NextGen Virtual Visits™

Troubleshooting Guide

Contents

C HAPTER 1

Best Practices for Optimum Service

Category	Best Practices
General	- Use a wired/Local Area Network (LAN) connection where possible instead of a wireless network. - Use a wireless network instead of a phone carrier signal. - The quality of the device (computer, phone, or camera) impacts stability. ◦ Newer devices have more compute capability. ◦ High-resolution webcams traditionally have more tuning options and enhanced performance. - Ensure that you have adequate lighting in the room. Low lighting impacts the picture quality and performance. - Disable low light compensation (Auto Backlight Compensation). - Check your firewall configuration. For more information, see Firewall Configurations for Preventing Video Blocking. - For local network or router configuration, set Quality of Service (QoS) priority high for Telehealth sites to assure video streaming is optimized. - Do not walk and talk between access points (if wireless or mobile) as it may cause disconnections and latency.
Laptop	- See the **General** category in this table. - Reduce the computer's graphics hardware acceleration. - Different laptop manufacturers offer various tips for improving video quality and reducing lag. Check your webcam's user manual for tips specific to your model. If you do not have the manual, you can usually download it from the manufacturer's website. - Update firmware and software to latest versions for your integrated camera.

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Category	Best Practices
Universal Serial Bus (USB) webcam	• See the **General** category in this table. • Ensure that your webcam is connected to a high-speed USB 2.0 port. • Different webcam manufacturers offer various tips for improving video quality and reducing lag. Check your webcam's user manual for tips specific to your model. If you do not have the manual, you can usually download it from the manufacturer's website. • Update firmware and software to latest versions for your USB camera.
Google Android™ OS (phone or tablet)	• See the **General** category in this table. • Ensure that your device is on the latest supporting operating system.
Apple iOS (phone or tablet)	• See the **General** category in this table. • Ensure that your device is on the latest supporting operating system.

CHAPTER 2

Network Readiness

Ensure that your technical team reviews the following information.

NextGen Healthcare's Web Real-Time Communication (WebRTC) service provider requires access to specific User Datagram Protocol (UDP) ports for the best video and audio experience. You must open the Transmission Control Protocol (TCP) port 443 by changing your firewall settings. To ensure optimal video and audio quality, you should also do one of the following:

- For the best video and audio quality, you should open UDP ports 10000–65535 to all inbound and outbound traffic. This allows WebRTC to make direct connections to media servers and minimizes lag and latency by bypassing relays. Note that video and audio streams are encrypted using DTLS 1.2/SRTP.

- If opening all UDP ports on your network is not feasible you should open UDP port 3478.

UDP Port	Description
10000–65535 **Note:** Recommended for best user esperience.	Allowlisting this range of ports gives users the best experience. NextGen Healthcare recommends this setting for the best quality audio and video. In this case, clients make a direct connection to media servers and send media data over UDP.
3478	If UDP port 3478 is open, media data can flow through Traversal Using Relays around NAT (TURN) UDP. This is a step above TCP. However, an additional server is required to relay packets. This can introduce latency and/or connectivity issues.

Proxies and Firewalls

Generally, you get the best results when you use the latest versions of devices and browsers. If you can only access the Internet from your network through a proxy or Virtual Private Network (VPN), you must use a transparent proxy, or you must configure it in the browser for Hypertext Transfer Protocol Secure (HTTPS) connections. Web Real-Time Communication (WebRTC) does not support proxies requiring authentication. Additionally, clients may have the following rules:

Application	Support Information
Google Chrome browser	Latest versions have full support for authentication.

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Application	Support Information
Mozilla Firefox browser	Does not support Traversal Using Relays around NAT (TURN) over Transport Layer Security (TLS), or proxies that inspect packets to validate that connections are real TLS.
Apple Safari application program	Apple added support for WebRTC in the Safari 11 application program for macOS, and the Safari application program on iOS 11. The Safari 12.1 application program also supports the VP8 video codec, in addition to H.264. The Safari application program versions earlier than 12.1 use the H.264 video codec exclusively and therefore, do not support the VP8 video codec.

Note:

The NextGen Virtual Visits platform uses AES-256 encryption, which makes streams encrypted and Health Insurance Portability and Accountability Act (HIPAA) compliant without using a firewall.

For providers or users who also use remote connections to your Electronic Health Records (EHR), NextGen Healthcare recommends that you always use a browser on your local machine for the best video and audio experience.

For providers who use VPNs, the VPNs must be configured only for corporate traffic, and not all traffic. The NextGen Virtual Visits video and audio components do not work effectively on a restricted VPN. However, NextGen Healthcare does not recommend providers to use non-VPN connected devices for the best video and audio experience.

Firewall Configurations for Preventing Video Blocking

Nextgen Virtual Visits practices may need to change firewall settings to enable video visits. You may need to adjust the settings on both the network and Group Policy Object (GPO)/computer levels. Within the web access protection settings (the name of this setting may vary by product), you must set the following addresses as allowed:

- https://connect.ottohealth.com
- https://virtualvisits.nextgen.com
- https://connect.virtualvisits.nextgen.com

To enable communication with WebRTC servers, you must allow list the following IP addresses:

- 34.203.254.0/24 (34.203.254.0 - 34.203.254.255)
- 54.172.60.0/23 (54.172.60.0 - 54.172.61.255)
- 34.203.250.0/23 (34.203.250.0 - 34.203.251.255)
- 3.235.111.128/25 (3.235.111.128 - 3.235.111.255)
- 34.216.110.128/27 (34.216.110.128 - 34.216.110.159)
- 54.244.51.0/24 (54.244.51.0 - 54.244.51.255)
- 44.234.69.0/25 (44.234.69.0 - 44.234.69.127)

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CHAPTER 3

Test Internet Download and Upload Speed

1. To test your device and browser compatibility, go to https://virtualvisits.nextgen.com/video/test.

2. To test your internet download and upload speed, do the following:

   a) Go to www.google.com.

