



# Citrix Workspace app for Mac

## Contents

<b>Citrix Workspace app for Mac</b>	<b>3</b>
<b>About this release</b>	<b>5</b>
<b>Features in Technical Preview</b>	<b>87</b>
<b>Native support for Mac with Apple Silicon (M1 and M2 series)</b>	<b>107</b>
<b>Citrix Workspace app 2405 for Mac - Preview</b>	<b>110</b>
<b>System requirements and compatibility</b>	<b>130</b>
<b>Install, uninstall, and upgrade</b>	<b>137</b>
<b>Update</b>	<b>141</b>
<b>Configure Citrix Workspace app</b>	<b>150</b>
<b>Mobile Device Management</b>	<b>151</b>
<b>Store configuration</b>	<b>159</b>
<b>Security and Authentication</b>	<b>164</b>
<b>Authenticate</b>	<b>164</b>
<b>Security</b>	<b>171</b>
<b>Secure communications</b>	<b>173</b>
<b>App experience</b>	<b>181</b>
<b>Application delivery</b>	<b>181</b>
<b>Enhanced virtual apps and desktops launch experience for Workspace (Cloud users only)</b>	<b>183</b>
<b>App preferences</b>	<b>184</b>
<b>Data collection and monitoring</b>	<b>200</b>
<b>HDX and multimedia</b>	<b>202</b>
<b>Graphics and display</b>	<b>203</b>
<b>Optimized Microsoft Teams</b>	<b>208</b>

<b>HDX transport</b>	<b>214</b>
<b>Devices</b>	<b>215</b>
<b>Audio and Microphone</b>	<b>215</b>
<b>Client drive mapping</b>	<b>218</b>
<b>Keyboard</b>	<b>218</b>
<b>Printing</b>	<b>235</b>
<b>USB</b>	<b>237</b>
<b>Webcam</b>	<b>242</b>
<b>Session experience</b>	<b>244</b>
<b>Troubleshooting</b>	<b>252</b>
<b>Deprecation</b>	<b>255</b>

## Citrix Workspace app for Mac

May 24, 2024

Citrix Workspace app for Mac is an easy-to-install app that provides access to your applications and desktops using Citrix Virtual Apps and Desktops and Citrix DaaS (formerly Citrix Virtual Apps and Desktops service) from a remote client device. Citrix Workspace app for Mac combines ease of deployment and use, and offers quick, secure access to hosted applications and desktops.

For detailed information about the features, fixed issues, and known issues, see the [About this Release](#) page.

For information about deprecated items, see the [Deprecation](#) page.

You can use Citrix Workspace app on various devices running macOS. For information about the features available in Citrix Workspace app for Mac, see [Citrix Workspace app Feature Matrix](#).

### Language support

Citrix Workspace app for Mac is adapted for use in languages other than English. For a list of languages supported by Citrix Workspace app for Mac, see [Language support](#).

### Earlier versions

[Citrix Workspace app 2402 for Mac](#) (PDF Download)

[Citrix Workspace app 2311 for Mac](#) (PDF Download)

[Citrix Workspace app 2309 for Mac](#) (PDF Download)

[Citrix Workspace app 2308 for Mac](#) (PDF Download)

[Citrix Workspace app 2307 for Mac](#) (PDF Download)

[Citrix Workspace app 2306 for Mac](#) (PDF Download)

[Citrix Workspace app 2305 for Mac](#) (PDF Download)

[Citrix Workspace app 2304 for Mac](#) (PDF Download)

[Citrix Workspace app 2301.1 for Mac](#) (PDF Download)

[Citrix Workspace app 2301 for Mac](#) (PDF Download)

[Citrix Workspace app 2211 for Mac](#) (PDF Download)

[Citrix Workspace app 2210 for Mac](#) (PDF Download)

[Citrix Workspace app 2209 for Mac](#) (PDF Download)

[Citrix Workspace app 2208.1 for Mac](#) (PDF Download)

[Citrix Workspace app 2206.1 for Mac](#) (PDF Download)

[Citrix Workspace app 2204 for Mac](#) (PDF Download)

[Citrix Workspace app 2203.1 for Mac](#) (PDF Download)

[Citrix Workspace app 2201 for Mac](#) (PDF Download)

[Citrix Workspace app 2112 for Mac](#) (PDF Download)

[Citrix Workspace app 2111 for Mac](#) (PDF Download)

[Citrix Workspace app 2110 for Mac](#) (PDF Download)

[Citrix Workspace app 2107 for Mac](#) (PDF Download)

[Citrix Workspace app 2104 for Mac](#) (PDF Download)

[Citrix Workspace app 2102 for Mac](#) (PDF Download)

[Citrix Workspace app 2101 for Mac](#) (PDF Download)

Documentation for these product versions is provided as PDFs because they are not the latest versions. For the most recently updated content, see [Citrix Workspace app for Mac](#) current release documentation. That documentation includes instructions for upgrading from earlier versions.

**NOTE:**

Links to external websites found in these PDFs take you to the correct pages, but links to other sections within the PDF are no longer usable.

### Reference articles

- [Tech Brief: Citrix Workspace](#)
- [Developer Documentation](#)
- [Global App Configuration service](#)
- [App Protection](#)
- [Workspace user interface \(UI\)](#)
- [Microsoft Teams optimization in Citrix Virtual Apps and Desktops environments](#)
- [Citrix Workspace app for iOS](#)
- [Citrix Workspace app release timelines](#)

### What's new in related products

- Citrix Enterprise Browser: [About this release](#)

- Citrix Workspace: [What's new](#)
- Citrix DaaS: [What's new](#)
- StoreFront: [What's new](#)
- Secure Private Access: [What's new](#)

## Legacy documentation

For product releases that have reached End of Life (EOL), see [Legacy documentation](#).

## About this release

June 5, 2024

Learn about new features, enhancements, fixed issues, and known issues for Citrix Workspace app for Mac.

A list of features in Technical Preview is maintained in the [Features in Technical Preview](#) section, so you can find them in one place. Explore our preview features and share your feedback using the attached Podio form link.

### Note:

The auto-update service is supported on version 2304 or later. If you're using Citrix Workspace app for Mac versions 2301 or earlier, you can't update to the latest versions through the auto-update service. Instead, you need to manually install Citrix Workspace app for Mac versions 2304 or later by downloading the .dmg file available on the [Downloads](#) page. For more information, see [Manual install](#).

## Native support for Mac with Apple Silicon (M1 and M2 Series) Universal architecture

With the release of the Universal Architecture build, Citrix Workspace app now provides native support for Macs with Apple silicon (M1 and M2 series). The Universal Architecture build can run on any Mac device, irrespective of their processor architecture.

If you are using the x86\_64 Intel-based architecture build of Citrix Workspace app for Macs with Apple Silicon, then you must use Rosetta emulation to run the app.

You can download the latest version of Universal Architecture build and x86\_64 Intel-based Architecture build at [Downloads](#).

### Note:

Citrix continues to support Intel-based Macs and Macs with Apple Silicon (M1 and M2 Series). However, Citrix will soon deprecate the x86\_64 Intel-based Architecture build for Intel-based Macs. Citrix continues to support Universal Architecture build for both Intel-based Macs and Macs with Apple Silicon (M1 and M2 Series). Keep a look out for an announcement in the [Deprecation](#) section.

If you're using Citrix Workspace app on a Mac running Mac with Apple silicon (M1 and M2 Series), you must upgrade the HDX RealTime Optimization Pack (RTOP). This upgrade ensures that the audio-video conferencing and Voice over Internet Protocol enterprise telephony through Microsoft Skype for Business is optimized. You can install the HDX RealTime Media Engine 2.9.500 for Mac from the Citrix website at [Downloads](#).

If your organization uses any third-party plug-ins or virtual channels, you must ensure that these plug-ins are compatible with Macs running Apple silicon. If the plug-ins are developed in-house then you must rebuild these plug-ins before installing the universal architecture build.

For more information such as uninstalling the universal architecture build or using the Custom Virtual Channel SDK (VCSDK), see [Native support Apple silicon](#) section.

### What's new in 2402.10

This 2402.10 release addresses a few issues that help to improve overall performance and stability.

#### Enhancements to quit functionality of Citrix Workspace app

Starting with the 2402.10 version, the quit functionality of Citrix Workspace app is improved and matches Apple's Quit menu behavior. When you exit the Citrix Workspace app using one of the following options, the app closes and no longer runs in the background.

- **Quit Citrix Workspace** from the menu bar,
- **Quit** from the dock,
- **Quit** from the Quick Access menu, or
- Press the **Command-Q** keys.

#### Fixed issues in 2402.10

- The security vulnerability that allowed local authenticated users to elevate their privileges to root users has been fixed. For more information, see [CTX675851](#). [CVE-2024-5027]

## Known issues in 2402.10

- If the Force Ephemeral Profiles setting is enabled through the Global App Configuration service for Citrix Enterprise Browser, and the user closes the browser window(s) without quitting the browser, it goes into a state where creating new tabs and typing into the omnibox might not function as expected. As a workaround, the user should quit the browser completely and then reopen it. [CTXBR-8738]

## Earlier releases

This section lists features in previous releases along with their fixed and known issues. Releases reach End of Life (EOL) 18 months after the release date. For details about lifecycle dates for the supported versions, see [Lifecycle Milestones for Citrix Workspace app and Citrix Receiver](#).

## 2402

### What's new

**Improved loading experience of virtual apps and desktops for on-premises deployments** Citrix Workspace app for Mac has improved the first-time user experience for on-premises deployments. After successful authentication, the enumeration of virtual apps and desktops is faster than before.

**Support for H.265 video decoding** Starting with the 2402 version, Citrix Workspace app for Mac supports the use of the H.265 video codec (HEVC) for hardware acceleration of remote graphics and videos. The h.265 video codec (HEVC) supports YUV 4:2:0 color space by default. H.265 video codec must be supported and enabled on both the VDA and Citrix Workspace app. If your Mac device doesn't support H.265 decoding using the VideoToolbox interface, then the H.265 decoding for graphics policy setting is ignored and the session falls back to the H.264 video codec. For more information, see [Support for H.265 video decoding](#).

**Support for system shortcuts on HDX desktop sessions** Previously, the system keyboard shortcuts such as **Option-Command-ESC**, **Command-Space bar**, **Command-Tab**, **Control-Command-Q**, **Shift-Command-Q**, **Control Up/Down/Left/Right** took effect only on macOS locally since they were consumed by macOS at first.

Starting with the 2402 version, Citrix Workspace app for Mac supports passing the macOS system keyboard shortcuts to the VDA (HDX session) in window mode and full-screen mode. This feature allows you to set preferences on how the system shortcut must take effect on macOS locally or the HDX desktop session in window or full-screen mode.



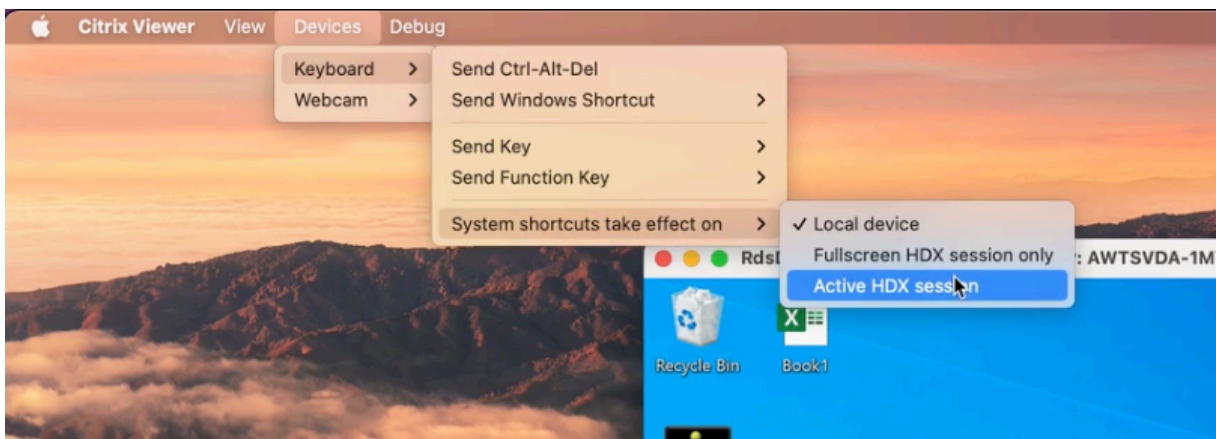
The following options in the keyboard settings allow you to control the system shortcuts:

- **Local device:** The system shortcuts can take effect only on macOS locally. It does not affect the HDX session. The **Local device** option is the default option.
- **Fullscreen HDX session only:** The system shortcuts take effect on HDX sessions when the session is in full-screen mode. If the session is in window mode or there are no active sessions, then the system shortcuts have no effect on HDX sessions.
- **Active HDX session:** The system shortcuts take effect on HDX sessions when the session is in window mode and full-screen mode. If there is no active HDX session or the active session window on the front, then the system shortcuts can take effect only on the macOS locally.

