

Managing Bandwidth Usage on Polycom Video Endpoints

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> Note

If you have not prepared your Internet connection for adding video, refer to the companion document: **8x8 Virtual Room Video Conferencing Guide to Internet Bandwidth Requirements**



When your video devices arrive, they are preconfigured with default video bandwidth settings (bandwidth used during video calls) designed to optimize and balance bandwidth usage versus video quality.

Once the video equipment has been installed, you can increase or decrease the default video bandwidth used for each Polycom VVX and Polycom HDX for your particular situation. The table below shows the default values for each device.

Required Bandwidth

Device	Video Resolution	Per Active/Concurrent Device*
Polycom HDX	HD 1080p	2048 kbps
	HD 720p	1024 kbps
	4CIF (Standard Definition)	512 kbps
Polycom VVX	CIF (Small Screen)	448 kbps
Computer with Webcam***	CIF (Small Screen) Uplink CIF or better Downlink	256 kbps - 1024 kbps** 256 kbps - 1024 kbps (HD 720) and up to 2048 kbps (HD 1080)**

* Plan for the maximum number of active/concurrent devices during your busiest hour.

** For computers with webcams, the video resolution will adjust dynamically based on available bandwidth. 256 kbps is the minimum. If more bandwidth is available, you will see higher quality video. When having a video call from a computer with webcam, directly to a Polycom HDX, or when connecting to a high definition Virtual Room, bandwidth usage can scale from 256 to 2048 kbps.

*** Participants in 8x8 Virtual Room video conferences can join by using their PC/Mac equipped with a webcam, and using a browser.

You can adjust the default video bandwidth from the defaults either permanently or temporarily. Example situations:

- Temporarily increase bandwidth for important meetings to enable higher video quality with improved images and more natural motion
- Re-adjusting video bandwidth for changing network environments: Adjust bandwidth lower when other demands are being made on a network such as an occasional telemarketing campaign, or heavy use of an Internet connection for offsite backups, video webinars or streaming of video training delivered over the web. Or adjust bandwidth higher when a new or faster Internet connection is introduced, or the number of users sharing an Internet connection is reduced.

- Decrease video bandwidth for special situations such as when a video device is in a location with a low-bandwidth or congested Internet connection. For example, if a videophone is taken to a location (such as a home office) with a limited bandwidth ADSL connection, or an offsite office or hotel room office with limited shared bandwidth.

Video bandwidth adjustment is usually optional, unless you are now using the VVX or HDX in a more restricted bandwidth situation than before. This document describes how to adjust the bandwidth allocation for Polycom VVX and HDX devices.

Note: Video bandwidth adjustment is not required for computers with webcam using Virtual Office Pro video client. It adjusts dynamically to available bandwidth.

Virtual Room Plans and Pricing

8x8 offers video conferencing service that makes it easy to schedule and conduct a multi-party video conference call. Below is a summary of the plans and pricing. To schedule videoconferences, at least one 8x8 Virtual Office Pro phone extension is also required.

Virtual Room Plan	Low Def	Standard Def	High Def
Cost Per Month	\$ 199.99	\$349.99	\$ 499.99
Supported Video Definition	CIF (Small Screen)	CIF and 4CIF (Standard Definition)	CIF, 4CIF, and HD (720p/1080p)
Maximum Video Bandwidth (Room Video Rate Limit)	384 kbps (per device)	512 kbps (per device)	2048 kbps (per device)
Recommended Devices by Plan	Computer with Webcam Polycom VVX (HDX not recommended)	Computer with Webcam Polycom VVX Polycom HDX	Computer with Webcam Polycom VVX Polycom HDX

Guide to choosing the right plan

Virtual Room Plan	Guidelines
Low Def	Recommended plan for customers without a Polycom HDX
Standard Def	<ul style="list-style-type: none"> • Lower cost alternative to High Def plan for customers with an HDX who only require 4CIF resolution • Delivers better resolution for Polycom VVX over the Low Def plan
High Def	Required plan for Polycom HDX with 720p or 1080p resolution to experience high definition video

Importance of a QoS Router

8x8 recommends the use of a router with QoS capabilities to prioritize delay-sensitive voice and video traffic, while allocating sufficient bandwidth for data traffic. A properly-configured QoS router provides the following benefits:

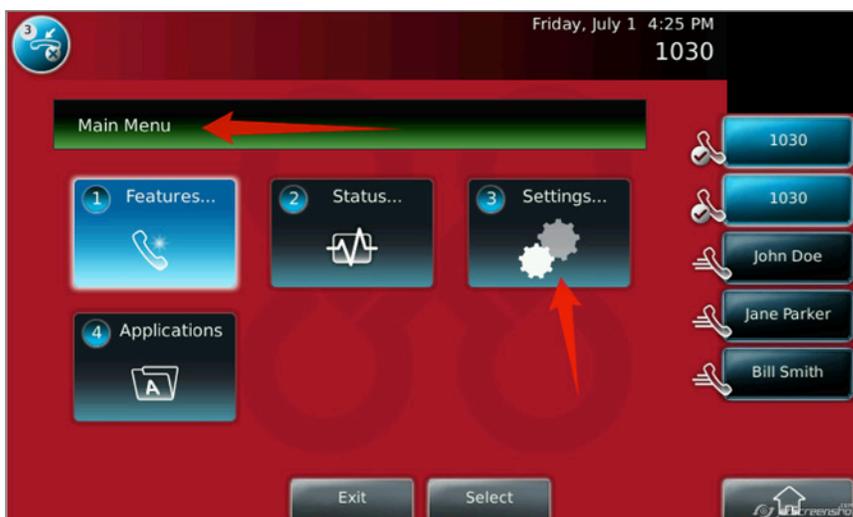
- Latency-sensitive audio traffic is provided priority over data traffic and sometimes over video traffic, which is higher bandwidth and has random peaks and bursts.
- Video traffic, also latency sensitive, is provided priority over data traffic. Audio traffic is given priority over video since an occasional video artifact is more acceptable than an audio interruption.
- A QoS router will still reserve some bandwidth for data traffic even when there is audio and video traffic present.

If you obtain a QoS router from 8x8, it comes pre-configured to manage audio and video traffic, through port management and Differentiated Services (TOS / DSCP) management (provided by Edgewater routers).

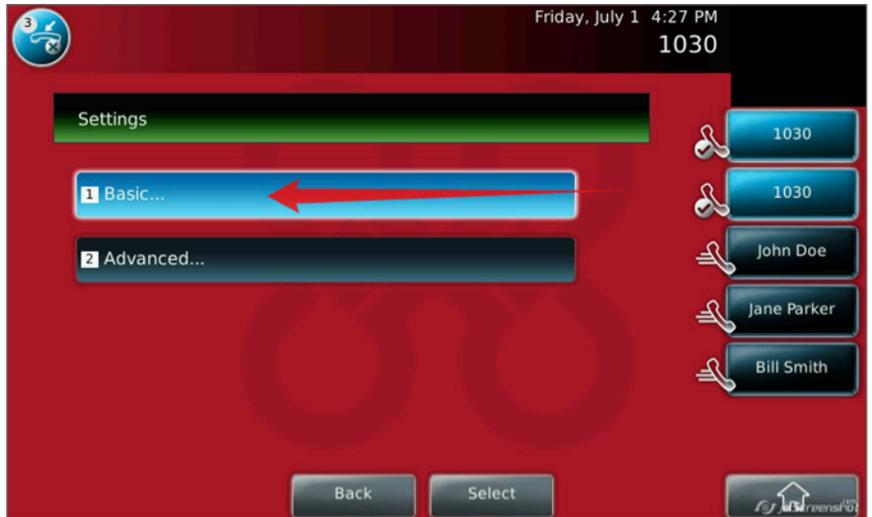
If you have another QoS-capable router, 8x8 Support can provide details on port and TOS/ DSCP parameters that your IT resource can use to correctly configure your router.

