Poly VideoOS Miracast Performance

G7500, Studio X50, and Studio X30

Contents

Overview

Miracast is a standard for wireless connections introduced in 2012 by the Wi-Fi Alliance. It enables devices to share content wirelessly from laptops, tablets, or smartphones to TVs, monitors, or projectors.

The Wi-Fi Alliance defines the standards for Miracast with significant contributions from Microsoft. Many devices and operating systems support Miracast, including devices running Windows 8.1 and Windows 10, and devices from companies such as Samsung, LG, Roku, and Amazon.

Poly G7500, Poly Studio X50, and Poly Studio X30 support Miracast over Infrastructure (MICE) and Miracast Wi-Fi Direct. Both options use the Miracast protocol but operate through different types of connections and have different use cases.

Miracast over Infrastructure

Miracast over Infrastructure enables devices to communicate over existing network infrastructure (both wired and wireless LAN connections). While this solution requires an existing network connection, it provides a more stable connection by using standard network communications. See your system's *Poly Video Mode Administrator Guide* or *Poly Partner Mode Administrator Guide* for more information.

Enable Miracast over Infrastructure

By default, G7500, Studio X50, and Studio X30 systems enable Miracast Wi-Fi Direct. To use Miracast over Infrastructure, you must enable it on your system. See your system's *Poly Video Mode Administrator Guide* or *Poly Partner Mode Administrator Guide* for more information.

Miracast over Infrastructure Performance

Miracast over Infrastructure uses existing network connections. Performance depends on the quality of the network connection and the type of network connection the client device uses.

Your Poly video system can connect to Ethernet only or connect to Ethernet and a secondary Wi-Fi network. The video system uses the Ethernet network for the Miracast over Infrastructure connections. It doesn't support connecting with Miracast over Infrastructure using only the video system's Wi-Fi connection.

Note:	If your video system can't establish a connection with Miracast over Infrastructure, the client device typically falls back to a Miracast Wi-Fi Direct connection.

Miracast over Infrastructure Performance by Network Connection Configuration

Network Connection Configuration	*Performance*
Video system on Ethernet only Client device on Ethernet	This configuration provides optimal performance for Miracast sessions, assuming your network isn't experiencing packet loss. Connections have a high success rate, and the experience is more stable with less corruption of your audio and video content.
Video system on Ethernet only Client device on Wi-Fi	The performance of this configuration depends entirely on your Wi-Fi network performance, as signal strength can adversely impact the quality of the connection and create significant packet loss. A low signal strength may result in the following issues: • Inability to connect to the video system • Dropped connections • Low-quality audio/video with high latency To improve your experience, make sure that your Wi-Fi network signal strength is high and there is minimal interference on the Wi-Fi channel you're using.
Video system on Ethernet and Wi-Fi Client device on Ethernet	This configuration provides optimal performance for Miracast sessions, assuming your network isn't experiencing packet loss. Connections have a high success rate, and the experience is more stable with less corruption of your audio and video content.
Video system on Ethernet and Wi-Fi Client device on Wi-Fi	The performance of this configuration depends entirely on your Wi-Fi network performance, as signal strength can adversely impact the quality of the connection and create significant packet loss. A low signal strength may result in the following issues: • Inability to connect to the video system • Dropped connections • Low-quality audio/video with high latency To improve your experience, make sure your Wi-Fi network signal strength is high and there is minimal interference on the Wi-Fi channel you're using.

Miracast Wi-Fi Direct

Miracast Wi-Fi Direct is a peer-to-peer protocol that enables direct connections between devices. This connection doesn't require a wireless access point, so devices connect directly without additional network infrastructure.

Miracast Wi-Fi Direct is convenient to quickly *cast* content to a device. However, it does offer varying degrees of support on the client device, as it requires specific capabilities from both the Wi-Fi hardware and software.

Configure the Miracast Wi-Fi Direct Channel

G7500, Studio X50, and Studio X30 systems currently support Miracast Wi-Fi Direct only on the 2.4 GHz band. You can configure the channel under the Miracast settings in the system web interface.

Note:	Poly recommends that you configure the Miracast Wi-Fi Direct channel so it doesn't conflict with your wireless LAN. You may have a poor experience if the devices use the same or overlapping channels.

See your system's Poly Video Mode Administrator Guide or Poly Partner Mode Administrator Guide for more information.

Miracast Wi-Fi Direct Performance

Because Miracast Wi-Fi Direct requires specific hardware and software support, not all client devices behave in the same way or exhibit the same performance.

Poly strongly recommends that your client devices support MU-MIMO to enable the client to efficiently connect to both a wireless access point and Miracast Wi-Fi Direct at the same time. MU-MIMO is a technology that enables a Wi-Fi device to communicate with multiple devices simultaneously and enables much higher Wi-Fi network performance. Without MU-MIMO support, your device may fail to connect over Miracast Wi-Fi Direct or exhibit poor quality.