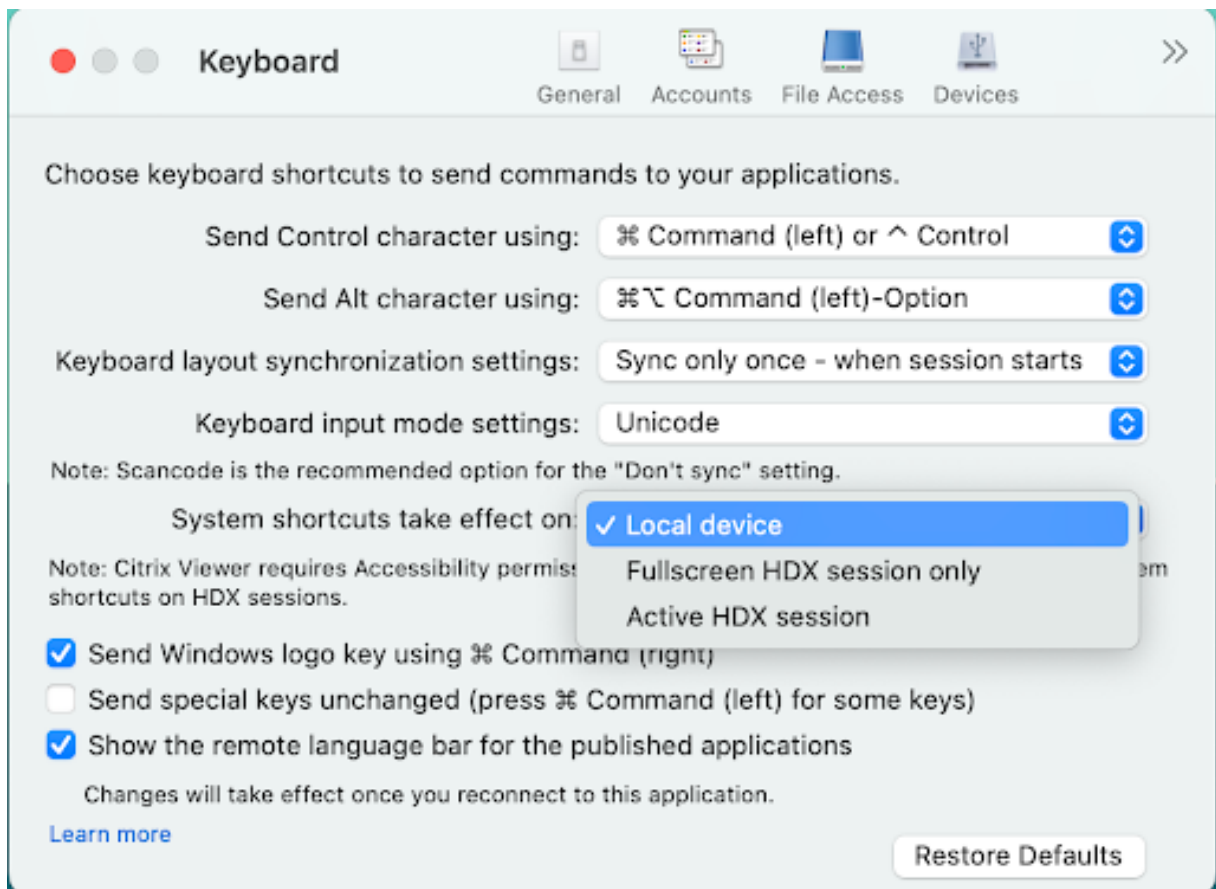
To enable the system shortcuts to take effect on the HDX session, open the HDX session. In the **Citrix Viewer** menu bar, navigate to **Devices > Keyboard > System shortcuts take effect on** and select **Fullscreen HDX session only** or **Active HDX session**.

**Note:**

When enabling system shortcuts for HDX sessions, you are prompted to provide accessibility access to Citrix Viewer to use this feature. To provide accessibility access to **Citrix Viewer**, click **Open System Settings** in the dialog box and enable accessibility access to **Citrix Viewer**. For more information, see [Allow accessibility apps to access your Mac](#) in the Apple support article.

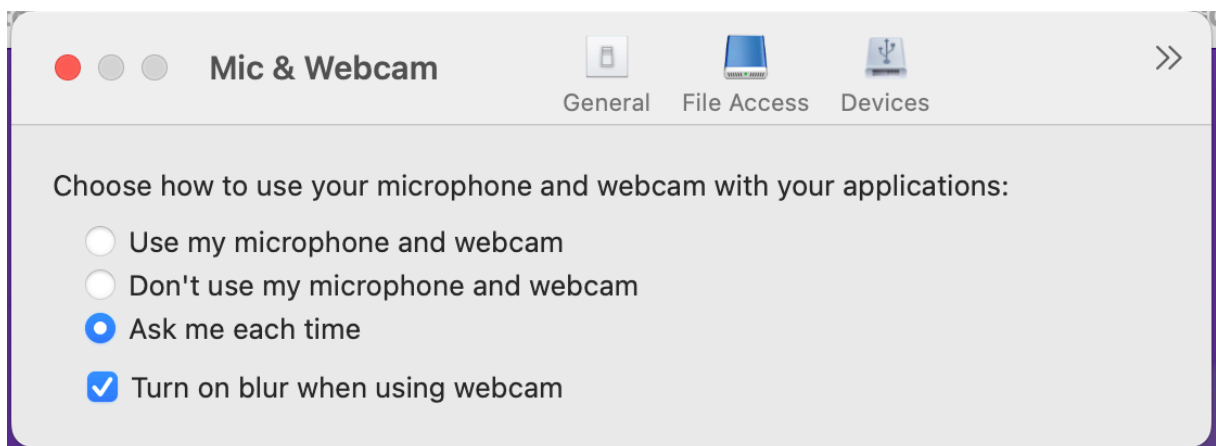


Alternatively, you can enable the system shortcuts to take effect on HDX sessions in full-screen or window mode by navigating to **Preferences > Keyboard**. Select **Fullscreen HDX session only** or **Active HDX session** options from the **System shortcuts take effect on** drop-down menu.



For more information, see [Support for system shortcuts on HDX desktop sessions](#).

**Support for background blur for webcam** Starting with the 2402 version, Citrix Workspace app for Mac supports background blur when using a webcam. You can enable the background blurring feature by navigating to **Preferences > Mic & Webcam** and select **Turn on blur when using webcam**. For more information, see [Support for background blur for webcam](#).



**Support for audio volume synchronization** Previously, audio volume control is independent between the Virtual Delivery Agent (VDA) and your device. You've to adjust the volume on both sides to maintain the desired volume. Also, if you've muted the volume in your device, then it restricts to unmute the volume in the VDA.

Starting with the 2402 version, Citrix Workspace app for Mac supports synchronization of audio volume between the VDA and your audio devices. You can now tune the volume using the VDA audio volume slider and have the same volume on your device and the other way around. By default, this feature is enabled. For more information, see [Support for audio volume synchronization](#).

**Loss tolerant mode for audio** Starting with the 2402 version, Citrix Workspace app supports loss tolerant mode (EDT lossy) for audio redirection. This feature improves the user experience for real-time streaming when users are connecting through networks with high latency and packet loss. By default, this feature is enabled. For more information, see [Loss tolerant mode for audio](#).

**Upgraded HDX Reducer to Version 4** Previously, Citrix Workspace app for Mac supported HDX Reducer V3. Starting with the 2402 version, Citrix Workspace app for Mac supports HDX Reducer V4. This feature reduces the network bandwidth required for a typical session and improves response time. For more information, see [Upgraded HDX Reducer to Version 4](#).

**Support for screen sharing when App Protection is enabled** Starting with the 2402 version, you can share content through Microsoft Teams with HDX optimization, even when App Protection is enabled. With this feature, you can share a screen in the virtual desktop session to its full potential. For more information, see [Compatibility with HDX optimization for Microsoft Teams](#).

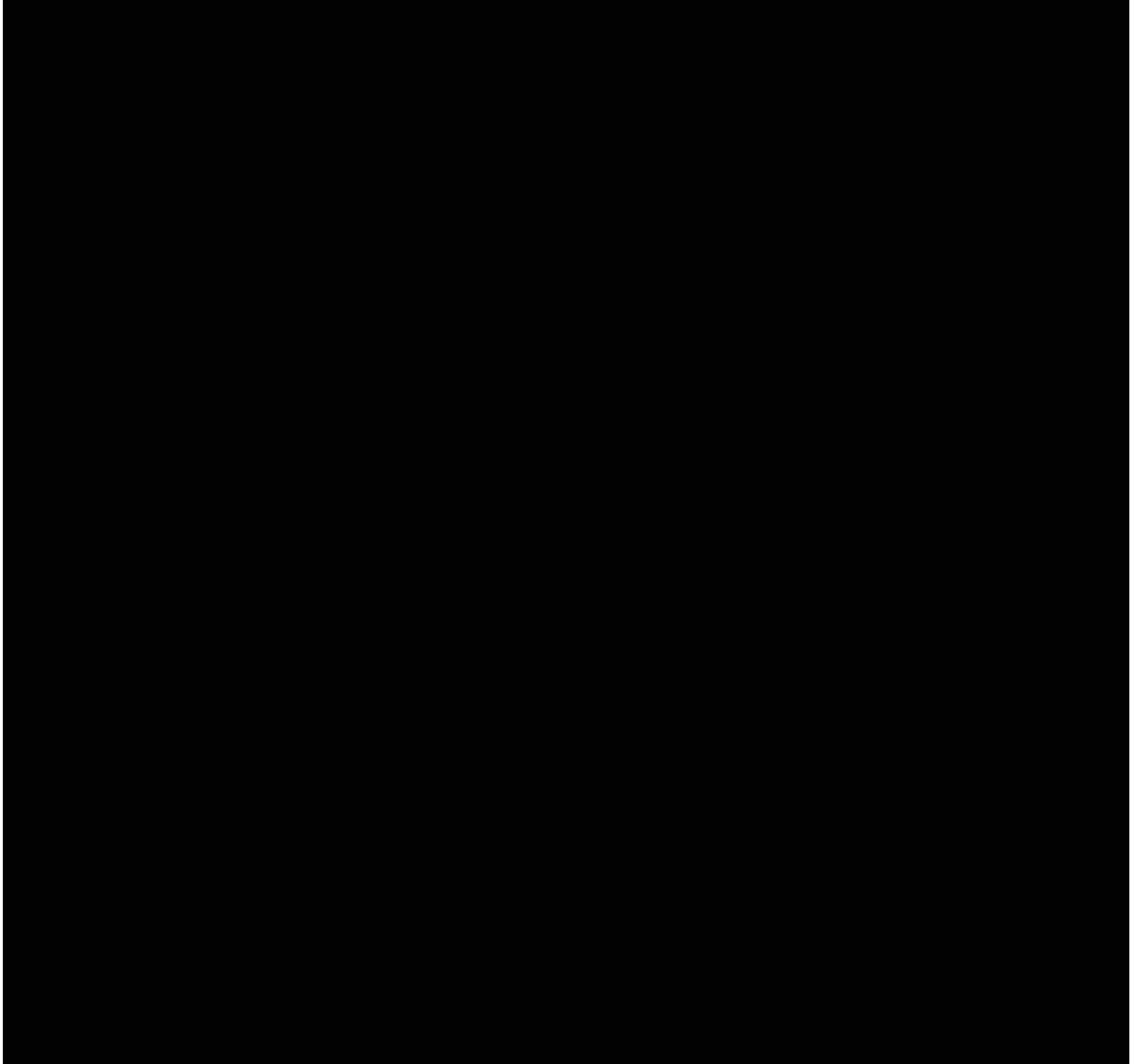
**Enhanced Global App Configuration service** Starting with the 2402 version, the enhanced Global App Configuration service (GACS) for Citrix Workspace now supports the following features:

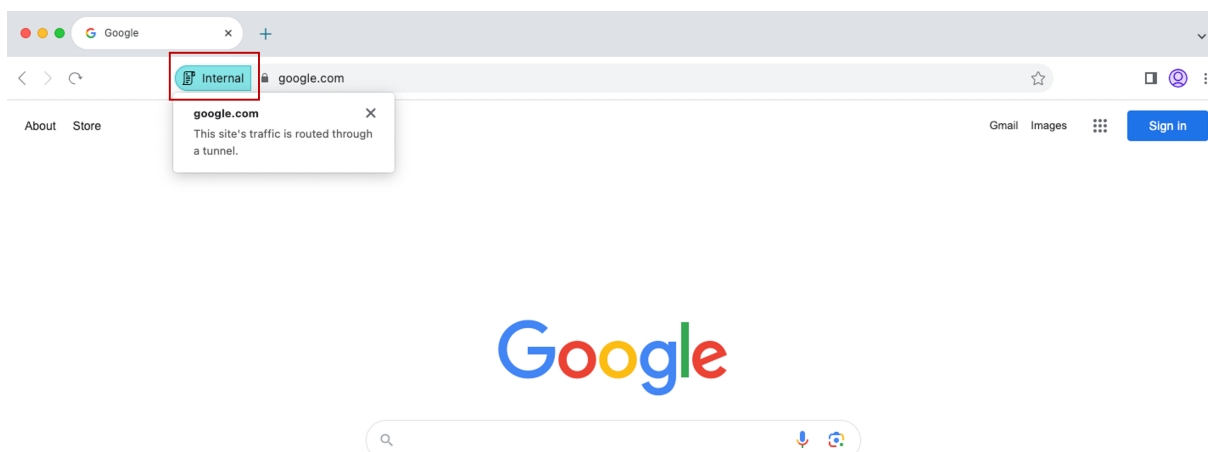
- Settings are secured with user authentication
- Enhanced the discovery workflow
- Support for full StoreFront URL

For more information, see [Global App Configuration service](#).

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 121.1.1.26, based on Chromium version 121. For more information, see the [Citrix Enterprise Browser](#) documentation.

**Security indicator when visiting websites** Citrix Enterprise Browser now displays a security indicator on the address bar when users visit any websites. The indicator aims to inform users about the security aspects of the websites, such as whether it is an internal site or if there are any potential security restrictions. The indicator provides more information when you click it. The indicator appears on the Enterprise browser by default, and it enhances the user experience.





### Simplified single sign-on for Web and SaaS apps through the Global App Configuration service

#### NOTE:

For the Mac operating system, this feature was previously available only for StoreFront starting with the release 119.1.1.115. Now, with the release of 121.1.1.26, it is also available for Workspace.

Previously, single sign-on (SSO) was configured in Citrix Enterprise Browser using the PowerShell module. From this version, you can configure the simplified SSO feature in Citrix Enterprise Browser by using a newly introduced setting in the Global App Configuration service (GACS). Administrators can use this new setting to enable SSO for all web and SaaS apps in Citrix Enterprise Browser. This method eliminates the need for the complex PowerShell module.

For more information on how to manage SSO through GACS, see [Manage single sign-on for Web and SaaS apps through the Global App Configuration service](#).

### Citrix Enterprise Browser introduces additional settings in the Global App Configuration service

The following additional settings have been added into the Global App Configuration service (GACS) for configuring Citrix Enterprise Browser:

- “Enable autofill address”- Allows administrators to enable or disable the autofill suggestions for addresses.
- “Enable autofill credit card”- Allows administrators to enable or disable the autofill suggestions for credit card information.
- “Auto launch protocols from origins”- Allows administrators to specify a list of protocols that can launch an external app from the listed origins without prompting the user.
- “Enable command-line flag security warnings”- Allows administrators to display or hide security warnings, which appear when potentially dangerous command-line flags try to launch the Enterprise Browser.

