VoIP Settings for Customer Routers
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SECTION 1

What is Quality of Service (QoS)?

INTRODUCTION

Welcome to your new AT&T Collaborate business phone service. Since our cloud based business phone system works through an Internet connection, you will need to make some basic adjustments to your router in order to ensure that it is optimized for the best quality. Most small-office routers are up to the task; however, they may not be optimally configured for Voice-Over-IP (VoIP). Fortunately, this document will present steps you can take to improve the quality of your calls.

WHAT IS QUALITY OF SERVICE (QoS)?

Quality of Service or (QoS) is a digital network solution that prioritizes your network traffic, including voice and multi-media, to ensure that your key data has priority over less important traffic during times of high usage. VoIP can guarantee high-quality voice transmissions only if the voice packets are given priority over other kinds of network traffic.

Your Internet connection and devices you use to connect to the Internet can affect your QoS. Design your network for voice and use QoS-enabled network equipment. There are special considerations when designing your network to support voice traffic. QoS-enabled routers prioritize voice traffic over lower priority network traffic, such as large downloads. QoS-enabled switches perform the same function in the switch.

ENSURE YOU HAVE THE RIGHT AMOUNT OF BANDWIDTH

A solid Internet connection means solid voice quality. We recommend using a high-speed DSL, cable, or fiber optic connection with dedicated upload and download bandwidth (speed only for voice, not sharing with data) of 90kbps or higher for each line you plan to run.

WHY DO I NEED TO ADJUST MY ROUTER?

Routers handle traffic from many devices. To ensure you the best performance from your VoIP phone service, you need to configure your router to make sure your service operates well. In order to make sure that your routers are configured properly, you need to follow the Quality of Service (QoS) best practices for your router.

WHY DO I NEED TO OPTIMIZE MY ROUTER FOR VOICE (VOIP) TRAFFIC?

In this case, adjusting the QoS will allow packets containing voice data, which is mandatory for maintaining the highest quality phone communication performance, to be treated as critical and therefore given top priority. Unless you instruct your network router to prioritize voice over data traffic, the two types of traffic will compete, often at the expense of voice quality. When your voice traffic is prioritized, the audio performance will be smoother, jitter will be reduced, and the overall user experience at both ends will dramatically improve.
SECTION 2

AT&T Collaborate Recommended Routers

LIST OF RECOMMENDED ROUTERS
ASUS RT-N66U Dark Knight
Linksys E1200
NetGear G54
NetGear N300
NetGear N600
NetGear N750
NetGear N900

WHAT IF MY ROUTER IS NOT LISTED? CONSULT YOUR ROUTER’S USER MANUAL FOR HOW TO CONFIGURE QOS.

CONNECTING YOUR DEVICE
1. First, connect a computer to the router. This step can work through Wi-Fi, especially if you’re reconfiguring a router instead of starting fresh. We recommend you use a wired, Ethernet cable to eliminate potential problems. Connect the cable between a PC and one of the router’s LAN ports.

2. The next step is similar for different routers, although it can vary by brand.

   Frequently, Linksys routers use 192.168.1.1, D-Link uses 192.168.0.1, Belkin uses 192.168.2.1, and Netgear uses 192.168.0.1 or 192.168.1.1. Open a web browser, and enter the address, such as “http://192.168.0.1”. Consult your documentation or search online for “[your router model] default IP address”.

3. Next, you should be prompted for a username and password. Often, Netgear uses “admin” and “password”. D-Link and Linksys routers often use “admin” and “admin”, or just use “admin” for one and a blank value for the other. Belkin often uses “admin” and a blank value. You can look in your manual or search online for your specific brand.

