AKVoice: Do I qualify? SYSTEM AND INTERNET REQUIREMENTS

WELCOME

Thank you for choosing AKVoice® from Alaska Communications we look forward to providing you with excellent and reliable service. Staying connected is an essential part of your business. Voice over IP (VoIP) solutions, such as AKVoice, offer a lower cost solution with the ability for increased mobility and productivity. To get started, you first need a reliable internet network connection.

This network readiness guide will assist you or your IT administrator in preparing for your AKVoice (VoIP) solution.

NETWORK ENVIRONMENT

VoIP services, including AKVoice require addressing three key areas:

1. Internet Connection: Is my internet connection fast and reliable enough to support voice services?

2. Internet Router: Is my internet router compatible with VoIP services and can it effectively prioritize the VoIP traffic over other internet traffic?

3. LAN Connections: Do I have Ethernet cabling or a steady WiFi signal at every location I wish to use a VoIP device?

EVALUATING YOUR INTERNET

Although internet service performance may vary, there are a few simple tests that can determine if a connection is suitable for VoIP telephones and how many devices may be supported.

These tests take only a few minutes and should be run during 'busy' hours to simulate real world conditions (we recommend running them each at least 3 times each). Consistent results are the most important indicator that an internet connection is suitable for VoIP service.

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TEST 1 - BANDWIDTH

1. Go to http://www.speedtest.net or search for "Internet Speed Test" and run the test.

2. Take note of the **upload** speeds.

3. **Repeat this test 3 times, at different busy times of day.** Take the slowest upload speed and use the table below to estimate the number of concurrent VoIP phone calls your Internet connection will support:

Slowest upload Speed	512k	768k	1mb	1.5mb	2mb	3mb	4mb
VoIP Calls	2	3	4	6	8	12	16

TEST 2 - STABILITY

Running multiple ping tests to the VoIP service edge is a good way to test connection stability between your internet and the service provider. It is important to run this test multiple times. You are attempting to determine if data packets are delayed (known as "Jitter"), and can cause poor voice quality.

1. Open a windows command prompt (Start -> type "CMD" on the run line)

2. Ping the AKVoice service (Type "ping -n 10 public-voice.acsalaska.net")

3. The test will send ten packets, then provide an average output of "Approximate round trip time in milliseconds" as illustrated in the sample below:

C:\Users\bmast>ping -n 10 public-voice.acsalaska.net

Pinging public-voice.acsalaska.net [216.67.110.4] with 32 bytes of data:

Reply from 216.67.110.4: bytes=32 time=32ms TTL=53 Request timed out.

Reply from 216.67.110.4: bytes=32 time=35ms TTL=53

Reply from 216.67.110.4: bytes=32 time=32ms TTL=53

Ping statistics for 216.67.110.4:

Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),

Approximate round trip times in milli-seconds: Minimum = 32ms, Maximum = 35ms, Average = 33ms

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TEST 2 - STABILITY *(CONTINUED)*

You are looking for the following results:

1. Request timed out means a packet is lost (No more than one of these in each test of 10 packets). This will cause "clipping" during conversation.

2. Minimum and maximum times indicate the longest and shortest travel time. A spread of 50ms or more indicates packets will arrive out of sequence and the connection may be unreliable, causing poor voice quality.

3. Average travel time should be below 200ms. Higher values will cause a noticeable delay and echo in conversation.

EVALUATING YOUR ROUTER

VoIP services require a router capable of prioritizing VoIP traffic over other traffic types. This prioritization is known as Quality of Service (QoS) (most newer small business routers have this capability in one form or another). Please read the specification for your router to verify this capability.

Your router may also include wireless network capabilities. If you wish to connect wireless VoIP devices (e.g. AKVoice OBi1062 phone), verify the router is WiFi Alliance certified. These routers support WiFi Multimedia (WMM) which is a wireless QoS standard.

CONFIGURE YOUR ROUTER

1. If your router supports SIP Application Layer Gateway (SIP ALG) disable this feature.

2. Set up QoS. Every router is different, we recommend turning on the Auto QoS feature (if your router supports) and prioritizing VoIP the highest. Voice traffic (RTP) will be marked DSCP EF.

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TESTED ROUTERS

The following router models have been tested with VoIP Services

- Netgear Nighthawk AC1900
- LinkSys AC1750
- TPLink AC1750
- SmartRG SR552n
- SmartRG SR516ac

EVALUATING YOUR LAN OR WIRELESS LAN

Your local area network (LAN) or wireless local area network (WLAN) equipment will connect VoIP devices to your router, and then to the internet. In many cases, your router may also be your WLAN access point.

5GHz
WLAN

Internet

Router w/ Dual
Band WLAN AP

LAN
Cable
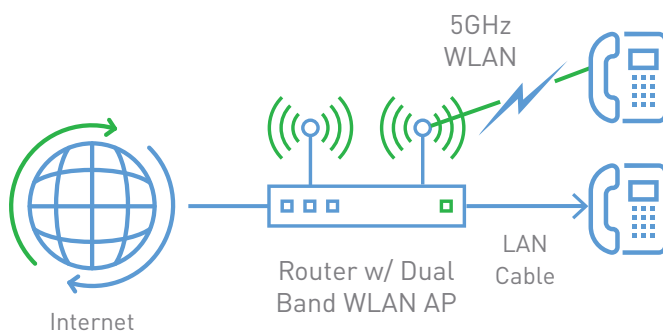
CONNECTING WITH ETHERNET LAN

If connecting VoIP devices by standard Ethernet LAN connections, you can use a standard Ethernet switch, with a minimum 100Mbps. No additional configuration is required. Activating special voice VLAN features is not recommended unless your IT staff is familiar with its implementation.

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CONNECTING VIA WIRELESS LAN

If you are using wifi networking to connect your VoIP devices, first verify you have a dual-band or tri-band (2.4 and 5GHz simultaneous) access point.

1. Set up wifi networks and use a password or PIN that is easy to enter on a telephone keypad. (You can keep the pre-configured PIN if your router comes with one).

2. Use an application (such as "WiFi Analyzer") for Android smartphones to verify a strong wireless signal is available at the locations you wish to use wireless VoIP devices.

Great News, you are now ready to use AKVoice. Have questions? Please contact us at http://www.alaskacommunications.com/AKVoice. Thanks for choosing Alaska Communications.

EXAMPLE CONFIGURATION

Beth's Bakery has a 25Mbps DSL connection with a TP-Link AC 1750 and would like to set up three AKVoice OBi1062 telephones using a wireless network.

1. Beth verifies that the TP-Link AC 1750 is dual-band router and supports QoS by reviewing the specification sheet

2. Beth logs in to the router and turns on QoS

3. Beth searches for and disables the SIP ALG feature

4. Beth receives and installs the OBi1062 telephones using the wireless network

5. Beth adds the OBi1062 phones to the high priority QoS list