- “Manage default cookies setting”- Allows administrators to manage cookies for a website.
- “Manage default pop-ups setting”- Allows administrators to manage pop-ups from a website.
- “Extension install sources”- Allows administrators to specify valid sources for users to install extensions, apps, and themes.
- “Disable lookalike warning pages”- Allows administrators to specify the preferred domains where lookalike warning pages don’t display when the user visits pages on that domain.
- “Enable payment method query”- Allows administrators to enable websites to check whether the users have saved payment methods.
- “Manage saving browser history”- Allows administrators to manage the saving of Enterprise browser history.
- “Manage search suggestion”- Allows administrators to enable or disable search suggestions in the Enterprise browser’s address bar.
- “Enable export bookmark”- Allows administrators to enable an option to export the bookmarks in the Enterprise Browser.
- “Force ephemeral profiles”- Allows administrators to clear or persist user profile data when users close the Enterprise Browser.

For more information, see [Manage Citrix Enterprise Browser through Global App Configuration service](#).

### Technical Preview

- Support for single sign-on to Citrix Secure Access automatically through Citrix Workspace app
- Client App Management for Zoom VDI plug-in
- Enhanced the Desktop Viewer toolbar
- Customize the Desktop Viewer toolbar
- Enable Packet Loss Concealment to improve audio performance
- Support for extending the desktop session to external monitors automatically
- Sustainability initiative from Citrix Workspace app

For a complete list of Technical Preview features, see the [Features in Technical Preview](#) page.

### Fixed issues

- When connecting to Citrix Workspace app for Mac version 2311, you might get the following error message:  
**Http/1.1 Internal Server Error 43524**  
[CVADHELP-24631]
- You might notice that the Global App Configuration service policies are not applied on some older Mac devices. [CVADHELP-24863]

## Known issues

- You might notice that the application screen is hidden at the notch when you enter full screen in the virtual sessions for some Macs. As a workaround, adjust the app window to make it fit below the screen notch. [HDX-63035]

## 2311

### What's new

**Support for authentication using FIDO2 when connecting to on-premises store** Previously, FIDO2 based password-less authentication was supported for connecting to cloud stores. For more information, see [FIDO2 based authentication when connecting to cloud store](#).

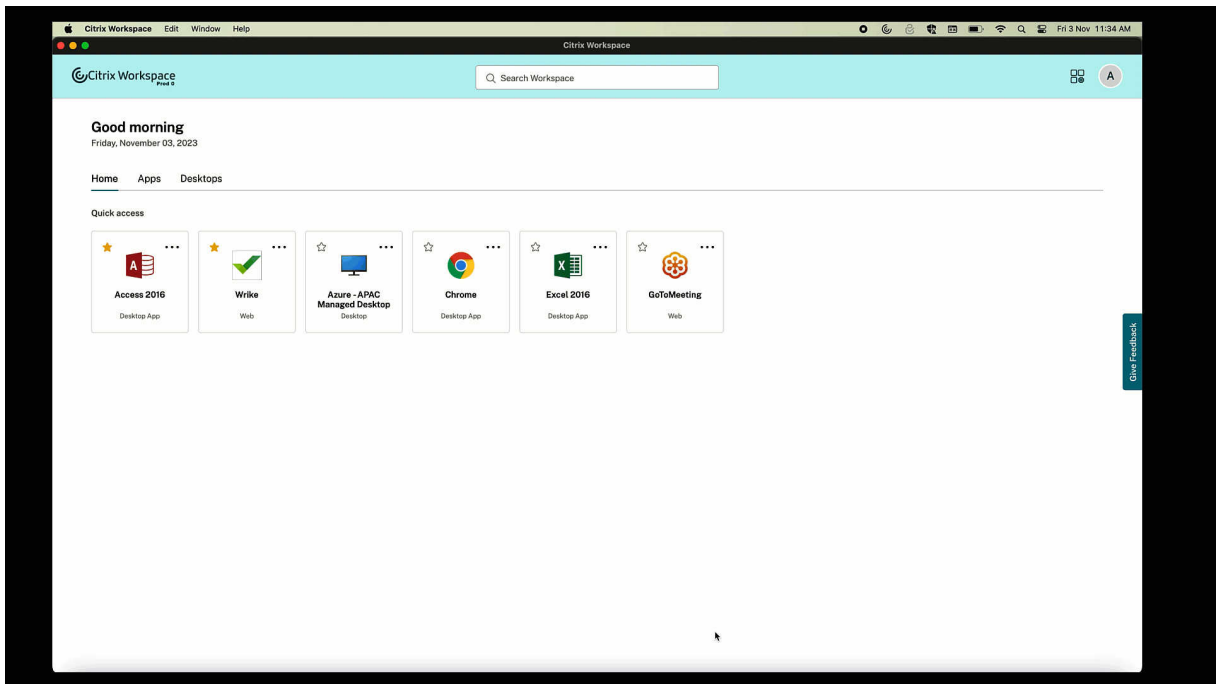
With this version, users can also connect to on-premises stores using FIDO2 authentication. FIDO2 security keys provide a seamless way for enterprise employees to authenticate to apps or desktops that support FIDO2 without entering a user name or password. This feature currently supports roaming authenticators (USB only) with PIN code and touchID. This feature is supported on macOS 12 and later versions. For more information, see [FIDO2-based authentication when connecting to on-premises store](#).

**Enhanced Universal Architecture builds for virtual apps and desktops session** Starting with the 2311 version, the Universal Architecture build can now automatically choose to run the virtual sessions in the native Apple Silicon mode or Intel mode on Macs with the Apple Silicon chipset. It uses the Rosetta emulation to launch the virtual session in Intel mode. The virtual session launches in the native Apple Silicon mode, if the virtual channel SDK is built based on the native Apple Silicon architecture or there's no virtual channel SDK. However, the virtual session launches in the Intel mode using the Rosetta emulation, if the virtual channel SDK is built based on the x86\_64 Intel-based architecture.

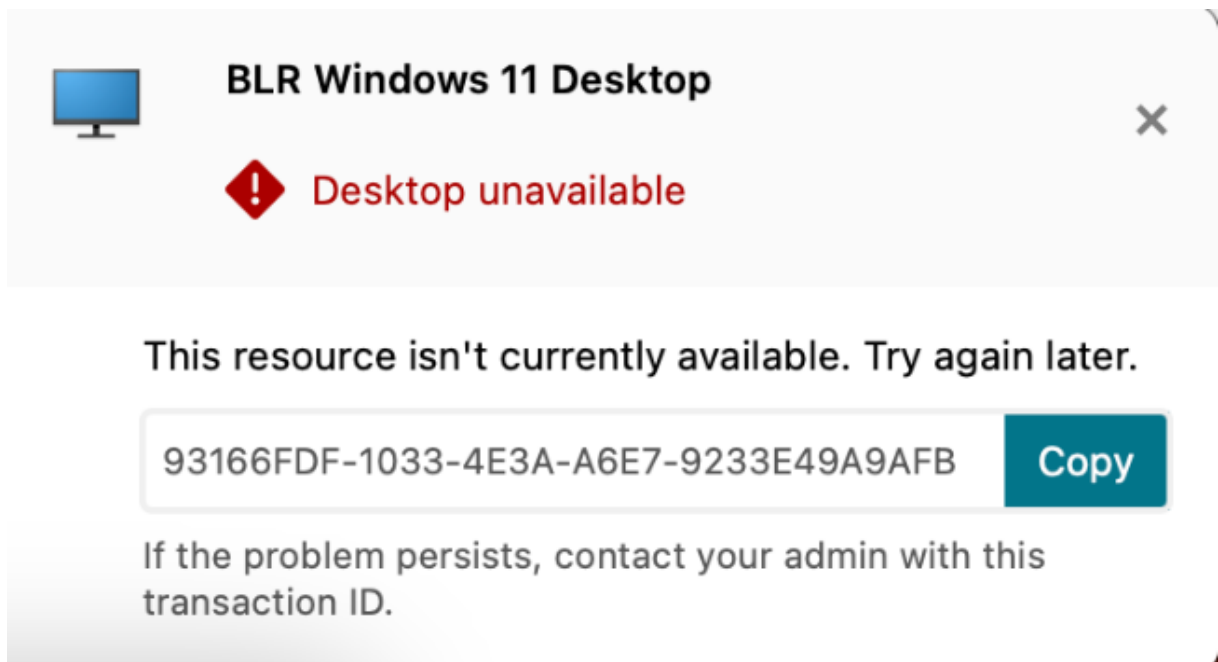
This enhancement to the Universal Architecture build improves the launch experience on Macs with the Apple Silicon chipset. For users on Macs with the Intel-based chipset, there is no change, and the Universal Architecture build continues to run the virtual sessions natively.

For more information, see [Enhanced Universal Architecture builds for virtual apps and desktops session](#).

**Enhanced virtual apps and desktops launch experience for Workspace (Cloud users only)** The opening experience of Citrix resources has been enhanced to be more intuitive, informative, and user-friendly. From the 2311 version, this feature is supported for custom web stores and hybrid launch.



The launch progress notification now appears at the lower-right corner of your screen. A progress status of the resources, which are in the process of being opened is shown. You cannot retrieve the notification once you dismiss it. The notification stays for a few seconds from the time you start the session. If the session fails to start, then the notification shows the failure message. For more information, see [Enhanced virtual apps and desktops launch experience for Workspace \(Cloud users only\)](#).





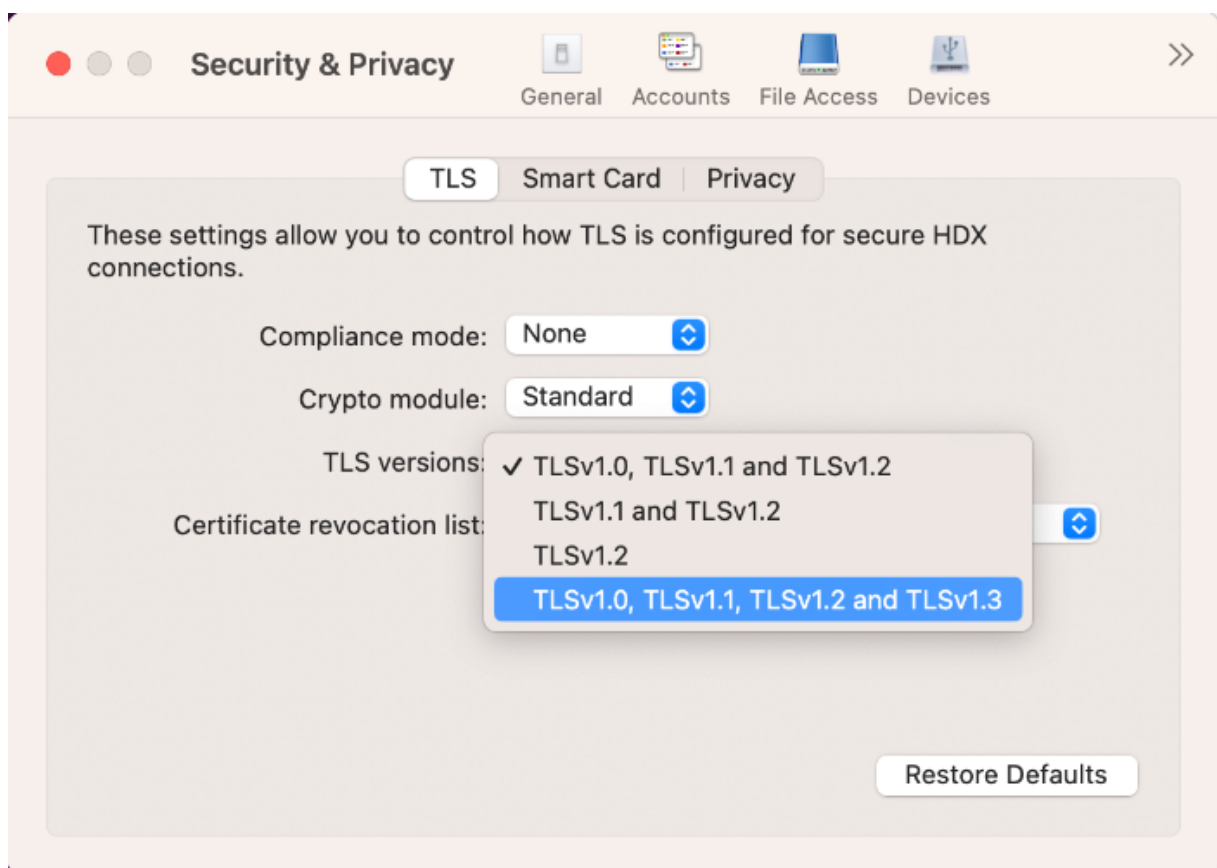
**Note:**

This feature is available for both Workspace (cloud) and StoreFront sessions.

**Modernized Citrix Virtual Channel SDK for Citrix Workspace app for Mac** Starting with the 2311 version, the Citrix Virtual Channel Software Development Kit (VCSDK) supports writing server-side applications and client-side drivers for more virtual channels using the ICA protocol. The server-side virtual channel applications are on Citrix Virtual Apps and Desktops servers. This version of the SDK supports writing new virtual channels and screen sharing for Citrix Workspace app for Mac.

For more information, see [Citrix Virtual Channel SDK for Citrix Workspace app for Mac](#) in the Developer documentation and [Modernized Citrix Virtual Channel SDK for Citrix Workspace app for Mac](#).

**Support for TLS protocol version 1.3** Starting with the 2311 version, Citrix Workspace app for Mac supports the latest Transport Layer Security (TLS) version 1.3. To enable the TLS version 1.3, navigate to **Preferences > Security and Privacy > TLS** and select the **TLSv1.0, TLSv1.1, TLSv1.2 and TLSv1.3** option from the **TLS versions** drop-down menu.



For more information, see [TLS](#).

**Support for multiple audio devices** Starting with the 2311 release, Citrix Workspace app for Mac displays all available local audio devices in a session with their names. In addition, plug-and-play is also supported. For more information, see [Support for multiple audio devices](#).

**Support for extending multiple monitors in full-screen mode on up to five monitors** Previously, Citrix supported a maximum of three monitors in full-screen mode, including the primary monitor.

Starting with the 2311 version, you can now use full-screen mode on up to five monitors, including the primary monitor, at the same time. For more information, see [Support for extending multiple monitors in full-screen mode on up to five monitors](#).

**Deprecation of International menu from the keyboard settings** Previously, you can enable or disable the **Use Client IME, Use Composing Mark and Use Client keyboard layout** features in the Citrix viewer by navigating to **Devices > Keyboard>International**.

