

# MS Teams Guidance for Evolve IP DaaS

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## Overview

This article provides guidance for running Microsoft Teams in the Evolve IP Cloud. Specifically, VMware & Citrix DaaS. For customers wishing to utilize the fully installed Microsoft Teams client within an Evolve IP DaaS product, please refer to the compatibility information in this article.

## WebRTC for Real Time Audio Video (RTAV)

WebRTC is an open standard capable of redirecting video, voice, and data in a peer-to-peer fashion from one instance/endpoint to another.

The Citrix endpoint client makes use WebRTC, and for MS Teams, this works by making audio & video stream connections to/from the user's local endpoint and the DaaS virtual machine. Because the connection is made directly between the devices, the encoding of the audio and video streams are offloaded to the local endpoint, which reduces latency and improves video quality.

Citrix has implemented WebRTC in the Windows 10 version of their endpoint client. Mac and Linux are on the roadmap, but there is no release date yet.

Citrix has made WebRTC aware of MS Teams, so that the applications can provide feedback regarding the experience. Finally, WebRTC performance seems to also be dependent on media capabilities of the local endpoint and because of all of the components and connections involved, reliability establishing the connection is less than perfect.

VMware's new optimizations also use the WebRTC components to accomplish the same effect, and this solution has been officially recognized by Microsoft as supported. The required media optimization components are part of the Horizon Agent and Horizon Client by default and there's no need to install any additional plug-in to use the optimization feature for Teams.

### RTAV Resources

- [WebRTC.org](https://webrtc.org)
- [WebRTC and Citrix](#)
- [WebRTC and VMware](#)

## Microsoft Teams Experiences in Evolve IP DaaS

The table below provides guidance w/ general end-user experience running MS Teams inside VMware DaaS & Citrix DaaS. Both VMware & Citrix DaaS have a different approach to handling RTAV compared to Azure Virtual Desktops (AVD). See experience estimates below.

Metric	Local Endpoint (Desktop, Laptop*****)	VMware DaaS (Windows 10 Endpoint*)	VMware DaaS (Thin /Zero Client***)	Citrix DaaS (Windows 10 Endpoint**)	Citrix DaaS (Thin /Zero Client****)	AVD w/ RDP (Win 10 Endpoint)	AVD w/ RDP (Thin /Zero Client****)
Outbound Video Quality	★★★★★	★★★★	★★	★★★★★	Not Supported *****	TBD Pending Future Update ****	Not Supported ****
Inbound Video Quality	★★★★★	★★★★★	★★★ ★	★★★★★	Not Supported *****	TBD Pending Future Update ****	Not Supported ****
Audio Quality (In /Out)	★★★★★	★★★★★	★★★ ★	★★★★★	Not Supported *****	TBD Pending Future Update ****	Not Supported ****
Overall RTAV Experience	★★★★★	★★★★★	★★★★	★★★★★	★★★★	★★★★	★★★★
Screen Sharing	✓	✓	✓	✓	✓	✓	✓
File Sharing	✓	✓	✓	✓	✓	✓	✓
Chat	✓	✓	✓	✓	✓	✓	✓

\*Win10 Pro w/ VMware Horizon 5.4.2, w/ Media Optimization for MS Teams, DaaS View Agent 7.3.1

\*\*Win10 Pro w/ Citrix Workspace Client 20.2.0.25, MS Teams HDX Optimized on VDA

\*\*\* ThinOS or ZeroOS, Win10 IOT thin client not in scope for testing. ThinOS version 8.x, used for testing.

\*\*\*\* Based on 3/19/20 Azure [AVD KB](#)

\*\*\*\*\* Does not support RTAV or RTA for Dell Wyse 3040

\*\*\*\*\* The best RTAV experience utilizes the local endpoint resources versus leveraging the resources and RTAV optimizations of a virtualized environment.

### Testing Notes & Important Considerations



Evolve IP recommends client testing of any RTAV experience before purchase via sales demo platform, which is currently available for VMware & Citrix DaaS.

1. DaaS CPU tested with both 2vCPU and 4vCPU as well as 4 GB RAM (Standard Seat) and 8 GB Ram (Premium Seat). Higher level seat provides greater multi-tasking capability, 2vCPU vs 4 vCPU did not significantly improve experience.
2. Blast, PCoIP protocol on both thinOS and PCoIP Zero clients all yielded a similar experience.
3. Win10 IoT thin clients not recommended due to high price-to-performance cost and high management overhead with minimal benefit vs standard Win10 endpoint.
4. Only VMware & Citrix DaaS were tested due to other protocols (i.e. RDP on AVD, Ericom, etc.) not having any published optimized MS Teams guidance.

## MS Teams Inside Evolve IP DaaS - Citrix

Evolve IP DaaS powered by Citrix technology, is certified and optimized as well as supported by Evolve IP. The matrix below shows compatibility between Teams and Citrix - DaaS. Note, Citrix is a session-based delivery allowing companies to share resources of a group of servers.