Adjusting Video Bandwidth For Polycom VVX Phones:

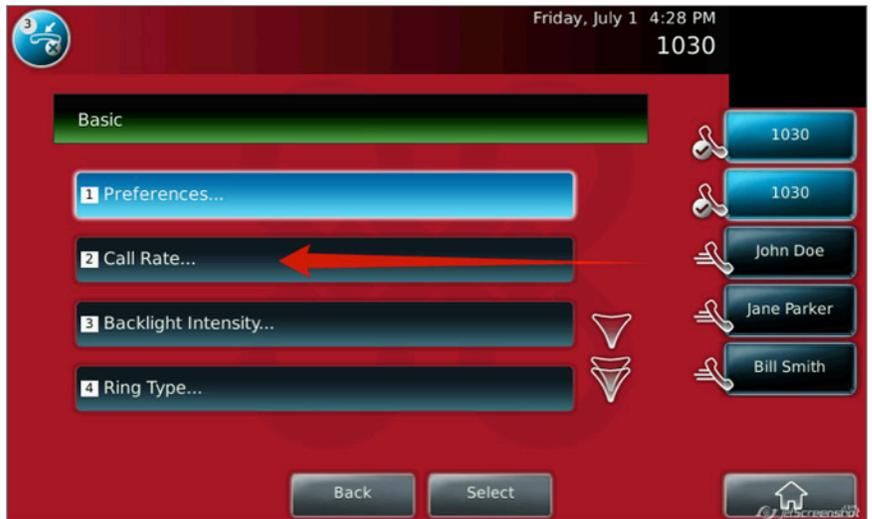
On the VVX video phone, navigate to the **Menu** (Phone Key) and select the **Settings** softkey.



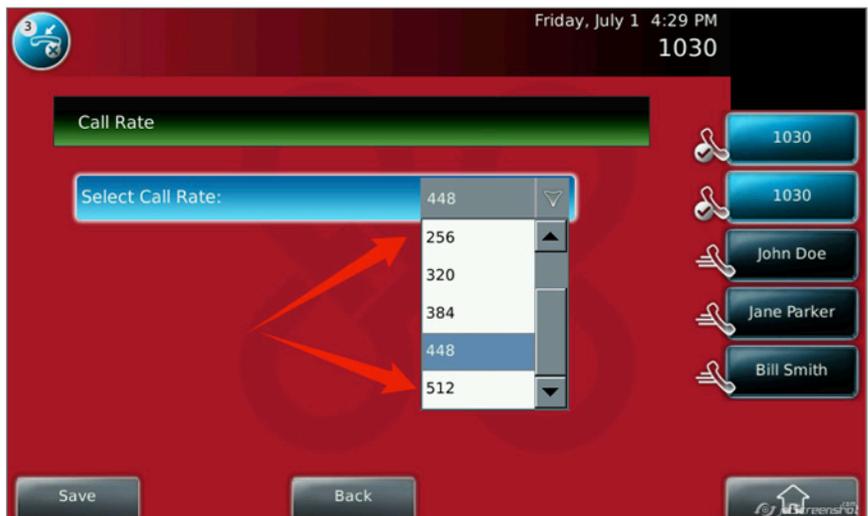
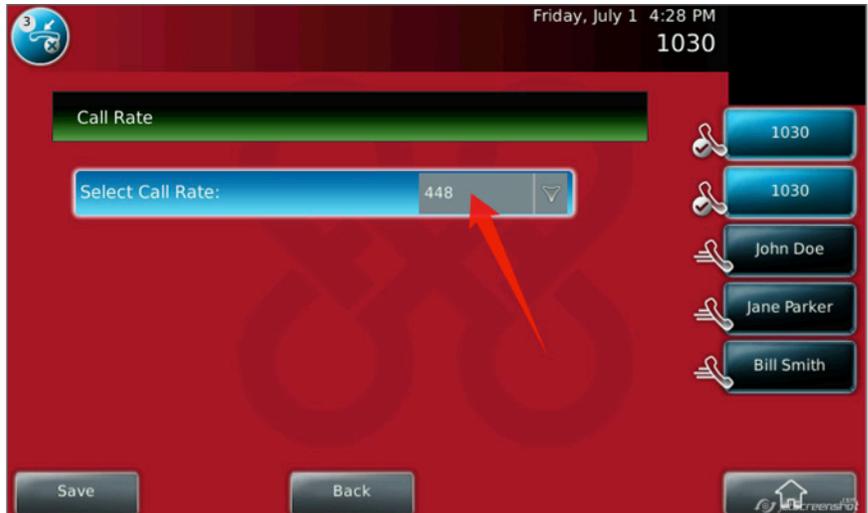
Next, select the **Basic** softkey.