From the 2311 version, the **International** menu for the keyboard settings in the Citrix Viewer is deprecated. From this version, the client-side IME is enabled by default. For more information, see [Deprecation of International menu from the Keyboard settings](#).

**Deprecation announcement of the SDP format (Plan B) from WebRTC** Citrix is planning to deprecate the current SDP format (Plan B) support from WebRTC in future releases. You must use a version of Citrix Workspace app that supports the Unified Plan to continue using certain optimized Microsoft Teams functionalities. For more information, see [Deprecation announcement of the SDP format \(Plan B\) from WebRTC](#).

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 119.1.1.115, based on Chromium version 119. For more information, see the [Citrix Enterprise Browser](#) documentation.

**Improved user experience** Previously, Citrix Enterprise Browser displayed a reconnection modal when you attempted to perform an action after your session expired. Starting with Citrix Workspace app for Mac version 2311 (which corresponds to the Chromium version 119.1.1.115), there is no longer a reconnection modal. Instead, a loading icon now appears on the browser tab when you attempt to perform any action after your session expires.

**Improved watermark design** Citrix Enterprise Browser now has a new watermark design that is less intrusive and provides a better user experience.

**Support for custom browser extension** Citrix Enterprise Browser has expanded its extension capabilities. Previously, only extensions from the Chrome Web Store were permitted. Citrix Enterprise Browser now allows you to add custom extensions securely. Administrators can configure custom extensions as part of the mandatory list. End users can access and use these extensions either via `citrixbrowser://extensions` or by clicking the **Extensions** option under **More** button as needed. For more information on how to configure the custom extensions, see [Mandatory custom browser extension](#) in the Citrix Enterprise Browser documentation.

### **Simplified SSO for Web and SaaS apps through the Global App Configuration service**

**Note:**

This feature is available only for StoreFront.

Previously, SSO was configured in Citrix Enterprise Browser using the PowerShell module. From this version, this simplified SSO feature allows you to configure SSO in Citrix Enterprise Browser by using a newly introduced setting in the Global App Configuration service (GACS). Administrators can use this new setting to enable SSO for all web and SaaS apps in Citrix Enterprise Browser. This method eliminates the need for the complex PowerShell module. For more information on how to manage SSO through GACS, see the [Manage single sign-on for Web and SaaS apps through the Global App Configuration service](#).

**Enhanced capabilities on monitoring end user activities** Previously, administrators were unable to monitor end user activities such as App accessed and Traffic type. Starting with Citrix Workspace app for Windows 2311 and Mac 2311 versions (corresponding to Chromium version 119.1.1.115), you can now monitor these details as well.

- **App accessed:** Enterprise Browser provides information about all the apps accessed by the end user, provided the app is listed in the policy document.
- **Traffic type:** Enterprise Browser provides information about whether data is sent directly or through Secure Private Access authentication.

To monitor the end user activities from the Enterprise Browser, use the Citrix Analytics service using your Citrix Cloud account. After signing in to Citrix Cloud, navigate to **Analytics > Security > Search**. There, you can refer to **Apps and Desktops** under the **Self-Service Search** section. For more information on Citrix Analytics, see [Getting started](#).

### **App Protection**

**Support to configure App Protection for Authentication and Self-Service plug-in for on-premises stores** Previously, Citrix Workspace app for Mac supported configuring App Protection

for Authentication and Self-Service plug-in using the Global App Configuration service UI for customers on cloud stores only.

Starting with the 2311 release, this feature is supported for customers on both cloud and on-premises stores. For more information, see [Configuration using the Global App Configuration service UI](#) in the App Protection documentation.

### Technical Preview

- Loss Tolerant mode for Audio
- Support for Audio volume synchronization
- Support for H.265 video decoding
- Upgraded HDX Reducer to Version 4

For a complete list of Technical Preview features, see the [Features in Technical Preview](#) page.

### Fixed issues

- When the first time users add the Store URL, they might not see the FIDO2 authentication browser window. [RFMAC-14518]
- When using Citrix Workspace app for Mac to access virtual sessions, the mouse scrolling speed might be too fast or too slow in the virtual sessions. [CVADHELP-23514]
- When using Citrix Workspace app for Mac, you might not be able to switch between recent apps inside the virtual app session by clicking **Options** + **tab** keys after upgrading to VDA 2212 or later. [CVADHELP-23464]
- You might notice that the macOS dock is blocking the windows taskbar of the Remote Desktop Protocol app session launched from Citrix Workspace app for Mac. [CVADHELP-23681]
- When using Citrix Workspace app for Mac, you might experience issue with authentication when persistent session is used for on-premises store. [CVADHELP-24062]

### Known issues

- The HTML5 Video redirection feature is disabled by default in Citrix Workspace app for Mac from version 2311. [HDX-53015]

## 2309

### What's new

**Support for macOS 14 Sonoma** Citrix Workspace app for Mac is supported on macOS 14 Sonoma.

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 115.1.1.103, based on Chromium version 115. For more information, see [Citrix Enterprise Browser documentation](#).

Citrix will now release independent upgrades for Citrix Enterprise Browser. Starting with Citrix Workspace app 2309 for Mac, you can upgrade Citrix Enterprise Browser independently to compatible versions through the auto-update feature or install manually when the upgrades are available at [Downloads](#). The independent upgrades of Citrix Enterprise Browser are supported only on the latest version of Citrix Workspace app for Mac at any given time.

### Technical Preview

- Support for Citrix Secure Private Access for On-premises stores

For a complete list of Technical Preview features, see the [Features in Technical Preview](#) page.

### Fixed issues

- In optimized Microsoft Teams, you might hear the ringtone sound randomly if you answer the call before it rings. [HDX-55799]
- The **USB** settings to connect devices automatically, which is available on the **Devices** tab of the **Preferences** window, might not work as expected in Citrix Workspace app 2308 for Mac. [RFMAC-14658]
- On macOS Sonoma devices, when you copy an image (.jpeg/.png format) from your Mac to the virtual session, the copied image in the virtual session might get corrupted. [HDX-55307]

### Known issues

- No new issues have been observed in this release.

## 2308

### What's new

**Citrix Workspace app for Mac on macOS Sonoma Beta** Citrix Workspace app 2308 for Mac has been tested on macOS Sonoma Public Beta 7 Version 23A5337a. Use this setup in a test environment and provide your [feedback](#).

**Improved graphics performance** Starting with the 2308 version, the performance of graphics is improved for seamless app sessions. This feature also optimizes the load on CPU usage. For more information, see [Improved graphics performance](#).

**Improved network congestion control** Starting with the 2308 version, the Citrix-proprietary transport protocol called Enlightened Data Transport (EDT) is improved to efficiently control network congestion. This feature improves data throughput and reduces latency. For more information, see [Improved network congestion control](#).

**Increase in the number of supported virtual channels** Previously, Citrix Workspace app for Mac supported up to 32 virtual channels. Starting with the 2308 version, you can use up to 64 virtual channels in a session. For more information, see [Increase in the number of supported virtual channels](#).

### App Protection

**Support for Policy tampering detection** Policy tampering detection feature prevents the user from accessing the virtual app or desktop session if the App Protection anti-screen capture and anti-keylogging policies are tampered. If policy tampering is detected, then the virtual app or desktop session is terminated. For more information about the policy tampering detection feature, see [Policy tampering detection](#).

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 115.1.1.103, based on Chromium version 115. For more information, see [Citrix Enterprise Browser documentation](#).

### Technical Preview

- Enhanced the high DPI option
- Store-based configuration of file access

- Support for Activity Manager on cloud stores
- Support for screen sharing when App Protection is enabled
- Support for authentication using FIDO2 when connecting to on-premises store

For a complete list of Technical Preview features, see the [Features in Technical Preview](#) page.

### Fixed issues

- When using Citrix Workspace app for Mac to access the virtual desktop, the size of the mouse pointer in the virtual desktop might fluctuate irregularly. [CVADHELP-23158]
- You might not see the icons of active apps in the activity manager. [WSUI-8011]
- Citrix Workspace app might consume a lot of application memories after a few minutes of usage. [CVADHELP-23528]

### Known issues

- After upgrading Citrix Workspace app for Mac to version 2308, the preferences window might be unresponsive for any user actions. As a workaround, force quit Citrix Workspace app and restart it. For more information about forcing an app to close on a Mac, see [Force an app to close](#) in the Apple support article. [RFMAC-14596]

## 2307

### What's new

**Native support for Macs with M2 chips** Starting with the 2307 version, Citrix Workspace app for macOS supports M2 series (along with M1 series that was previously supported) of Apple silicon natively. For more information, see [Native support Apple silicon](#).

**Citrix Workspace app for Mac on macOS Sonoma Beta** Citrix Workspace app 2307 for Mac has been tested on macOS Sonoma Public Beta 1 Version 23A5286i. Use this setup in a test environment and provide your [feedback](#).

#### Caution:

Do not use Citrix Workspace app for Mac on macOS Sonoma Beta versions in production environments.

**Deprecating support for macOS version Catalina** As announced in the 2304 version, support for macOS version Catalina (10.15) is deprecated in the 2307 release and will be removed for future releases. For more information, see [Deprecation](#).

**Support for authentication using FIDO2 when connecting to a cloud store** Starting with the 2307 version, users can authenticate using FIDO2 based password-less authentication when connecting to a cloud store. FIDO2 security keys provide a seamless way for enterprise employees to authenticate to apps or desktops that support FIDO2 without entering a user name or password. This feature currently supports roaming authenticators (USB only) with PIN code and touchID. This feature is supported on macOS 12 and later versions. For more information, see [FIDO2-based authentication when connecting to cloud store](#).

**Support for authentication using FIDO2 within an HDX session** Starting with the 2307 version, users can authenticate using FIDO2 based password-less authentication within an HDX session. FIDO2 security keys provide a seamless way for enterprise employees to authenticate to apps or websites that support FIDO2 without entering a user name or password. This feature currently supports roaming authenticators (USB only) with PIN code. This feature is supported on macOS 12 and later versions. For more information, see [FIDO2-based authentication within an HDX session](#).

**Note:**

This release supports only one passkey in a FIDO2 supported device. If your FIDO2 supported device has multiple passkeys then the first passkey is used to authenticate the HDX session.

**Auto-update version control** Administrators can now manage the auto-updated version of Citrix Workspace app for the devices in the organization.

Administrators can control the version by setting the range for `maximumAllowedVersion` and `minimumAllowedVersion` properties in the Global App Configuration service.

Example JSON file in Global App Configuration service:

```
1 {
2
3   "serviceURL": {
4
5     "url": "https://serviceURL:443"
6   }
7 ,
8   "settings": {
9
10    "name": "Version Control for Citrix Workspace",
11    "description": "Provides admin ability to Version Control for
12      Citrix Workspace",
13    "useForAppConfig": true,
14    "appSettings": {
15
16      "macos": [
17
18        "category": "AutoUpdate",
```



```
19     "userOverride": false,
20     "assignedTo": [
21       "AllUsersNoAuthentication"
22     ],
23     "settings": [
24       {
25
26         "name": "Auto update plugins settings",
27         "value": [
28           {
29
30             "pluginName": "Citrix Workspace",
31             "pluginId": "D99C3E77-FBF5-4B97-8EDA-4E381A1E0826",
32             "pluginSettings": {
33
34               "deploymentMode": "Update",
35               "upgradeToLatest": false,
36               "minimumAllowedVersion": "23.07.0.63",
37               "maximumAllowedVersion": "23.07.0.63",
38               "delayGroup": "Medium",
39               "detectRule": ""
40             }
41           }
42         ]
43       }
44     ]
45   }
46 }
47 ]
48 }
49 }
50 ]
51 }
52 }
53 }
54 }
55 }
56 }
57 }
58 <!--NeedCopy-->
```

When the range is set, Citrix Workspace app on the user device is automatically updated to the highest available version that falls between the mentioned range.

If you want to auto-update Citrix Workspace app to a specific version, enter the same version in the `maximumAllowedVersion` and `minimumAllowedVersion` properties in the Global App Configuration service. For more information, see [Auto-update version control](#).

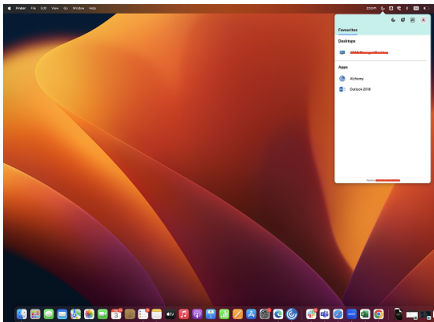
**Note:**

- To achieve auto-update version control, set the `upgradeToLatest` setting to `false` in the

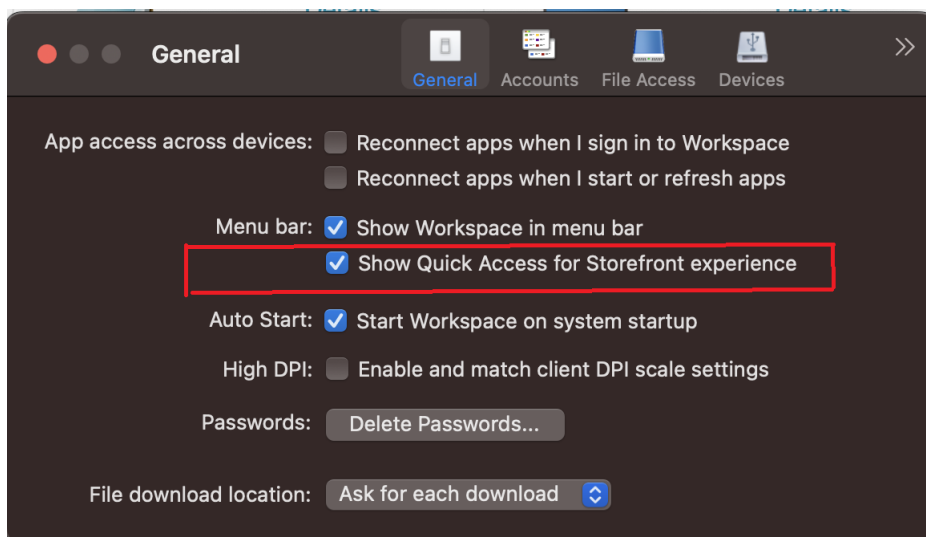
Global App Configuration service. If the `upgradeToLatest` setting is true, `maximumAllowedVersion` and `minimumAllowedVersion` is ignored.