4. If the router and computer are set for DHCP by default, as most are, you’re finished. Once you’re in, be sure to change the default password (and login if possible). Also, change the internal (LAN) IP address for the router. Pick something such as “192.168.n.1”, where n equals anything between 2 and 254, like “192.168.22.1”. Be sure to write down all of this information; you’ll now reach the router in a web browser through that new IP address. If you lose any of these details, follow the manual’s directions to reset the router.
SECTION 3

Configuration Guides

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STEP BY STEP ROUTER CONFIGURATION

We've provided step by step configuration instructions for some of the most commonly available and recommended wireless routers to ensure that you will experience the finest QoS with your AT&T Collaborate service. Below you will find 7 routers listed by brand name and model number.

CONFIGURING QoS ON THE ASUS RT-N66U DARK KNIGHT TO PRIORITIZE VOIP TRAFFIC

Brand: ASUS
Model: RT-N66U
Firmware Version: 3.0.0.3.112

1. Log in to the router. Follow the prompts to create a password and a username will be given to you.
2. Click “Traffic Manager” on the left hand side.
3. Click on the “QoS” slider to turn QoS on.
4. When the QoS slider turns green, enter your current bandwidth for both the upload and download. (If unsure of your current bandwidth speed, please run a speed test at http://www.att.com/speedtest.)
5. Click “Save” after entering your bandwidth figures.
6. Be sure to power cycle/reboot the router before proceeding.
7. Your QoS should now be configured.
Configuring QoS on the Linksys E1200 to Prioritize VoIP Traffic (MAC Method)

Brand: Linksys
Model: E1200
Hardware Version: E1200
Firmware Version: 2.0.04 build 1

1. Log in to the router. The default IP address is 192.168.1.1. The default username is “admin”. The default password is “admin”.

2. Click on “Applications & Gaming” tab.

3. Click on “QoS”.

4. Select the radial button “Enabled” next to the field labeled “Internet Access Priority”.

5. In the field labeled “Upstream Bandwidth”, select “Manual” from the drop-down menu and enter your current upload speed. (If unsure of your current upload speed, please run a speed test at http://www.att.com/speedtest.)

6. Select “MAC Address” from the drop-down menu labeled “Category”.

http://192.168.1.1
7. You will need the MAC address for each IP device to continue. In the field labeled “Enter a Name”, enter a unique name for the device for which you will prioritize traffic.

8. In the field labeled “MAC Address” enter the MAC address for the device.

9. In the field labeled “Priority”, select “High” from the drop-down menu.

10. Click “Apply” to save changes.

11. Repeat steps 6-10 until you have entered all of the IP phones. When all have been entered and you see them in the “Summary” section, click on “Save Settings”.

12. Power cycle/reboot the router before proceeding.
Configuring QoS on the Linksys E1200 to Prioritize VoIP Traffic (Port Method)

1. Log in to the router. The default IP address is 192.168.1.1. The default username is “admin”. The default password is “admin”.

2. Click on “Applications & Gaming” tab.

3. Click on “QoS”.

4. Select the radial button “Enabled” next to the field labeled “Internet Access Priority”.

5. Select the radial button “Enabled” next to the field labeled “Internet Access Priority”.

6. In the “Category” section, select “Applications” from the drop-down menu.

7. In the field labeled “Applications”, select “Add a New Application” from the drop-down menu.
8. Enter a unique name in the “Enter a Name” field. Enter the following port ranges and select “UDP” from the drop-down menu to the right of each port range field and set the priority to “High” on the drop-down menu: 5060-5090, 8000-8200, 16384-16482.

9. Click “Apply”. You will see your changes in the “Summary” section.

10. Click “Save Settings”.

11. Power cycle/reboot the router before proceeding.
Configuring QoS on the Netgear G54 to Prioritize VoIP Traffic

Brand: NetGear
Model: G54
Hardware Version: WGR614v10
Firmware Version: V1.0.2.26_51.0.59NA


2. Log in to the router. The default username is “admin”. The default password is “password”.

3. Under the “Advanced” header, select “QoS Setup”.

4. Check the box next to “Turn Internet Access QoS On”.

5. Check the box next to “Turn Bandwidth Control On”.

6. Select the “Uplink bandwidth Maximum” radial button.

7. Enter in your current upload speed. (If unsure of the current upload speed, run a speedtest at http://www.att.com/speedtest.)

