device. But don't let that fool you into thinking that VoIP adapters aren't important.

For such simple little devices, VoIP adapters play a large role in enabling you to use a VoIP service. That's why it's important that you spend the time to understand VoIP adapters.

Hopefully, that's why you're here. Because what follows is a guide to VoIP adapters written in layman's terms.

Inside The Guide:

- Educates you on VoIP adapters
- Defines and demystifies the underlying technology of a VoIP adapter
- Describes the different types of VoIP adapters
- Explains the important features of VoIP adapters
- Tells you how to go about purchasing a VoIP adapter

Since every situation is different this guide might not cover everything you need to know about a VoIP adapter. It also may not answer all of the questions you have about them.

If that should happen, don't worry. That's what the experts at VoIP Supply are for.

Since 2002, VoIP Supply has helped over 100,000 people just like you create, deploy and maintain a VoIP solution. If at any point in this guide you get stuck, are unsure of what is being discussed, or just want to skip the details and have someone select the right open source PBX system for you, then please give us a call at 1-855-820-8006.

One of our experienced, vendor-neutral representatives will be more than happy to walk you through the process of selecting the VoIP adapter that is right for you.

Thank you for your time and enjoy the read.



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VoIP Adapters Explained



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What is a VoIP adapter?

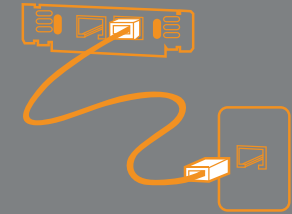
A VoIP adapter is a device that converts analog voice signals into digital IP packets for transport over an IP network. A VoIP adapter also converts digital IP packets into analog voice streams.

Standard VoIP adapters connect to analog telephones via an FXS port. The VoIP adapter then connects to your Local Area Network (LAN) with an Ethernet cable via an RJ45 port. Some VoIP adapters also feature an FXO port so you can connect to the Publicly Switched Telephone Network (PSTN) (you'll read more about that later).

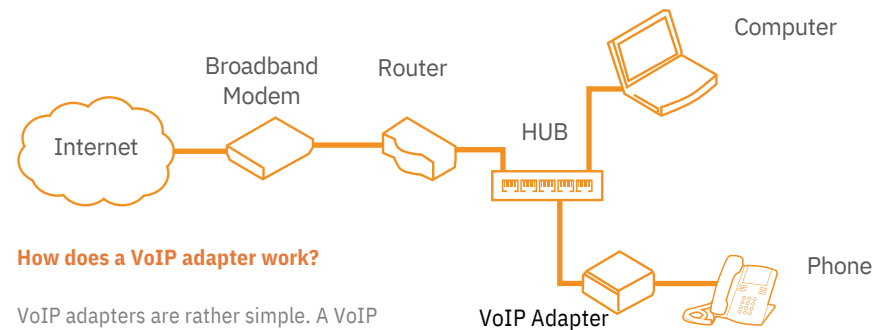


FXS and FXO Ports

FXS and FXO ports are important terms to know when dealing with VoIP adapters. An FXS port is an interface that connects station devices such as your phones or PBX to a VoIP adapter. An FXO port is an interface that connects your Plain Old Telephone Service (POTS) line to a VoIP adapter.



The number of telephones, PBX systems, or POTS lines you are looking to connect to a VoIP adapter determines how many of each port you will need.



How does a VoIP adapter work?

VoIP adapters are rather simple. A VoIP adapter works as a bridge between an IP network and an analog station device (desktop telephone) and or the PSTN. Depending on where the voice traffic originates from a VoIP adapter will convert voice traffic into the proper form for receipt by the destination network or device. If the voice traffic is originating from an analog telephone or the PSTN a VoIP adapter will convert the analog voice signal into a digital signal. This digital signal is then compressed using a codec and broken into a series of packets that are transferred across the IP network using a signaling protocol.

If the voice traffic is originating from an IP network the VoIP adapter will decompress the digital packets into a digital signal that is then converted into an analog signal for receipt by the station device or sent across the PSTN.