- Do not modify the `pluginId`. The `pluginId` is mapped to Citrix Workspace app.
- If the administrator hasn't configured the version in the Global App Configuration service, Citrix Workspace app is updated to the latest available version by default.
- You can only use the version ranges that are set to update Citrix Workspace app. However, a downgrade isn't supported.
- This feature is supported from release 2307 onwards.

**Quick access menu for StoreFront** Starting with the 2307 version, you can navigate to your favorite apps and desktops quickly and easily using the quick access feature for on-premises stores. To enable quick access, right-click **Citrix Workspace** in the toolbar, navigate to **Preferences > General**, and then select **Show Quick Access for Storefront experience**. This feature allows you to see your favorite data directly from the Mac menu bar.



You can enable the quick access feature by using **Preferences**.



Administrators can enable or disable the quick access feature by using the Mobile Device Management (MDM) or Global App Configuration service (GACS) methods. For more information, see the [Quick access menu for StoreFront](#).

**Enabling or disabling quick access using MDM** To enable quick access through MDM, administrators must use the following settings:

```
<key>ShowQuickAccessForStoreFront</key>  
<false/>
```

**Enabling or disabling quick access using GACS** To enable quick access through GACS, administrators must use the following settings:

```
enableQuickAccessForStoreFront
```

**Store-based configuration of microphone and webcam access** Starting with the 2307 version, the per-store microphone and webcam access are included as part of the client-selective trust feature. This enhancement allows you to provide access to a microphone and webcam on a per-store basis.

To enable microphone and webcam access for a store, you must select **Preferences > Mic & Webcam**. In the **Mic & Webcam** tab, select the store and the type of access required for that store. For more information, see [Store-based configuration of microphone and webcam access](#).

**Send feedback on Citrix Workspace app** The Send feedback option allows you to inform Citrix about any issues you might encounter while using the Citrix Workspace app. You can also send suggestions to help us improve your Citrix Workspace app experience.

You must select **Help > Send feedback** to view and fill the issue details in the Send feedback form. You can add details like the examples provided in the form.

Log collection'. Below this text are two buttons: 'Record my issue' and 'WorkspaceLogs\_2023\_07\_18-14\_23\_43.zip' with a trash icon. Below the logs section is the 'Attachments' section with text: 'Screenshots or screen recordings of the problem.' and a 'Choose files' button with '(Max 4 files)' next to it. At the bottom of the dialog, there is a paragraph: 'Your feedback will be used to improve Citrix Workspace app. If you don't use the Mail app on your Mac, please send feedback to **cwa-mac-feedback@cloud.com** with files added manually.' and two buttons: 'Send' and 'Cancel'."/>

**Send feedback**

**Provide a descriptive title\***

Example : Unable to launch desktop/application

**Tell us more\***

Include details such as:

- What you expected to happen
- What actually happened
- Steps to recreate the issue

**Logs**

Basic logs are attached. We recommend you click 'Record my issue' to capture detailed logs.

For more information, see [Log collection](#)

**Record my issue** WorkspaceLogs\_2023\_07\_18-14\_23\_43.zip 🗑️

**Attachments**

Screenshots or screen recordings of the problem.

**Choose files** (Max 4 files)

Your feedback will be used to improve Citrix Workspace app. If you don't use the Mail app on your Mac, please send feedback to **cwa-mac-feedback@cloud.com** with files added manually.

**Send** **Cancel**

You can attach the existing log files or generate new log files. To generate log files, click **Record my issue > Start Recording** and then reproduce the issue. After the issue is reproduced, click **Stop Recording**. The log file is saved automatically and replaces the existing logs with the reproduced logs.

**Note:**

Citrix does not collect any Personally Identifiable Information (PII) from the logs.

You can attach screenshots or screen recordings describing the issue to help us understand what you're experiencing. Click **Choose files** and add the attachments such as screenshots or screen recordings. You can attach a maximum of four files.

Once you've entered the necessary information, click **Send** to have a new email automatically created in your Mail app with the information you added. From there, click the **Send button** to share the

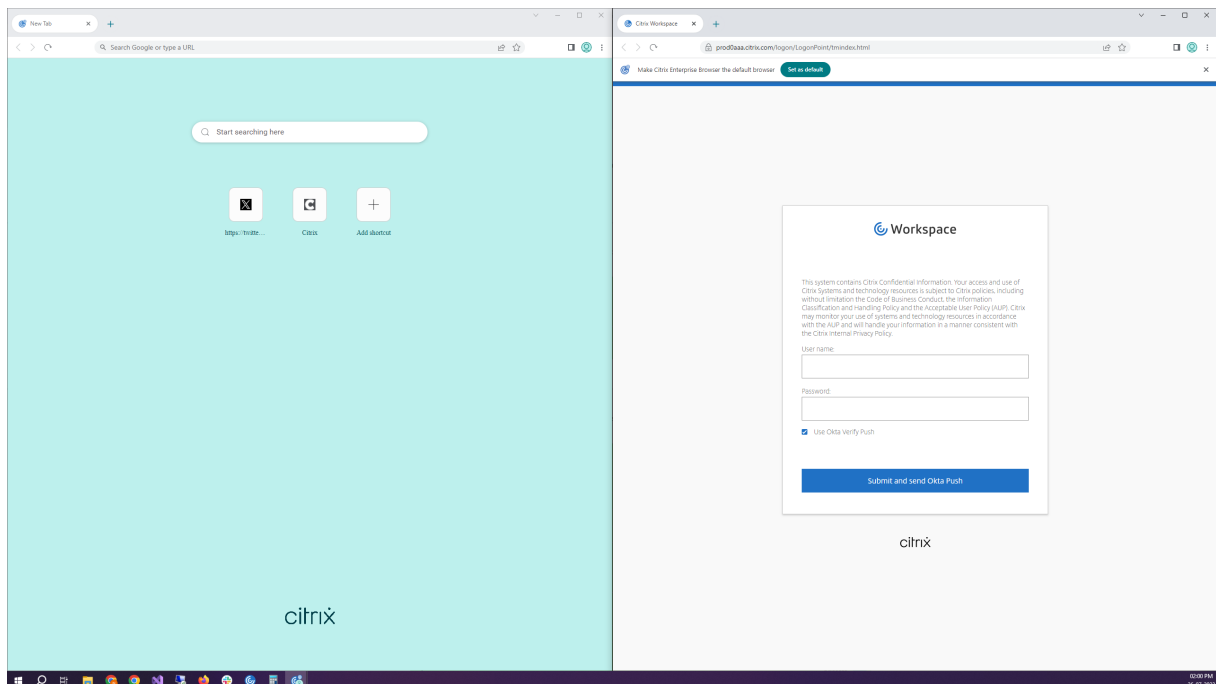
feedback with Citrix. For more information, see [Send feedback on Citrix Workspace app](#).

### Note

If you aren't using the default Mail app, then send feedback to [cwa-mac-feedback@cloud.com](mailto:cwa-mac-feedback@cloud.com) from your mail client. Add the issue details, log files, screenshots, or screen recordings to the email manually.

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 113.1.1.34, based on Chromium version 113. For more information about the Citrix Enterprise Browser, see [Citrix Enterprise Browser](#) documentation.

**Split view support** Citrix Enterprise Browser on macOS supports split view for ease of multitasking. With split view, you can use Citrix Enterprise Browser and another window next to each other, without having to manually move and resize windows. For more information, see [Apple's support article](#).



**Citrix Enterprise Browser shortcut** Starting with Citrix Workspace app for Mac 2307 version, an administrator can configure and control the presence of the Citrix Enterprise Browser shortcut on the launch pad.

### Note:

By default, this feature isn't configured.

## Configuration

An IT administrator can configure the presence of the Citrix Enterprise Browser shortcut in one of the following ways:

- Mobile Device Management (MDM)
- Global App Configuration service (GACS)
- web.config file.

**Note:**

- All the configuration methods have equal priority. Enabling any one of them enables the shortcut.
- If you haven't configured the shortcut but have one or more Workspace stores, the shortcut gets automatically enabled.
- For end users, the Citrix Enterprise Browser shortcut appears if the user makes it as a favorite app irrespective of the configuration.
- To disable this feature for Workspace stores, administrators must apply one of the following settings:
  - Set the **CEBShortcutEnabled** attribute to false in the MDM or web.config file.
  - Disable the Enable Citrix Enterprise Browser shortcut property in GACS.

### Mobile Device Management (MDM)

Administrators can push the settings **CEBShortcutEnabled** set as **true** to the user's device.

For more information on how to use MDM, see [Mobile Device Management \(MDM\)](#).

**Note:**

This way of configuration is applicable on Workspace and StoreFront.

### Global App Configuration service (GACS)

Navigate to **Workspace Configuration > App Configuration > Citrix Enterprise Browser** and enable **Enable Citrix Enterprise Browser shortcut** property.

**List Of Allowed Extensions** 0 Configured, 0 Unsaved

You can add a list of extensions that the end users can install within the Citrix Enterprise Browser. The end user can't install other extensions apart from the allowed list. [Learn More](#).

---

**Add Managed Bookmarks** 0 Configured, 0 Unsaved

You can add a list of bookmarks to the Citrix Enterprise Browser. The end user can't modify these bookmarks.

---

**Delete Browsing Data On Exit** 0 Configured, 0 Unsaved

You can configure what type of data the Citrix Enterprise Browser can delete when the end user exits the browser. Note: Deleting the browsing data can affect usability. [Learn More](#)

---

**Enable Citrix Enterprise Browser Shortcut** 0 Configured, 2 Unsaved

Creates a Citrix Enterprise Browser shortcut on the Start menu in Windows and Launchpad in macOS. If a user marks Enterprise Browser as favorite, a shortcut is created irrespective of the configuration.

<input checked="" type="checkbox"/> Mac	Enabled <input checked="" type="checkbox"/>	Unsaved
<input checked="" type="checkbox"/> Windows	Disabled <input type="checkbox"/>	Unsaved

**Note:** You have saved drafts that are not yet published in Production. You may continue editing or publish now to apply changes to Workspace for your end users

[Review 2 unsaved setting\(s\)](#) [Discard](#) [Publish Drafts](#)

For more information about how to use the GACS UI, see the [User interface](#) article in the Citrix Enterprise Browser documentation.

### Note:

This way of configuration is applicable on Workspace and StoreFront.

### web.config file

Enable the attribute **CEBShortcutEnabled** under the properties.

```
1         <properties>
2             <property name="CEBShortcutEnabled" value="
3                 True" />
4         </properties>
5 <!--NeedCopy-->
```

### Note:

This way of configuration is applicable on StoreFront.

### Using web.config

To enable the Citrix Enterprise Browser shortcut, do the following:

1. Use a text editor to open the web.config file, which is typically at `C:\inetpub\wwwroot\Citrix\Roaming directory`.
2. Locate the user account element in the file (Store is the account name of your deployment).

For example: `<account id=... name="Store">`

3. Before the `</account>` tag, navigate to the properties of that user account and add the following:

```
1         <properties>
2             <property name="CEBShortcutEnabled" value=
3                 "True" />
4         </properties>
5 <!--NeedCopy-->
```

The following is an example of the web.config file:

```
1 <account>
2     <clear />
3     <account id="d1197d2c-ac82-4f13-9346-2ee14d4b0202" name="F84Store"
4         description="" published="true" updaterType="Citrix"
5         remoteAccessType="None">
6         <annotatedServices>
7             <clear />
8             <annotatedServiceRecord serviceRef="1__Citrix_F84Store">
9                 <metadata>
10                    <plugins>
11                        <clear />
12                    </plugins>
13                    <trustSettings>
14                        <clear />
15                    </trustSettings>
16                    <properties>
17                        <property name="CEBShortcutEnabled" value="True" />
18                    </properties>
19                </metadata>
20            </annotatedServiceRecord>
21        </annotatedServices>
22        <metadata>
23            <plugins>
24                <clear />
25            </plugins>
26            <trustSettings>
27                <clear />
28            </trustSettings>
29            <properties>
30                <clear />
31            </properties>
32        </metadata>
33    </account>
34 <!--NeedCopy-->
```

#### How to configure using web.config

1. Use a text editor to open the web.config file, which is typically at `C:\inetpub\wwwroot\Citrix\Roaming` directory.



2. Locate the user account element in the file (Store is the account name of your deployment).

For example: `<account id=... name="Store">`

3. Before the `</account>` tag, navigate to the properties of that user account and add the following:

```
1         <properties>
2             <property name="CEBShortcutEnabled" value=
3                 "True" />
4         </properties>
5 <!--NeedCopy-->
```

### Technical Preview

- Keyboard accessibility support for the toolbar on the Virtual Desktop

For a complete list of Technical Preview features, see the [Features in Technical Preview](#) page.

### Fixed issues

- While launching the published app through the browser, the app does not launch directly but downloads an ICA file. The user might have to open the downloaded ICA file manually to launch the app. [CVADHELP-20835]
- Attempts to start a session might fail if the StoreFront keyword is set to “KEYWORDS:LogoffOnClose=true PromptMessage=”Do you want to Log off?””. [CVADHELP-23170]
- You might not be able to select the required gateway from the list of options provided when using Citrix Workspace app for Mac. [CVADHELP-22777]

### Known issues

No new issues have been observed in this release.

## 2306

### What’s new

**Log traceability and user activity** Starting with the 2306 version, when a user reports an issue, the administrators can go through the log files to view the basic information such as macOS version, Citrix Workspace app version, details about the previous upgrade, number of stores added, and other details. Administrators can now view the following activities in Citrix Workspace app for Mac:

- The app launched along with the macOS version, number of stores, and other metadata.
- The store addition and deletion operation and the metadata that is required to add an account.
- The session start time and launch status.
- Auto update activation and status.
- System events such as moving the app to the background, sleep mode, or quitting.

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 112.1.1.23, based on Chromium version 112. For more information about the Citrix Enterprise Browser, see [Citrix Enterprise Browser](#) documentation.

### Fixed issues

- After upgrading Citrix Workspace app for Mac to version 2305, certain third-party virtual apps that have pop-up dialogs for entering username and password might become unresponsive upon opening. [CVADHELP-23032]

### Known issues

No new issues have been observed in this release.