Then select the **Call Rate** softkey.



Use the dropdown menu to select desired bandwidth.



Important: After selecting the desired bandwidth, press **Save**.

Polycom VVX Bandwidth Adjustment Options

The **Select Call Rate** setting is usually set at 448 kbps (the default). Your options are:

- Increase call rate to 512 for maximum video call quality.
 - This is recommended when your Internet connection has enough available bandwidth to allocate this rate to this endpoint, otherwise, video may be interrupted
- Decrease call rate to 384, 320, 256, 192, or 128 to reduce bandwidth consumed (lowers the video quality)
 - This is recommended in restricted bandwidth situations (uplink or downlink)



Point-to-point video calls: On point-to-point video calls the **Select Call Rate** setting sets your maximum bandwidth. However, your maximum bandwidth is also limited by the device you connect to. For example, if your Polycom VVX is set to 448 kbps but you are holding a video call with a Polycom VVX set to 384 kbps, your maximum bandwidth will be 384 kbps.

8x8 Virtual Room video conferences: On calls made to an 8x8 Virtual Room, your maximum bandwidth is set by your Virtual Room plan and your device call rate settings. The bandwidth will default to the lower number. The maximum video bandwidth for each Virtual Room plan is as follows:

Virtual Room Low Def	Virtual Room Standard Def	Virtual Room High Def
384 kbps	512 kbps	2048 kbps

This means that:

- If your VVX bandwidth is set to 384 kbps; calls made to a Low Def Virtual Room will be at 384 kbps.
- If your VVX bandwidth is set to 256 kbps, VVX calls made to a Low Def Virtual Room will be at 256 kbps.
- If your VVX bandwidth is set on anything up to 512, any calls made to a Standard or -High Def Virtual Room will be at the speed you have configured on your VVX up to 512 kbps.

Adjusting Video Bandwidth for the Polycom HDX

Obtain the IP address of the Polycom HDX

Using the HDX keypad, select the **Home** button.

Then, using the keypad to navigate, select **System**, then **System Information**.

You will see the IP Address labeled as IP Video Number.

Type in the HDX IP address into a PC browser

Using a PC on the same network subnet as the HDX, type in the HDX's IP into your PC's browser.

Login to the HDX

You will be prompted to login to the HDX. The default credentials are:

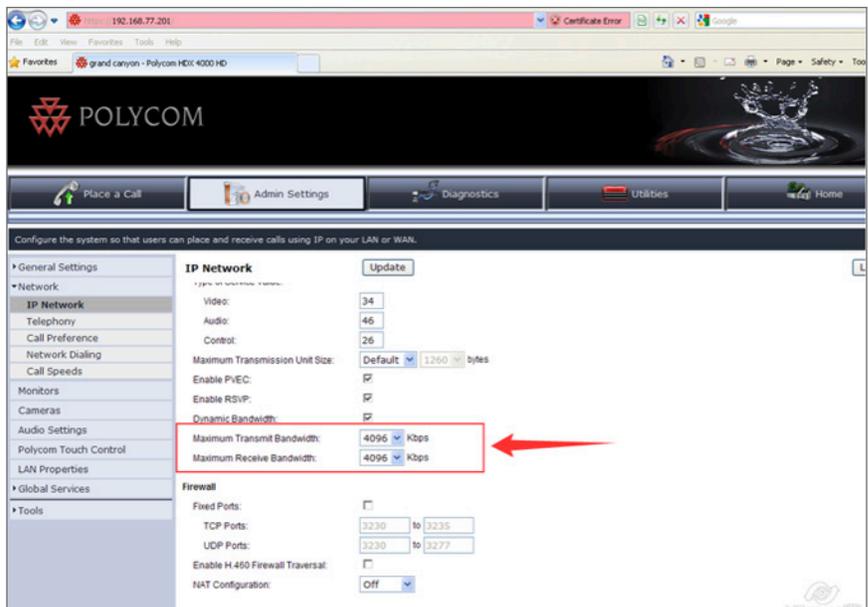
User ID: admin

Password: 12345678



Adjust Bandwidth and Call Speed Settings

Go to the Admin Settings tab at the top of the screen and select IP Network from the left menu.