   Google collaborates with Measurement Lab (M-Lab) to run the internet speed test.

   b) Search for internet speed test.

   c) Select **RUN SPEED TEST**.

   The speed test displays internet download and upload speed
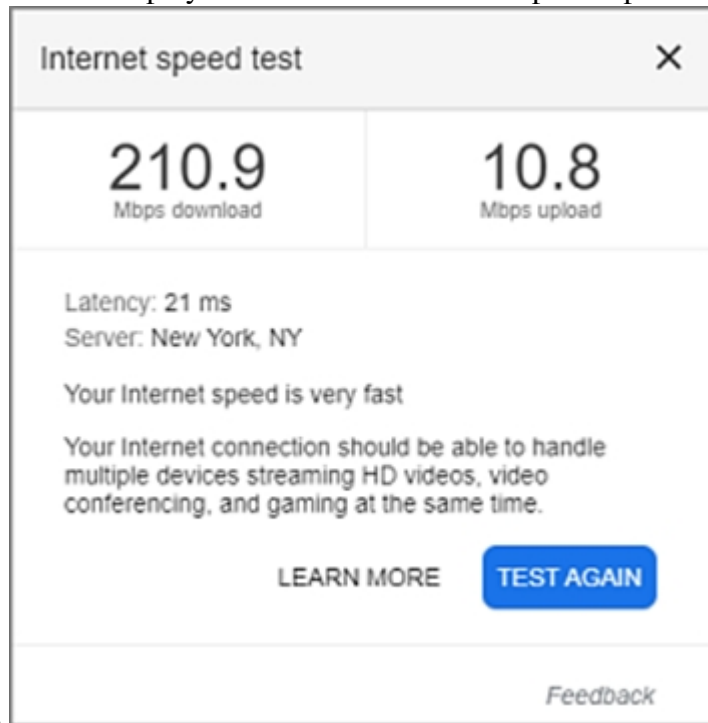
   results.

3. Calculate your total network capacity need for download and upload.

   For more information, see Bandwidth Requirements and Network Readiness.

Example

For example:

- 10 users @ 2-4 mb/s = 20-40 mb/s concurrent upload speed needed at minimum within a shared network.

- 20-40 mb/s + other upload capacity needs = total upload capacity requirements.

For more advanced troubleshooting you can perform a server SmokePing (network latency test over Wide Area Network (WAN)), which can provide insight on global network latency.

> **Note:** To use screen sharing during the virtual visit sessions, you must also consider the potential added session traffic created by other features, such as guests, clinical administrators, and interpretive services. Additionally, factors such as the Central Processing Unit (CPU) of the devices also impact the video and audio connection quality during the virtual visit. Therefore, to ensure a seamless performance, NextGen Healthcare recommends that you run additional tests with your providers and devices. The more the available bandwidth (see the next section) is for your users, the better the connection quality.

Bandwidth Requirements

Video quality dynamically adjusts based on the strength of a user's network connectivity. The faster and more stable a subscriber's broadband connection is, the better the video quality it requests. This mechanism works well until a certain point. If a subscriber's bandwidth drops below a certain threshold, or if a publisher has little bandwidth to upload video, the behavior can be unpredictable. Video may be choppy, audio may have artifacts, and the connection can drop.

> **Note:** A network speed of 350 kb/s is the absolute minimum requirement for a successful video and audio connection. However, this speed may result in poor performance. NextGen Healthcare recommends that 2-4 mb/s is available for each session. For example, if you plan on 15 sessions, you must have 30-60 mb/s network speed to support all your users at the same location, and at the same time.

For various resolutions and quality combinations, the following bandwidth requirements must be met:

Quality	Video Resolution @ 30 FPS	Video kb/s	Packet Loss %
Excellent	1280 x 720	> 1400	< 0.5
Excellent	640 x 480	> 600	< 0.5
Excellent	352 x 288	> 300	< 0.5
Acceptable	1280 x 720	> 650	< 3
Acceptable	640 x 480	> 400	< 3
Acceptable	352 x 288	> 150	< 3

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CHAPTER 4

Email and Spam Filtering Adjustments for Preventing Email Blocking

NextGen Virtual Visits uses the following static Internet Protocol (IP) address to send communications from the application, such as appointment confirmation and reminders containing the video link. Within your practice email configurations, you must allow emails from the following IP address to be sent to your practice recipients: **168.245.111.197noreply@ottohealth.com**

CHAPTER 5

Network Support Assistance

- Login to [NextGen Healthcare Success Community](#) and submit a case under **Virtual Visits > Network**, and then attach your answers for the following:
    - Has anything changed since your initial implementation of Telehealth at your site?
    - How many overall locations are going to be used and can we verify configuration at all locations?
    - How many users at each location will be using Telehealth at the same time?
    - What types of devices will be used to connect by your users?
    - Is it a wired or wireless connection? If wireless, cell or local WIFI?
    - How are NextGen solutions being accessed for these users (RDP, Thin Client, Fat Client, and so on) and will the providers be accessing NextGen solutions using the same device they are facilitating their Telehealth visit?
- To run tests on the network in concern and capture screen shots of the test results (to use as attachments), go to the following websites:
    - https://networktest.twilio.com/
    - https://test.webrtc.org/

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Document Revision History

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