Miracast Wi-Fi Direct Performance by Network Connection Configuration

Network Connection Configuration	Performance
Video system on Ethernet only Client not on a network	Even though you don't connect the client device to a network, you must enable the wireless network capability on your client device to use this configuration.
	This is the only configuration where a client device that doesn't support MU-MIMO can still operate in a reliable way. The client device doesn't have to connect to a wireless access point and a Miracast Wi-Fi Direct connection at the same time.
	In this configuration, you can expect a reasonable connection and content quality with a latency of 50 to 200 ms. The quality of the connection depends on the proximity of the client device to the video system. For optimal performance, Poly recommends keeping your client device within 15.25 m (50 ft) of the video system.
Video system on Ethernet only Client device on Wi-Fi	This configuration requires full MU-MIMO support on the client device. If the client device doesn't fully support MU-MIMO, the client device must frequently switch Wi-Fi frequencies, resulting in significant connection and quality issues.
	In this configuration, you can expect a reasonable connection and content quality with a latency of 50 to 200 ms. The quality of the connection depends on the proximity of the client device to the video system. For optimal performance, Poly recommends keeping your client device within 15.25 m (50 ft) of the video system.

Network Connection Configuration	Performance
Video system on Ethernet and Wi-Fi Client device on Ethernet or Wi-Fi	This configuration uses the ability to configure the video system's secondary network to provide wireless access for a guest network or similar configuration. The video system also connects to Ethernet to ensure maximum quality for video calls.
	In this configuration, the channel setting for Miracast Wi-Fi Direct is disabled in the video system web interface, and the system automatically configures Miracast channel to use the same channel as the wireless access point connection. This ensures better quality for the wireless connection due to limited frequency switching.

Supported Platforms

A variety of devices support the Miracast standard, including devices running Windows 8.1, Windows 10, and Android.

Android devices supported Miracast as of version 4.2, but Miracast support was removed in Android 6.0. Some device manufacturers provide their own Miracast support. Check with your device manufacturer for details.

Windows 10 has included Miracast support for some time, however there are known issues with releases earlier than version 1903. Therefore, Poly only supports Windows version 1903 and later and strongly recommends using version 2004.

Windows 10 Versions That Support Miracast

Windows 10 Version	Notes
Version 2004 and later	PIN negotiation is properly supported. Known issue: Canceling a connection attempt during a PIN request may result in a Windows 10 Explorer *soft hang*. Resolved with Microsoft [KB 4577063](#) (OS 2004 Build 19041.546).
Version 1903 Version 1909	PIN negotiation is properly supported. Known issue: Canceling a connection attempt during a PIN request may result in a Windows 10 Explorer *soft hang*. Resolved with Microsoft [KB 4577062](#) (OS 1903 Build 18362.1110 and OS 1909 Build 18363.1110).
Version 1709 Version 1803 Version 1809	PIN negotiation may not be supported, resulting in unauthenticated connections.
Version 1703 and earlier	Only supports a PIN request on the first connection. All future connections to the video system don't require a PIN.

Troubleshooting

Use the following information to troubleshoot Miracast connection issues.

Updating Windows Drivers

Microsoft generally recommended by Microsoft to ensure you are running the latest Wi-Fi drivers on the Miracast client. Go into the Device Manager, open the Wi-Fi adapter and check for an updated driver version.

If you are using a Surface Pro 3 or Surface Pro 4, Microsoft recommends the installation of hotfix 3120232 (https://support.microsoft.com/en-us/help/3120232/poor-wireless-performance-on-5-ghz-connections-on-surface-pro-3-and-su).

Test for Miracast Support

To ensure your device supports Miracast you can perform the following steps:

1. Press Windows Key + R
2. Type `dxdiag`
3. Click Save all information.
4. Open the saved dxdiag.txt and search for *Miracast*.

If Miracast is supported you will see the message "Available, with DHCP."

Testing for MU-MIMO Support on Windows

» To check for MU-MIMO support on a Windows device, open a command prompt and enter the following command:

» `netsh wlan show all`

Under the section titled **Wireless Device Capabilities**, you will see an entry for MU-MIMO that will indicate whether is supported.

Windows Firewall

➢ The Windows firewall may block Miracast network traffic. To validate if this is happening on your device, disable the firewall and test your Miracast connection. If Miracast works you can add a firewall exception for:

C:\Windows\System32\WUDFHost.exe

➢ Allow In/Out connections for TCP and UDP, Ports: All.

Get Help

For more information about installing, configuring, and administering Poly/Polycom products or services, go to the Poly Online Support Center.

Related Poly and Partner Resources

See the following sites for information related to this product.

- The Poly Online Support Center is the entry point to online product, service, and solution support information including Video Tutorials, Documents & Software, Knowledge Base, Community Discussions, Poly University, and additional services.

- The Polycom Document Library provides support documentation for active products, services, and solutions. The documentation displays in responsive HTML5 format so that you can easily access and view installation, configuration, or administration content from any online device.

- The Poly Community provides access to the latest developer and support information. Create an account to access Poly support personnel and participate in developer and support forums. You can find the latest information on hardware, software, and partner solutions topics, share ideas, and solve problems with your colleagues.

- The Poly Partner Network are industry leaders who natively integrate the Poly standards-based RealPresence Platform with their customers' current UC infrastructures, making it easy for you to communicate face-to-face with the applications and devices you use every day.

- The Polycom Collaboration Services help your business succeed and get the most out of your investment through the benefits of collaboration.

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