## 2305

### What's new

**Support for horizontal scroll** Previously, Citrix Workspace app for Mac supported only vertical scroll on a trackpad. Starting with the 2305 version, a horizontal scroll is also supported. For more information, see [Support for horizontal scroll](#).

**Improved audio echo cancellation support** Citrix Workspace app now supports echo cancellation in adaptive audio and legacy audio codecs. This feature is designed for real-time audio use cases, and it improves the user experience. Citrix recommends using adaptive audio. For more information, see [Improved audio echo cancellation support](#).

**Improved graphics performance [Technical Preview]** Starting with the 2305 version, the performance of graphics is improved for seamless sessions. This feature also reduces the load on CPU usage.

**Note:**

Technical previews are available for customers to test in their non-production or limited production environments, and share [feedback](#). Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Support for Certificate-based authentication** Starting with the 2305 version, Workspace administrators can configure and enforce Azure Active Directory conditional access policies for users authenticating to Citrix Workspace app.

The following methods can be used to enable the authentication using conditional access:

- Mobile Device Management (MDM)
- Global App Configuration service (GACS)

The flag values read by Citrix Workspace app take precedence in the following order:

- Mobile Device Management (MDM)
- Global App Configuration service (GACS)

For more information, see [Support for Certificate-based authentication](#).

**Channel support for Global App Configuration service** The Global App Configuration service for Citrix Workspace allows a Citrix administrator to deliver Workspace service URLs and Workspace App settings through a centrally managed service. Global App Configuration service now allows administrators to test the settings before rolling it out to all users. This feature allows to resolve any issues before applying the global app configurations to the entire user base. For more information, see [Channel support for Global App Configuration service](#).

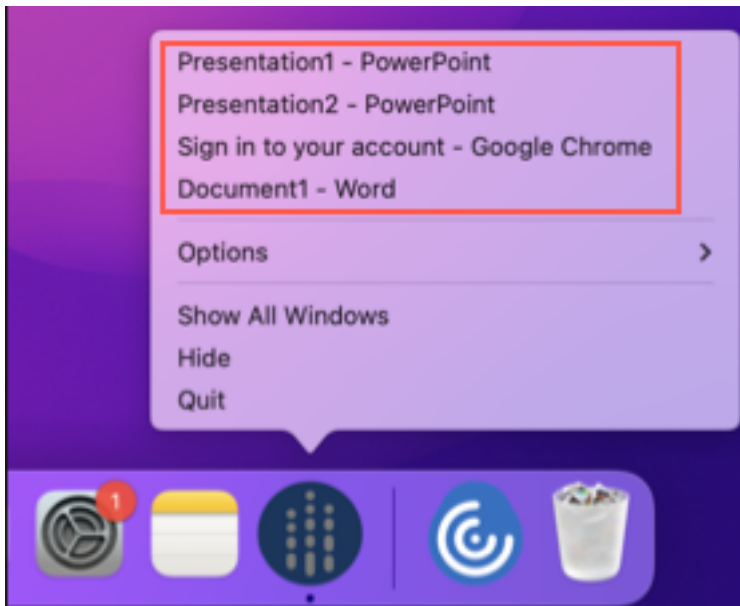
**Improved auto-update experience** The auto-update feature automatically updates the Citrix Workspace app to the latest version without the need for any user intervention.

Citrix Workspace app periodically checks and downloads the latest available version of the app. Citrix Workspace app determines the best time to install based on user activity not to cause any disruptions.

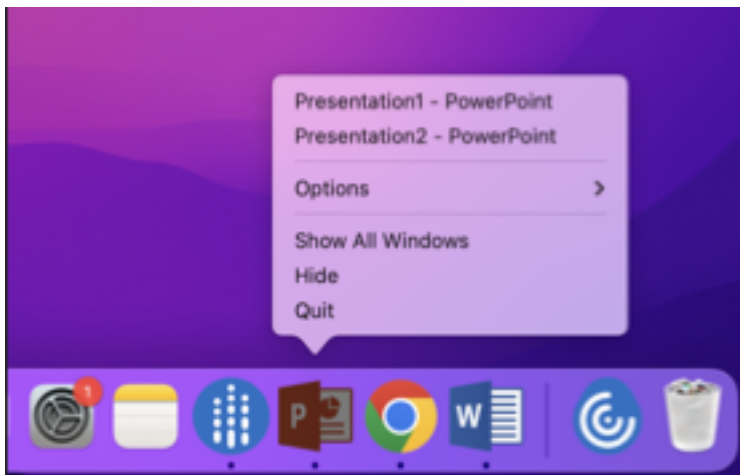
For more information, see [Improved auto-update experience](#).

**Opened apps appear in the dock with native app icons** Previously, clicking virtual apps in the Citrix Workspace app triggered the **Citrix Viewer** where these apps would be available. If you open

many apps, the apps or its instances are opened in the **Citrix Viewer**. You can view the open apps by right-clicking the **Citrix Viewer** icon.



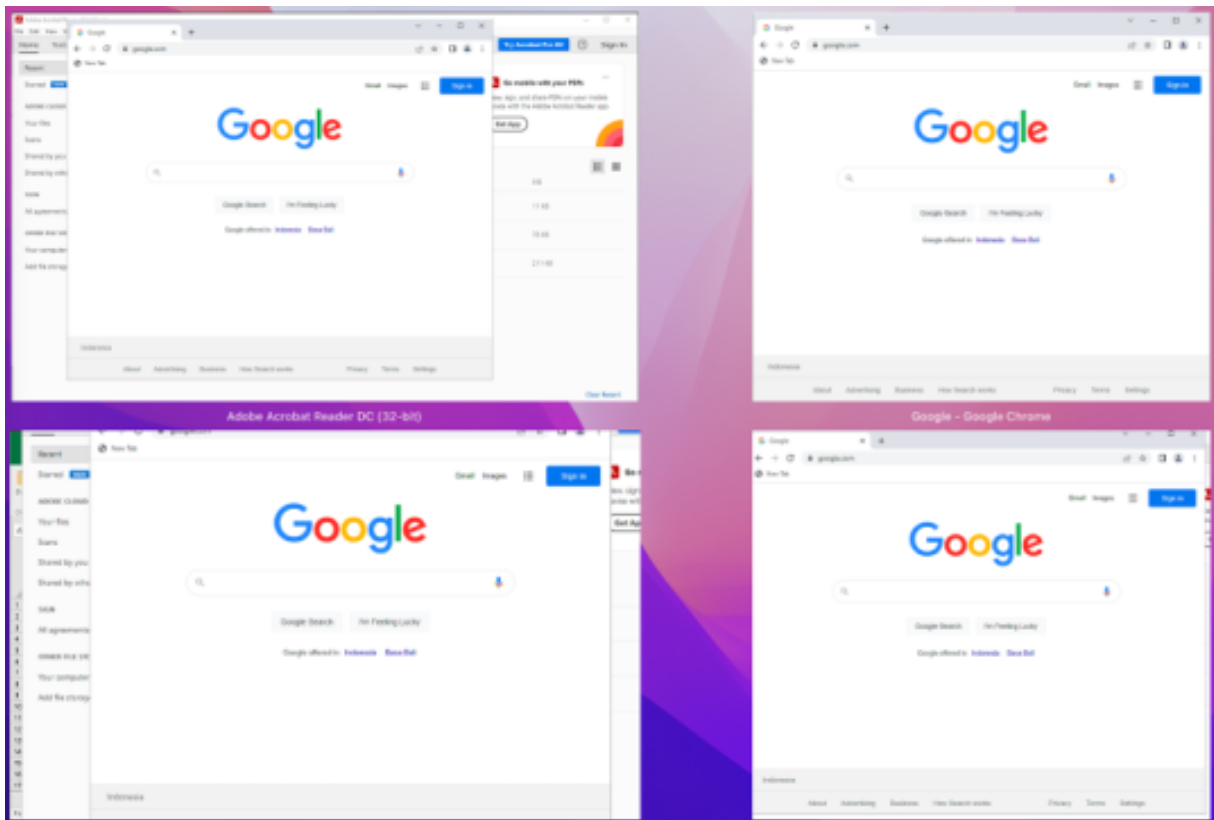
Starting with the 2305 version, when you open virtual apps, they appear in the Dock (bottom-right corner of the screen) with their respective icons and are easily identifiable. You can then access the virtual app from the dock itself. If you open multiple instances of an app, these instances aren't duplicates in the Dock but are grouped within one instance in the Dock.



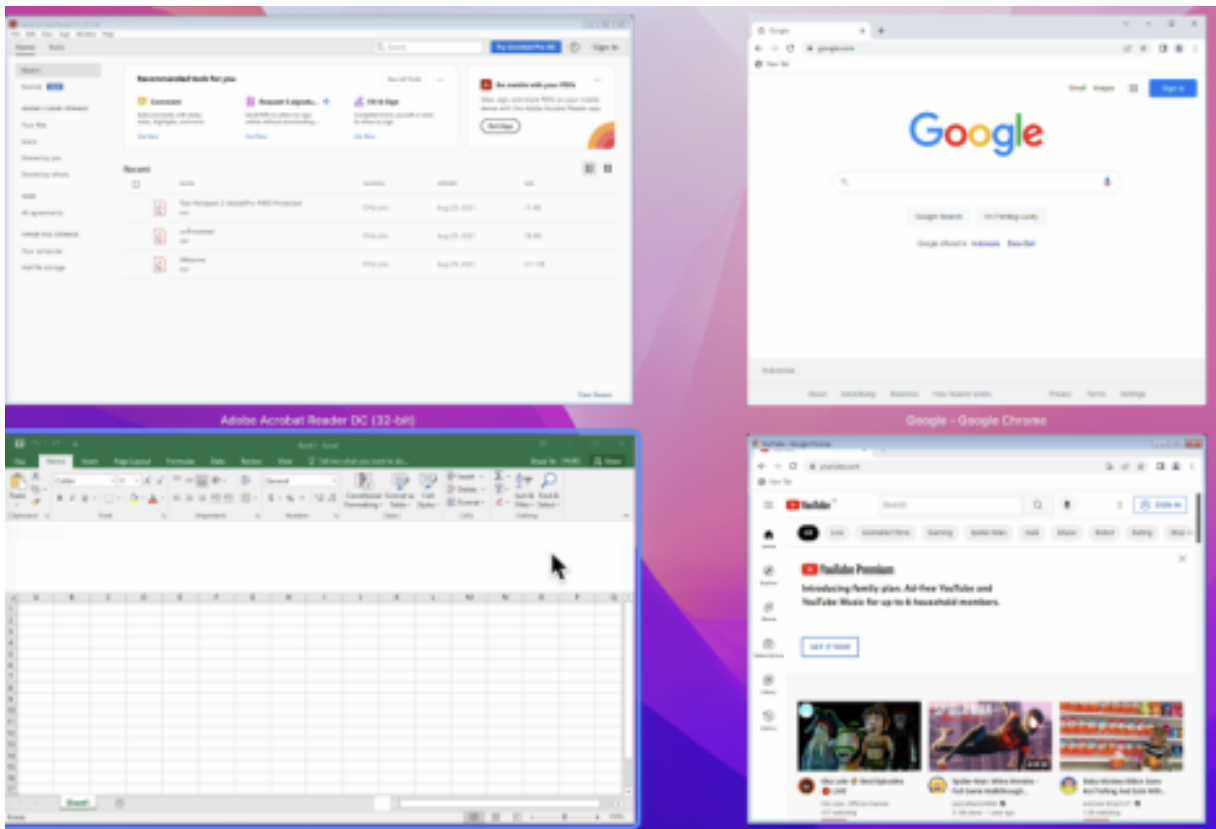
For more information, see the [Opened apps appear in the dock with native app icons](#) page.

**Improved Mission Control and App Expose experience** Previously, using the **Mission Control** or **App Expose** feature in a virtual app session resulted in the overlapping of many windows that were opened.

## Citrix Workspace app for Mac



Starting with the 2305 version, when you use the **Mission Control** or **App Expose** feature in a virtual app session and open many windows, the windows do not overlap, and you can easily choose from among them.



For more information, see [Improved Mission Control and App Expose experience](#).

**Enhancement to sleep mode for optimized Microsoft Teams call** Previously, when using the optimized Microsoft Teams meeting, if there's no mouse or keyboard interaction, Citrix Workspace app or the optimized Microsoft Teams screen might go to sleep mode.

Starting with the 2305 version, Citrix Workspace app or the optimized Microsoft Teams screen doesn't go to sleep mode even if there's no mouse or keyboard interaction during an optimized Microsoft Teams meeting.

For more information, see [Enhancement to sleep mode for optimized Microsoft Teams call](#).

**Support for continuity camera** With the Continuity Camera, you can now use the iPhone as your webcam. For a seamless connection, mount your iPhone such that its camera is available to the Mac device. You must select **Webcam > Automatic Camera Selection** for the iPhone to appear automatically on the Mac device as an external camera. You can switch to any other camera manually, for example by selecting **Webcam > FaceTime HD Camera**. The Continuity Camera works wired or wirelessly and provides a high-quality image. For more information, see [Support for continuity camera](#).

**Increase in the number of supported virtual channels [Technical Preview]** In earlier versions of the client, sessions supported up to 32 virtual channels. Starting with the 2305 version, you can use up to 64 virtual channels in a session.

**Note:**

Technical previews are available for customers to test in their non-production or limited production environments, and share [feedback](#). Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Store-based configuration of microphone and webcam access levels [Technical Preview]** Starting with the 2305 version, the per-store microphone and webcam access are included as a part of the client-selective trust feature. This enhancement allows you to change the settings based on a per-store basis. You can click a store to enable the required microphone or camera access. The selected setting for microphone or camera access is applied on a per-store basis.

**Note:**

Technical previews are available for customers to test in their non-production or limited production environments, and share [feedback](#). Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Support for authentication using FIDO2 when connecting to cloud stores [Technical Preview]**

Starting with the 2305 version, users can authenticate using passwordless FIDO2 security keys when connecting to Citrix Workspace app for Mac. Users can sign into the cloud stores using the FIDO2 security keys. The security keys support different types of security inputs such as security pins, biometrics, card swipe, smart card, Public Key Certificates. This feature is supported on macOS 12 and later versions. For more information about FIDO2 see [FIDO2 Authentication](#).