DaaS	RTAV Support	Microsoft Certified	Optimized for MS Teams	Important Notes
Citrix Published Applications	NA	NA	NA	Microsoft does not support Microsoft Teams as a Published application.
Citrix 2vCPU; 4GB RAM	✗	✓	✓	This DaaS desktop meets the minimum requirements for MS Teams WITHOUT RTAV enabled. Evolve IP does not recommend this size for MS Teams with RTAV
Citrix 2vCPU; 8GB RAM	✓	✓	✓	This DaaS desktop meets the minimum requirements for MS Teams WITH RTAV enabled. However, the experience is poor when running other applications alongside MS Teams. Evolve IP does not recommend this size for MS Teams with RTAV.
Citrix 4vCPU; 16GB RAM	✓	✓	✓	Supports <u>all</u> MS Teams features. Evolve IP recommends this size for MS Teams with RTAV.

### Feature Limitations

- Citrix optimized MS teams provides a single incoming video stream during group calls. When there are multiple participants sending their video, only the dominant speaker's video is shown at any time. This is also true for any version of Chrome. MS Edge **does** support multiple RTAV streams.
- When doing screen sharing in multi-monitor setups, it's possible only the user's main monitor is shared.
- During screen sharing, give control/take control may not be supported.

## Resources

- The Citrix [Optimization Guide for Microsoft Teams](#) is a public guide that outlines all of the requirements for configuring the virtual desktop environment (EIP responsibility), and the endpoint devices accessing a virtual desktop (client responsibility). The optimization guide includes the following:
  - Minimum endpoint requirements (hardware, operating systems, and software)
  - Recommended peripherals (headsets & webcams).
  - A list of supported thin clients from multiple vendors.
  - Network considerations, and call flow information.
  - Known limitations, and some troubleshooting information.

## Dual Tone Multi Frequency (DTMF) and Teams Voicemail Limitation

DTMF allows a Teams user to send a dial tone to their voicemail to log in and set up their greeting, for example.

Evolve IP has seen with the latest version of Citrix VDA, Citrix Workspace App, and Teams (Optimized) installed that DTMF issues mostly go away.

Evolve IP has seen that when using earlier versions of the Citrix VDA, Citrix Workspace App, and Teams (Optimized), when a Citrix VDI user called into a meeting using the dial-in number, the call was connected, but users were not admitted to the meeting because DTMF tone was not sent.

Now that the feature is supportable, when the same user enters the conference ID, DTMF will recognize the ID being entered and admit user to the meeting.

The CWA versions that will support DTMF are:

- CWA for Windows 2102 or higher
- CWA for Linux 2101 or higher
- CWA for MAC 2101 or higher

## Teams Noise Suppression

Microsoft Teams offers three levels of noise suppression to help keep meeting participants focused. Presently this feature is not supported in Workspaces.

This is the [link](#) to the article that explains where to go to select the setting and the differences between the three suppression levels.

## MS Teams Inside Evolve IP DaaS - VMware

The below VMware Horizon DaaS support matrix provides information as it relates to MS Teams. Note, Evolve IP DaaS is a dedicated one-to-one deployment model providing clients with a dedicated CPU /RAM desktop.

Desktop	Specs	RTAV Support	MS Teams Experience	Important Notes
DaaS Standard Seat	2vCPU, 4GB RAM	✓	✗	MS Teams will function. However, RTAV performance may saturate the DaaS standard seat. Heavy multi-tasking is not recommended while on a video call. Inbound video performance and bi-directional audio quality tested excellent. Outbound video performance may be slow and grainy at times depending on users behavior and system configuration.
DaaS Premium Seat	2vCPU, 8GB RAM	✓	⚠	MS Teams will function. Light multi-tasking OK on a video call. Inbound video performance and bi-directional audio quality tested excellent. Outbound video performance is acceptable. User experience and performance will vary based on users behavior and system configuration.
DaaS Ultimate Seat	2vCPU, 16GB RAM	✓	✓	MS Teams will function. Most multi-tasking OK on a video call. Inbound video performance and bi-directional audio quality tested excellent. Outbound video performance is good. User experience and performance will vary based on users behavior and system configuration.



Horizon Client 2212.1			✓	✓			✓		
Horizon Agent Installer 20.3.1.19264881									
Horizon Client 2212 - 21079405		✓				✓*			✓
Horizon Agent Installer 20.3.1.19264881									
Horizon Client 2209					✓			✓	
Horizon Agent Installer 20.3.1.19264881									
Horizon Client 2206	✓					✓*		✓	
Horizon Agent Installer 20.3.1.19264881									

## MS Teams Outside of Evolve IP DaaS

- Evolve IP can provide best-effort configuration assistance at best.
- Troubleshooting for DaaS will be the responsibility of the customer's DaaS provider who is "outside" or said another way, not Evolve IP.
- Due to this being the customer's deployment we can only offer guidance based on vendor documentation and that is the limit of our support.
- We recommend that all agents and software are running the latest version that is publicly available.
- Evolve IP can provide a demo seat to test OUR deployment of Teams with Citrix.
  - Two week proof of concept (POC) is in play
  - This is the normal POC process to validate functionality on an Evolve IP platform.