8. Be sure to save any changes and reboot the router before proceeding.

9. Your QoS should now be configured.
Configuring QoS on the Netgear N300 to Prioritize VoIP Traffic

Brand: NetGear
Model: N300
Hardware Version: WNR3500Lv2
Firmware Version: V1.2.0.16_40.0.66


2. Log in to the router. The default username is “admin”. The default password is “password”.

3. Select the “Advanced” tab and the select “WPS Wizard” on the left hand side.

4. Select “Setup”.

5. Select “QoS Setup”.

6. Check the box next to “Turn Internet Access QoS On” if not already checked.

7. Check the box next to “Turn Bandwidth Control On”.
8. Select the “Uplink bandwidth Maximum” radial button.

9. In the field to the right of the radial button enter in your current upload speed. (If unsure of the current upload speed, run a speedtest at http://www.att.com/speedtest.)

10. Be sure to save any changes and reboot the router before proceeding.

11. Your QoS should now be configured.
Configuring QoS on the Netgear N600 to Prioritize VoIP Traffic

Brand: NetGear
Model: N600
Hardware Version: WNDR3400v2
Firmware Version: V.1.0.0.34_1.0.52

2. Log in to the router. The default username is “admin”. The default password is “password”.
3. Select the “Advanced” tab and the select “WPS Wizard” on the left hand side.
4. Select “Setup”.
5. Select “QoS Setup”.
6. Check the box next to “Turn Internet Access QoS On” if not already checked.
7. Check the box next to “Turn Bandwidth Control On”. 
8. Select the “Uplink bandwidth Maximum” radial button.

9. In the field to the right of the radial button enter in your current upload speed. (If unsure of the current upload speed, run a speedtest at http://www.att.com/speedtest.)

10. Be sure to save any changes and reboot the router before proceeding.

11. Your QoS should now be configured.
Configuring QoS on the Netgear N750 to Prioritize VoIP Traffic


2. Log in to the router. The default username is “admin”. The default password is “password”.

3. Select the “Advanced” tab and the select “WPS Wizard” on the left hand side.

4. Select “Setup”.

5. Select “QoS Setup”.

6. Check the box next to “Turn Internet Access QoS On” if not already checked.

7. Check the box next to “Turn Bandwidth Control On”.

Brand: NetGear
Model: N750
Hardware Version: WNDR4000
Firmware Version: V1.0.0.90_9.1.79
8. Select the “Uplink bandwidth Maximum” radial button.

9. In the field to the right of the radial button enter in your current upload speed. (If unsure of the current upload speed, run a speedtest at http://www.att.com/speedtest.)

10. Be sure to save any changes and reboot the router before proceeding.

11. Your QoS should now be configured.
Configuring QoS on the Netgear N900 to Prioritize VoIP Traffic

Brand: NetGear
Model: N900
Hardware Version: WNDR4000
Firmware Version: V1.0.1.20_1.0.40

2. Log in to the router. The default username is “admin”. The default password is “password”.
3. Select the “Advanced” tab and the select “WPS Wizard” on the left hand side.
4. Select “Setup”.
5. Select “QoS Setup”.
6. Check the box next to “Turn Internet Access QoS On” if not already checked.
7. Check the box next to “Turn Bandwidth Control On”.
8. Select the “Uplink bandwidth Maximum” radial button.

9. In the field to the right of the radial button enter in your current upload speed. (If unsure of the current upload speed, run a speedtest at http://www.att.com/speedtest.)

10. Be sure to save any changes and reboot the router before proceeding.

11. Your QoS should now be configured.
Support Information

AT&T COLLABORATE SUPPORT

If you have additional questions or are experiencing difficulty in setting up your router to work with your AT&T Collaborate VoIP phone service, please contact customer support by calling 1-877-246-0847.