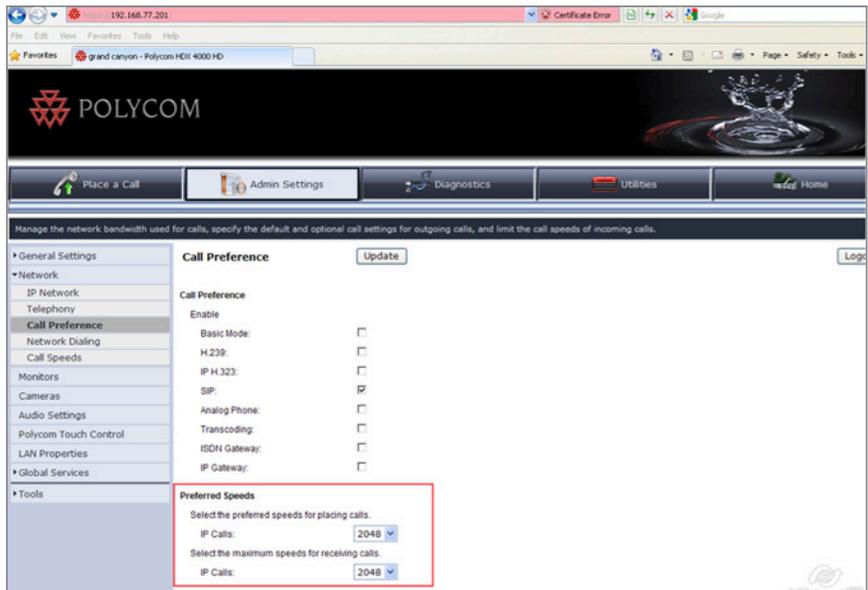


Adjust the **Maximum Transmit Bandwidth** and the **Maximum Receive Bandwidth** numbers to fit the available Internet connection bandwidth.

These values should be set at the maximum bandwidth that's available for the HDX device on the Internet connection (WAN). These values can be obtained from the Internet Service Provider or the HDX Installer can run a bandwidth test using a PC connected to the same connection as the HDX to obtain the WAN bandwidth. It's recommended the bandwidth test be run a few times and the median value be selected for this setting.

The preferred calling rate setting is usually defaulted to match the video definition of the device and can be adjusted by the customer or by the installer based on the bandwidth available at this customer site that can be allocated to the device, and the video quality desired.

Adjusting the preferred calling rate value too high or too low can result in poor video quality, so this is an important part of the installation process. The default setting could be tested in live video calls and if satisfactory, only adjust if conditions change. In this case, the test calls should be made during a busy hour to reflect the higher bandwidth situation. If the value must be set too low for good video quality, it is recommend that the customer upgrade the speed of their Internet connection.



CONFIGURATION GUIDE

Managing Bandwidth Usage on Polycom Video Devices

For example:

HD 1080p: 2048 kbps (good video quality at moderate video bandwidth)

HD 720p: 1024 kbps (good video quality at moderate video bandwidth)

- On calls made to a Virtual Room, the above setting will set your maximum bandwidth (only further rate limited by the Virtual Room you connect to)
 - On HDX calls made to a Low-Def Virtual Room, the call will be limited to 384kbps
 - On HDX calls made to a Standard-Def Virtual Room, the call will be limited to 512 kbps
 - On HDX calls made to a High-Def Virtual Room, the call will be limited to 2048 kbps
- If the HDX bandwidth is set lower than 2048 kbps, calls made to a High-Def Virtual Room will be made at that lower bandwidth
- On calls made point to point (to other HDXs or VVXs) the bandwidth will be limited to the lowest bandwidth setting of the two devices on the Video call.
 - If both HDXs are set at 2048 kbps the connection will be at 2048 kbps.
 - If one HDX is set at 2048 kbps is connected to a VVX set at 512 kbps, the video quality will be 512kbps



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