Citrix Workspace app uses the user's default browser for FIDO2 authentication (Webauthn). Administrators can configure the type of browser to authenticate to Citrix Workspace app. The configured setting can be pushed using the Mobile Device Management (MDM), Global App Configuration service (GACS), or the command line interface methods. The FIDO2 feature is not supported for on-premises stores. For more information on the web browser settings, see [Global App Configuration service](#) documentation.

The following settings allow you to select the type of browser used for authenticating an end user into Citrix Workspace app:

**Embedded:** Allows you to authenticate within Citrix Workspace app. Citrix Workspace app saves the session data or cookies for single sign-on (for example, SaaS apps) when the [enhanced single sign-on](#) feature is enabled. This authentication method does not support passwordless authentications such as FIDO2.

**EmbeddedWithPrivateSession:** This setting is similar to the **Embedded** setting. Single sign-on isn't supported as session data or cookies aren't present in Citrix Workspace app.

**System:** Allows you to use the user's default browser for authentication (for example, Safari or Chrome). Authentication occurs outside Citrix Workspace app. Use this setting to support passwordless authentication. This setting tries to use the existing user session from the user's browser.

**SystemWithPrivateSession:** This setting is like the **System** setting. Citrix Workspace app uses a private session in the browser for authentication. The browser doesn't save authentication cookies or data. Single sign-on isn't supported in this option.

**Enabling authentication using MDM** To enable authentication through MDM, administrators must use the following settings:

```
<key>WebBrowserForAuthentication</key>
<string>System</string>
```

**Enabling authentication using GACS** To enable authentication through GACS, administrators must use the following settings:

```
1  {
2
3      "serviceURL": {
4
5          "url": "https://serviceURL:443"
6      }
7  ,
8      "settings": {
9
10         "name": "Productivity Apps",
11         "description": "Provides access to MS Office and other basic apps",
12         "useForAppConfig": true,
13         "appSettings": {
14
15             "macos": [
16                 {
17
18                     "assignedTo": [
19                         "AllUsersNoAuthentication"
20                     ],
```



```
21     "category": "authentication",
22     "settings": [
23         {
24             "name": "web browser for authentication",
25             "value": "SystemWithPrivateSession"
26         }
27     ],
28     "userOverride": false
29 }
30 ]
31 }
32 }
33 ]
34 }
35 }
36 }
37 }
38 }
39 }
40 }
41 <!--NeedCopy-->
```

**Enabling authentication using the command-line interface** To enable authentication using the command-line interface, administrators must run the following command:

```
defaults write com.citrix.receiver.nomas WebBrowserForAuthentication System
```

This feature is a request-only preview. To get it enabled in your environment, fill out the [Podio](#) form.

**Note:**

Technical previews are available for customers to test in their non-production or limited production environments, and share [feedback](#). Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Keyboard input mode enhancements** Citrix Workspace app for Mac provides UI to configure the keyboard input mode.

To configure keyboard input mode by using the GUI, do the following:

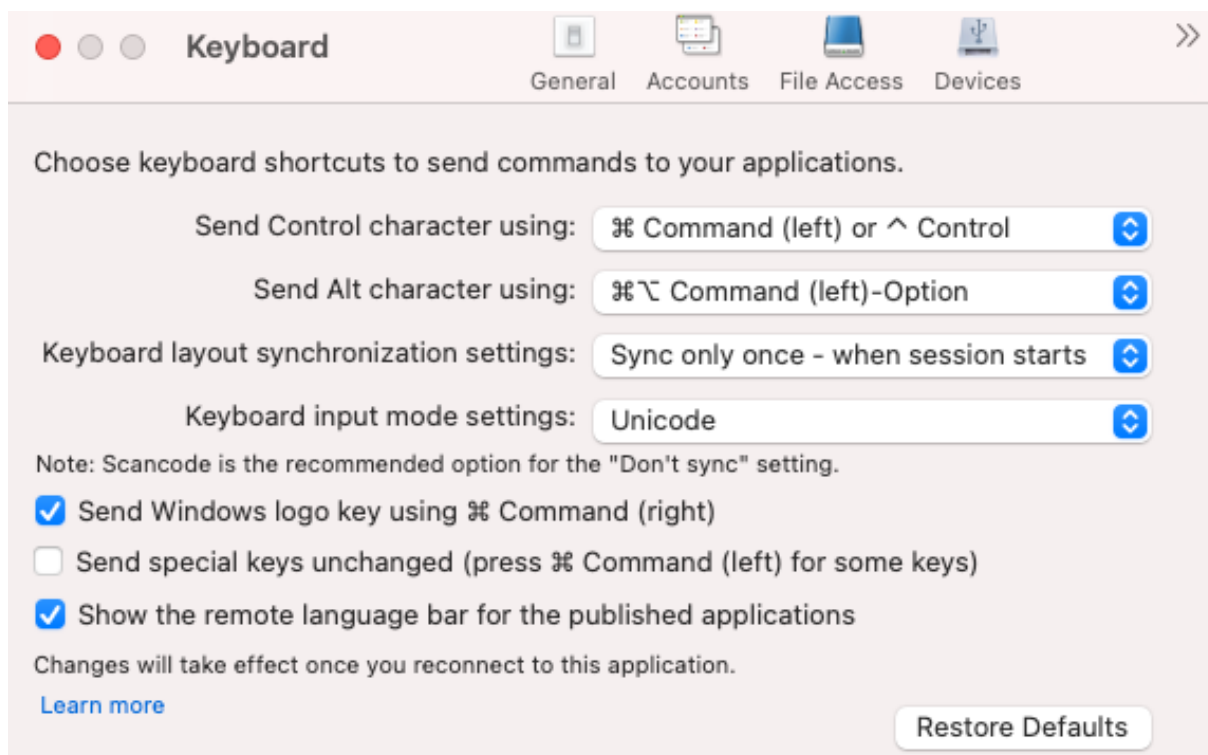
1. From the Citrix Workspace app icon in the menu bar, click the account icon in the top-right corner and navigate to **Preferences > Keyboard**.

The Keyboard input mode settings appear

2. Select from one of the following options:

- **Scancode** –Sends the key position from the client-side keyboard to VDA and VDA generates the corresponding character. Applies server-side keyboard layout.
- **Unicode** - Sends the key from the client-side keyboard to VDA and VDA generates the same character in VDA. Applies client-side keyboard layout.

This enhancement is enabled by default.



For example, consider a scenario where you’re using a US international keyboard layout and the VDA is using the Russian keyboard layout. When you choose **Scancode** and type the key next to **Caps Lock**, the scancode “1E” is sent to the VDA. The VDA then uses “1E” to display the character “ф”. If you choose **Unicode** and type the key next to **Caps Lock**, the character “a” is sent to the VDA. So, even if the VDA uses the Russian keyboard layout, the character “a” appears on the screen.

Citrix recommends the following keyboard input mode for the different keyboard layout sync options:

- Scancode mode for **Don’t Sync** option.
- Unicode mode for **Allow dynamic sync** and **Sync only once - when session starts**

**Note:**

The keyboard configuration changes take effect once you reconnect to the application.

You can change the configuration of Keyboard input mode in the Citrix Workspace app UI. However, for best performance, use the Citrix-recommended modes for different scenarios, physical keyboards,

and client devices.

For more information on configuration details and limitations, see [Keyboard input mode enhancements](#).

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 112.1.1.23, based on Chromium version 112. For more information about the Citrix Enterprise Browser, see [Citrix Enterprise Browser](#) documentation.

**Modification in SPA policy implementation on internal Web and SaaS apps** This feature enhances the security policies implementation on Web and SaaS apps. When a webpage and iframes within the webpage have different policies, we now have a stricter policy implementation where a union of all policies is applied on the entire webpage, including the iframes. However, the watermark is applied to the webpage only.

**Support for browser extensions** You can add extensions that are provided by your administrator to the Citrix Enterprise Browser in a secure way. An administrator can deploy, manage, and control the extensions. End users can view and use the extension under `citrixbrowser://extensions` as required. For more settings, see [Global App Configuration service](#).

For information on how to configure, see the [Support for browser extensions](#) documentation.

**Use GACS to manage Citrix Enterprise Browser** The administrator can use the Global App Configuration service (GACS) for Citrix Workspace to deliver Citrix Enterprise Browser settings through a centrally managed service.

The GACS is designed for administrators to easily configure Citrix Workspace and manage the Citrix Workspace app settings. This feature allows admins to use GACS to apply various settings or system policies to the Citrix Enterprise Browser on a particular store. The administrator can now configure and manage the following Citrix Enterprise Browser settings using APIs or the GACS Admin UI:

- “Enable CEB for all apps”- Makes the Citrix Enterprise Browser the default browser for opening web and SaaS apps from the Citrix Workspace app.
- “Enable save passwords”- Allow or deny end users the ability to save passwords.
- “Enable incognito mode”- Enable or disable incognito mode.
- “Managed Bookmarks”- Allow the administrator to push bookmarks to the Citrix Enterprise Browser.
- “Enable developer tools”- Enable or disable developer tools within the Enterprise Browser.
- “Delete browsing data on exit”- Allow the administrator to configure what data the Citrix Enterprise Browser deletes on exit.

- “Extension Install Force list”- Allow the administrator to install extensions in the Citrix Enterprise Browser.
- “Extension Install Allow list”- Allow the administrator to configure an allowed list of extensions that users can add to the Citrix Enterprise Browser. This list uses the Chrome Web Store.

For more information, see [Use Global App Configuration service to manage Citrix Enterprise Browser](#).

### Notes:

- The name and value pair are case-sensitive.
- All the browser settings in [Global App Configuration service](#) are under the following category:

```
1 {
2
3     "category": "browser",
4     "userOverride": false,
5     "assignedTo": [
6         "AllUsersNoAuthentication"
7     ]
8 }
9
10
11 <!--NeedCopy-->
```

- The administrator can apply the settings to unmanaged devices as well. For more information, see [Global App Configuration service](#) documentation.

## User interface

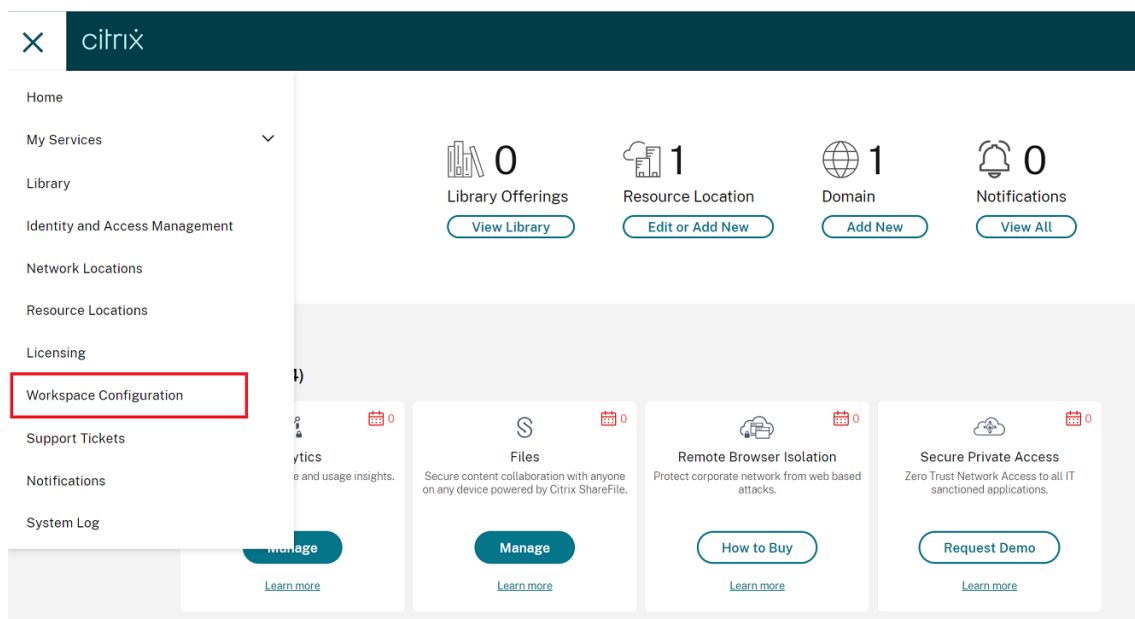
To configure Citrix Enterprise Browser through the GACS Admin UI, do the following:

1. Sign in to [citrix.cloud.com](https://citrix.cloud.com) with your credentials.

### Note:

- Refer to the [Sign Up for Citrix Cloud](#) article for step-by-step instructions to create a Citrix Cloud account.

2. Upon authentication, click the menu button in the top left corner and select **Workspace Configuration**.



The **Workspace Configuration** screen appears.

### 3. Click **App Configuration > Citrix Enterprise Browser**.

You can now configure, modify, and publish Citrix Enterprise Browser feature settings.

For more information, see [Use Global App Configuration service to manage Citrix Enterprise Browser](#).

## Technical Preview

- Client APP Management

For a complete list of Technical Preview features, see the [Features in Technical Preview](#) page.

## Fixed issues

- With this enhancement, the location data can be collected and sent to Microsoft Teams to support the dynamic emergency calling feature. [CVADHELP-21117]
- When you scroll in a MacBook using a touchpad in a user session that is opened through Citrix Workspace app for Mac, the scroll experience might not be smooth. [CVADHELP-21427]
- When using Citrix Workspace app for Mac, external users might get disconnected from the sessions intermittently. [CVADHELP-22191]
- Attempts to add a store URL that contains a query parameter might fail in Citrix Workspace app for Mac with this error message:

**This store doesn't exist. Please retry or contact support.**

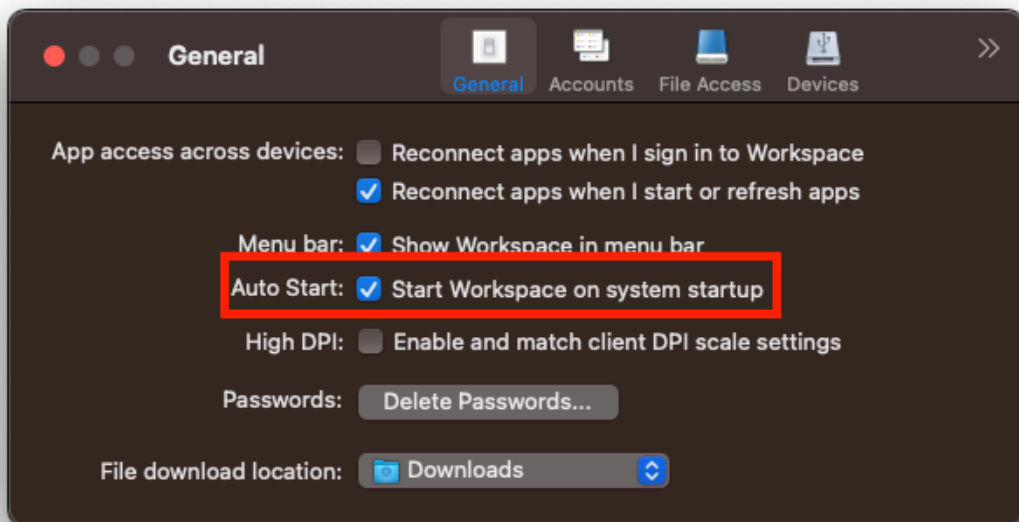
[CVADHELP-22445]

- On an on-premises store, when you attempt to open Citrix Workspace app from the **Menu** bar, you might experience an indefinite wait time. [CVADHELP-22688]

## 2304

### What's new

**Enhanced auto start experience** Previously, Citrix Workspace app for Mac used to start automatically whenever a computer was turned on. Starting with the 2304 version, you can choose to disable or enable the auto start feature on Citrix Workspace app for Mac by navigating to **Preferences > General > Start Workspace** on system startup. The auto start setting is enabled by default.



