

TECHNICAL REQUIREMENTS

A successful setup is dependent on a stable Internet connection and high-quality network and audio equipment. Bandwidth numbers below take into account non-VoIP traffic from devices (mails, etc.).

Bandwidth and Latency

- **Source/Floor/Speaker**
 - o Minimum **4Mbps upload** per video channel for “low” resolution setting; **8 Mbps upload** is recommended for HD resolution, audio included
- **Interpreters**
 - o Minimum **2Mbps down** and **upload** per language channel, 8Mbps down is recommended if HD video quality is required or if multiple video channels are received
- **Audience**
 - o If smart devices (laptops, tablets, smartphones) are used: minimum **0.5Mbps** download per device for ALL devices on same network, even if they do not use Interprefy platform. Contact us if you have more than 100 users on Wi-Fi.
 - o If attendees connect through standard broadcasting equipment and radio/IR headsets, minimum **2Mbps** download per language channel is sufficient

Ping on any connected device should be **below 50ms** to the nearest major hub, in order to keep latency low, **jitter** must be **below 15ms** (use <http://interprefy.speedtestcustom.com> to measure).

Firewall: network ports TCP 443 and UDP 3478 must be opened.

Hardware

- Source/Floor/Speaker
 - Laptop (Core i5 or i7, minimum 4Gb RAM, Windows 7 or higher) with professional microphone connected. No Bluetooth microphones allowed
 - Recommended CPU benchmark is above 5000 if streaming one video channel, and above 7000 when streaming HD cam video and screen simultaneously (<https://www.cpubenchmark.net/laptop.html>)
 - Smartphones/tablets: Android 4.2 and higher, iOS 8.0 and higher, or laptop connected to on-site PA system via sound card
 - USB soundcard with XLR or optical connectors, connected to the audio input. Focusrite Scarlett, Steinberg UR and Roland Rubix are recommended. Sound Blaster X-Fi HD can also be used, with RCA instead of XLR connectors.
 - Plug-and-Play USB video capture card for transmission of video feed from the event, connected to USB 3.0 port. Blackmagic Web Presenter or Magewell and AJA Systems HDMI-to-USB or SDI-to-USB capture cards are recommended. Alternatively, USB webcams can be used (Logitech BCC950, Logitech PTZ Pro, etc.).
 - Ethernet cable connection is strongly recommended
- Source/Floor/Speaker – WebMeet mode
 - There are no hard limits for users on **WebMeet**. Number is limited by the user's devices. More streams mean higher load on browser, higher CPU and lower reliability. Things will just randomly stop working.
 - Factors defining the browser load, in order of importance:
 - Are you sending video?
 - Is resolution for that Low or HD?
 - Are you sending screenshare?
 - How many video streams are you connected to?
 - Is resolution for those videos Low or HD?
 - How many audio-only channels are you receiving?

In addition to that, it will also play a role how many tabs or browser windows user has open, and whether there are other programs running in the background. In short, you never know exactly where the limit is until you hit it. Below are pretty safe guidelines.

- 6 video streams are supported on Low setting (incl. 1 screenshare)
- 4 video streams are supported on HD setting (incl. 1 screenshare)
- This is for i5 processor. If all users run i7 you could add another 2-3 streams.
- If you need to connect more users to WebMeet, please use **WebMeet Classroom**, where you can have up to 100 users connected as speakers (with max. 6 video streams at a time, on Low setting).

- **Interpreters**

- o Laptops: Core i5, 4GB RAM, Windows 7 or higher;
- o Recommended CPU benchmark is above 3500 (<https://www.cpubenchmark.net/laptop.html>)
- o USB headset. Sennheiser SC 70 USB recommended (also called Sennheiser 506504 or 506502). If not available, the Jabra Evolve 40 can be used, connected through USB. If both are not available, Logitech H340 is sufficient for shorter sessions. Alternatively, separate desktop microphone and the closed over-ear headphones can be used.
- o No Bluetooth headsets are allowed
- o Optional: professional interpreting panel, laptop connected to on-site PA
- o Ethernet cable connection is strongly recommended

- **Audience**

- o Laptop (Chrome installed): PC or Mac, or
 - o Smartphones/tablets: Android 4.2 and higher, iOS 8.0 and higher,
 - o IR/Radio headsets, laptop connected to on-site PA system
 - o An audio Y-splitter can be used to increase the number of users with the same number of smart devices
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Wireless network for the audience

- A maximum of 20 devices per wireless access point (WiFi router) is generally recommended for consumer-grade installations; this number can be increased to 100 if enterprise-grade access points are used and all the instructions below are followed. Contact us if you have more than 100 users on WiFi.
- Avoid consumer-grade network equipment; high quality enterprise-grade WiFi access points like Cisco, Aruba and Ruckus, which are optimized for UDP packets and are able to prioritize audio, are preferred
- While older 2.4 GHz access points are acceptable, dual-band or 5 GHz models are strongly recommended, to reduce interference risk
- Access points with support for modern N and AC modes are strongly preferred: these will allow you to achieve more users per access point, without loss of quality
- Consider fully disabling older B and G transmission modes, as they are very slow and will decrease sound quality for all users in the room
- It is recommended to disable automatic wireless channel-hopping on the access points, since each hop will cause a few seconds' dropout in audio
- Limit bandwidth per user to 0.5 Mbps, to prevent heavy-usage attendees consuming bandwidth
- Consider blocking traffic-heavy websites, such as YouTube, Dropbox and OneDrive