Differences Between VoIP Protocols and Voice Codecs

VoIP protocols

A VoIP protocol determines how your voice packet is transported across a network. A VoIP adapter will typically support a single protocol. The most common VoIP protocols are:

SIP

(Session Initiation Protocol) – SIP is a standards-based protocol that is used and supported by the vast majority of VoIP phone systems and services.

SCCP

(Cisco Skinny Client Control Protocol) SCCP is a proprietary protocol used by Cisco's Call Manager and IP phones.

MGCP

MGCP is an older VoIP protocol you might come across. It is no longer widely used and or supported.

H.323

Similar to MGCP, H.323 is an older VoIP protocol that you might come across, but is no longer widely used and or supported.

Voice codecs

A voice codec is responsible for the compression of your voice stream within a digital packet. It also determines sound quality and bandwidth required to send the packet. A VoIP adapter typically supports multiple voice codecs. The most common voice codecs are:

- GSM – 13 Kbps
- iLBC – 15 Kbps
- G.711 - 64 Kbps
- G.722 - 48/56/64 Kbps
- G.726 - 16/24/32/40 Kbps
- G.728 - 16 Kbps
- G.729 - 8 Kbps

Unless you're the person responsible for the set-up, installation and maintenance of VoIP adapters for a VoIP service provider you don't need to spend a ton of time worrying about protocols and codecs. Simply make sure your VoIP adapter supports the same protocols and codecs that your VoIP service and or VoIP phone system support and you'll be fine.

And if you are that person responsible for deploying thousands of VoIP adapters for a VoIP provider make sure you further your knowledge in the area of protocols and codecs.



The Types of VoIP Adapters



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There are three different types of VoIP adapters. They include:



Single FXS

A single FXS VoIP adapter allows you to connect to one telephone. Single FXS VoIP adapters come with either one or two Ethernet ports.



Dual FXS

A dual FXS VoIP adapter allows you to connect up to two telephones. Dual FXS VoIP adapters come with either one or two Ethernet ports.



FXO / FXS

An FXO / FXS VoIP adapter allows you to connect a single telephone and a single POTS line.

These “combination” adapters are typically used to provide fail-over or lifeline capabilities. Now you might be thinking, “What if I need to connect more than two telephones or POTS lines?” For that, you will need a VoIP gateway. VoIP gateways perform the same essential functions as a VoIP adapter but are built to scale past one or two ports (up to 48 ports to be specific).

Features of a VoIP adapter

VoIP adapters are simple and so too are their features:

- Compliant with multiple protocols including SIP, H.323 and MGCP
- Support for G.711, G.723.1, G.726, and G.729A voice codecs
- T.38 compliant (for faxing)
- Echo cancellation, Jitter Buffer, VAD, and CNG
- Web-based administration/management
- Automatic provisioning via TFTP/HTTP

These are merely the standard features found in the majority of VoIP adapters. Each VoIP adapter will have its own subtle differences. For more information on a specific VoIP adapter please refer to its full product description on voipsupply.com.



Typical Uses for a VoIP Adapter



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There are three primary uses for a VoIP adapter. These also happen to be the most popular uses for a VoIP adapter:

VoIP enables your traditional telephone

You like your existing telephone. You've had it for years and it works great. Using an FXS VoIP adapter you can make your telephone a VoIP phone.

VoIP enabling a small PBX system

If you use a small PBX or key system you can leverage VoIP without having to buy a VoIP PBX. Using an FXS VoIP adapter you can connect your existing PBX with the IP network allowing your PBX to send and receive VoIP calls.

PSTN connectivity for your VoIP system

Your communications are critical to your business operations. You can't be without the ability to send and receive phone calls. With VoIP, if your network goes down or you lose Internet connectivity you will not be able to send or receive calls – even emergency calls. To prevent this you can use an FXO VoIP adapter to connect to the PSTN giving you failover and lifeline capability.



In addition to these three primary applications, there are additional uses for VoIP adapters. If the applications described above do not fit what you're looking to do give VoIP Supply a call at 800-398-8647. A VoIP adapter expert will be happy to help you with your situation.



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Selecting the Right VoIP Adapter

Selecting the right VoIP adapter in four steps:

You now know just about everything there is to know about a VoIP adapter. Now it is time to select one. Here are four easy steps for you to follow in order to select the right VoIP adapter.

How many telephones do you need to connect?

The number of telephones that you need to connect to your VoIP adapter will determine the number of FXS ports you will need. If you want to connect one telephone you will need a VoIP adapter with one FXS port. If you want to connect two telephones you will need a VoIP Adapter with two FXS ports.

Are you going to keep your POTS line?

If you plan on keeping your POTS line (as a life-line in case your network connection goes down) then you will need an ATA with an FXO port. Now most VoIP adapters only come with one FXO port, so if you need to connect two or more POTS lines you will need to look into an FXO gateway.

Do you need a router?

Your VoIP adapter must connect to your network in order to send and receive VoIP calls. Since VoIP adapters come in single and dual Ethernet port versions you need to know whether one or two Ethernet ports are needed. If you don't have a router for your home or only have a single Ethernet connection at a workstation you will need a VoIP adapter with dual Ethernet ports. If you have a home router (with available ports) or a workstation with multiple Ethernet drops a single Ethernet port should be fine.

Which protocols and codecs are supported by your other systems?

In order to find out which VoIP protocols and codecs are supported by your other systems, refer to their manufacturer's websites. You then need to ensure that your VoIP adapter supports them.



When selecting a VoIP Adapter, you may also want to think about things such as budget and warranty periods.

Hopefully, this guide has helped you better understand VoIP adapters and put you at ease about purchasing one (or thousands). If not and you're feeling unsure about VoIP adapters or still have questions, VoIP Supply is here to help.

All you need to do is pick up the phone and call VoIP Supply at 800-398-8647. A VoIP expert will be happy to walk you through selecting a VoIP adapter and answer any questions you might have. Before we part, here are a few recommended VoIP adapters for your consideration.

CISCO

VoIP Adapter Suggestions



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Fanvil GA10

- Single FXS port
- Single network port
- 2 SIP lines
- HD Voice
- USB port for PSU connection
- 3-way conference call
- G.722, Opus



Grandstream HT802 Dual FXS Adapter

- Dual port router with 2 FXS ports and 1 10/1000 Mbsp port
- A single RJ-45 port
- Failover SIP server automatically switches to secondary server if main server loses connection



Patton SN102 SmartNode Analog Telephone or Fax Adaptor (SN102/2JS/E-US)

- 2 FXS
- G.711-ulaw, G711-alaw, G729, G723
- G.726: 16k/24k/32k/40k bit/s (ADPCM)
- t.38 relay support
- G.711 pass-through



AudioCodes MediaPack 112 Analog Gateway, 2FXS, SIP package

- Scales 2 to 24 analog ports
- T.38 compliant
- Selectable, Multiple LBR coders per channel
- Supports PSTN/PBX analog telephone sets or analog trunk lines (FXS/FXO)
- Rich subscriber feature set including: 3-way conference with local mixing, call pickup, hunt groups, call forwarding, call hold, call transfer



Patton SmartNode SN200 Gateway (SN200/4JS4V/EUI)

- RJ-11 Connection
- 1 Ethernet port
- HTTP HTTPS, TFTP Provisioning



Polycom OBi312 Adapter w/USB, 1 FXS, 1 FXO ports

- USB 2.0
- Ethernet port (802.3)
- Phone: 1x RJ-11 FXS Analog phone port, 1xRJ-11 FXO analog Telco port
- Internet (WAN): 1x10/100BaseT
- LED indications: power on, status, upgrade in progress, packet RX/TX, phone port status



Conclusion

Well, that's it. We here at VoIP Supply appreciate the time you invested in learning more about VoIP Adapters and hope that you have found this content helpful.

In closing, we'd like to once again extend services here at VoIP Supply to you. Since 2002, VoIP Supply has helped over 100,000 people just like you create, deploy and maintain a VoIP solution - adding you as a customer would be a great privilege.

So after leaving this guide to further dive into the process of purchasing a VoIP Adapter, if you ever find yourself confused, frustrated, or simply in need of expert advice, please do not hesitate to give us a call at 1-800-305-1427 and we will do our best to give you honest, accurate, and helpful information that will help you make the right choice.

Thanks again for your time – the VoIP Supply team.



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