For more information, see [Enhanced auto start experience](#).

**Improved experience for optimized Microsoft Teams video conference calls** Starting with the 2304 version, by default simulcast support is enabled for optimized Microsoft Teams video conference calls. With this support, the quality and experience of video conference calls across different endpoints are improved. It is achieved by adapting to the proper resolution for the best call experience for all callers.

With this improved experience, each user might deliver multiple video streams in different resolutions (for example, 720p, 360p, and so on) depending on several factors including endpoint capability, network conditions, and so on. The receiving endpoint then requests the maximum quality resolution that it can handle thus giving all users the optimum video experience.

**Note:**

This feature is available only after the roll-out of an update from Microsoft Teams. For information on ETA, go to <https://www.microsoft.com/> and search for the Microsoft 365 roadmap. When the update is rolled-out by Microsoft, you can check [CTX253754](#) for the documentation update and the announcement.

For more information see,

[Improved experience for optimized Microsoft Teams video conference calls.](#)

**Support for Certificate-based authentication [Technical Preview]** Starting with the 2304 version, Workspace administrators can configure and enforce Azure Active Directory conditional access policies for users authenticating to Citrix Workspace app.

The following methods can be used to enable the authentication using conditional access:

- Mobile Device Management (MDM)
- Global App Configuration service (GACS)

The flag values read by Citrix Workspace app take precedence in the following order:

- Mobile Device Management (MDM)
- Global App Configuration service (GACS)

For more information, see [Support for Certificate-based authentication.](#)

**Note:**

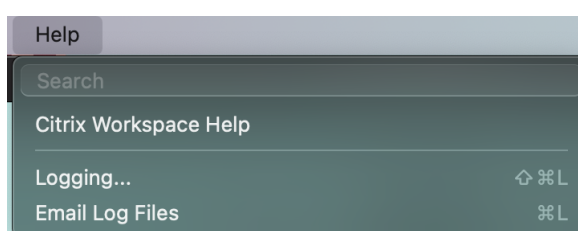
Technical previews are available for customers to test in their non-production or limited production environments, and share [feedback](#). Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Force login prompt for Federated identity provider** Citrix Workspace app now honors the Federated Identity Provider Sessions setting. For more information, see Citrix Knowledge Center article [CTX253779](#).

You no longer need to use the Store authentication tokens policy to force the login prompt. For more information, see [Force login prompt for Federated identity provider.](#)

**Support for non-English-language Input Method Editors (IME) keyboard layouts** Support for non-English language IME keyboard layouts continues to work uninterrupted after the Carbon APIs are deprecated with the Cocoa APIs. For more information, see [Support for non-English-language Input Method Editors \(IME\) keyboard layouts](#).

**Log collection** Log collection simplifies the process of collecting logs for Citrix Workspace app. The logs help Citrix to troubleshoot, and, in cases of complicated issues, facilitate support. Users can now collect logs quickly by using the new option provided in the **Help** menu by navigating to **Help** and selecting the **Logging...** or **Email Log Files** option. This feature improves the user experience during the log collection process.



- **Logging...** - clicking this option directs you to **Preferences > Advanced > Logging**
- **Email Log Files** –clicking this option allows collecting the latest logs.

For more information, see [Log collection](#).

**Support synchronization for more keyboard layouts** Starting with the 2304 version, Citrix Workspace app for Mac supports keyboard layout synchronization for the following layouts or Input Method Editors (IMEs):

- English ABC
- English ABC - India
- Chinese, Traditional: Zhuyin - Traditional
- Chinese, Traditional: Sucheng - Traditional
- Google Japanese IME
- Sougou Chinese IME

For more information, see [Support synchronization for more keyboard layouts](#).

## Microsoft Teams enhancement

**Configuring a preferred network interface** You can now configure a preferred network interface for media traffic. Run the following command in a terminal:



```
defaults write com.citrix.HdxRtcEngine NetworkPreference -int <value>
```

Select one of the following values as required:

- 1: Ethernet
- 2: Wi-Fi
- 3: Cellular
- 4: VPN
- 5: Loopback
- 6: Any

By default and if no value is set, the WebRTC media engine chooses the best available route.

For more information, see [Configuring a preferred network interface](#).

**Limiting video resolutions** Administrators with users on lower-performance client endpoints can limit incoming or outgoing video resolutions to reduce the impact of video encoding and decoding on those endpoints. Starting from Citrix Workspace app 2304 for Mac, you can limit these resolutions using client configuration options.

For more information, see [Limiting video resolutions](#).

**Support for horizontal scroll [Technical Preview]** Previously, Citrix Workspace app for Mac supported only vertical scroll on a trackpad. Starting with the 2304 version, a horizontal scroll is also supported.

**Note:**

Technical previews are available for customers to test in their non-production or limited production environments, and share [feedback](#). Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Keyboard input mode enhancements** Citrix Workspace app for Mac provides UI to configure the keyboard input mode.

To configure keyboard input mode by using the GUI, do the following:

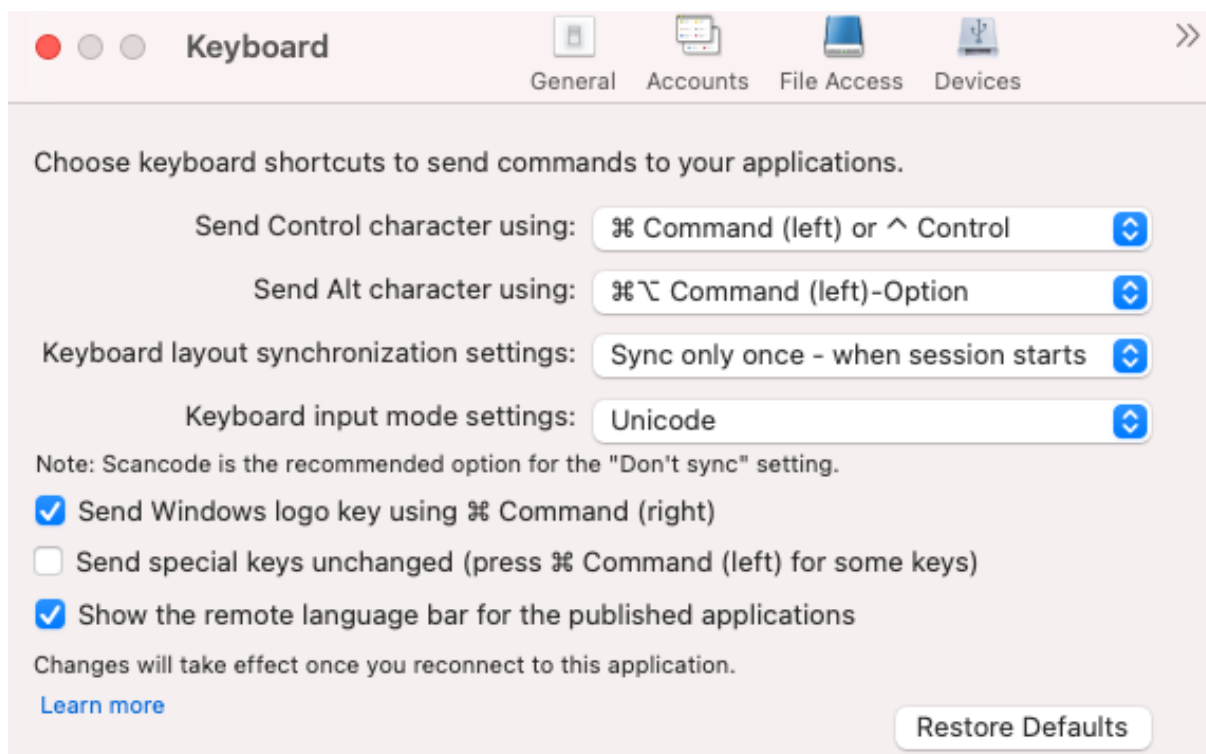
1. From the Citrix Workspace app icon in the menu bar, click the account icon in the top-right corner and navigate to **Preferences > Keyboard**.

The Keyboard input mode settings appear

2. Select from one of the following options:

- **Scancode**—Sends the key position from the client-side keyboard to VDA and VDA generates the corresponding character. Applies server-side keyboard layout.
- **Unicode** - Sends the key from the client-side keyboard to VDA and VDA generates the same character in VDA. Applies client-side keyboard layout.

This enhancement is enabled by default.



For example, consider a scenario where you're using a US international keyboard layout and the VDA is using the Russian keyboard layout. When you choose **Scancode** and type the key next to **Caps Lock**, the scancode "1E" is sent to the VDA. The VDA then uses "1E" to display the character "ф". If you choose **Unicode** and type the key next to **Caps Lock**, the character "a" is sent to the VDA. So, even if the VDA uses the Russian keyboard layout, the character "a" appears on the screen.

Citrix recommends the following keyboard input mode for the different keyboard layout sync options:

- Scancode mode for **Don't Sync** option.
- Unicode mode for **Allow dynamic sync** and **Sync only once - when session starts**

**Note:**

The keyboard configuration changes take effect once you reconnect to the application.

You can change the configuration of Keyboard input mode in the Citrix Workspace app UI. However, for best performance, use the Citrix-recommended modes for different scenarios, physical keyboards, and client devices.

For more information on configuration details and limitations, see [Keyboard input mode enhancements](#).

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 109.1.1.31, based on Chromium version 109. For more information about the Citrix Enterprise Browser, see [Citrix Enterprise Browser](#) documentation.

### Technical Preview

- Rapid Scan
- Enhanced virtual apps and desktops launch experience
- Support for multiple audio devices

For a complete list of Technical Preview features, see the [Features in Technical Preview](#) page.

### Fixed issues

- When you create two XML files on a Mac local client, the VDA might open the incorrect XML file. For example, the VDA opens the Snapshot.xml file instead of opening the SnapshotPopup.xml file. [HDX-45326]
- When you change the active audio devices in the sound settings on the endpoint, Microsoft Teams might not receive any notification about the change. As a result, Microsoft Teams fails to pick the changes. [HDX-47080]
- The Citrix Viewer might quit occasionally when you close a VDA session. [HDX-45668, HDX-47138]
- The responder policy configured using Citrix ADC might fail to work with Citrix Workspace app for Mac. The issue occurs when the policy configured checks if the user agent has sent **CWAVE-BVIEW**, **Citrix Receiver**, or **Citrix Workspace** as a substring, which does not match. As a result, users might be redirected to a different Citrix Gateway URL. [CVADHELP-20519]
- When you connect to Citrix Gateway Store and attempt to sign in to Citrix Workspace app for Mac, the sign-in might get stuck or take time with a spinning wheel. [CVADHELP-21323]
- Citrix Workspace app for Mac might fail to start a session if the **File Type Association** is set for an app under **Application Settings** in Citrix Studio. [CVADHELP-21371]

- A sign-in window might appear automatically in Citrix Workspace app for Mac when you power on or restart your system. [CVADHELP-21484]
- Citrix Workspace app for Mac might quit unexpectedly when the Universal Windows Platform (UWP) apps within the VDI attempt to authenticate using the FIDO2 authentication. [CVADHELP-21576]
- Attempts to open the web resources might fail with this error message:  
**Switch to another store with the necessary permissions. If the issue persists, contact your admin with error details.**  
[CVADHELP-21787]
- Citrix Workspace app for Mac might use an incorrect user agent **CitrixReceiver** instead of **Citrix Workspace** as a substring. As a result, the authorization policies aren't honored. [CVADHELP-21969]
- When using the notch screen feature, a part of the text might be cut. [CVADHELP-22134]
- When you open Citrix Enterprise Browser from the dock, instead of a new tab, it shows that the page is loading. As a workaround, enter the URL in the address bar or open another tab to continue browsing. [CTXBR-4706]
- When using the Citrix Secure Private Access enabled store, an infinite loading spinner might appear while launching the published content. The issue occurs when Citrix Enterprise Browser isn't running on the user device. As a result, you can't view the published content. [CTXBR-4813]

### 2301.1

#### What's new

This 2301.1 release addresses a few issues that help to improve overall performance and stability.

#### Fixed issues

- You might face issues when you add or authenticate a store, or start a resource (apps or desktops) using the native Citrix Workspace app. [CVADHELP-22372]
- The incoming video and screen sharing might not work during Microsoft Teams optimized video calls. [HDX-50059]

### Known issues in 2301.1

- You can't update to Citrix Workspace app for Mac version 2301.1 using the auto-update service. As a workaround, you must manually install the Citrix Workspace app for Mac version 2301.1 by downloading the .dmg file available on the [Downloads](#) page.

## 2301

### What's new

**Background blurring and replacement for Citrix Optimized Microsoft Teams** Citrix Optimized Microsoft Teams in Citrix Workspace app for Mac now supports background blurring and background replacement. You can use this by selecting **More > Apply Background Effects** when you are in a meeting or a P2P call.

**Auto-update version control [Technical Preview]** Administrators can now manage the auto-updated version of Citrix Workspace app for the devices in the organization. Administrators can control the version by setting the range in the `maximumAllowedVersion` and `minimumAllowedVersion` properties in the Global App Configuration service.

Example JSON file in Global App Configuration service:

```
1 {
2
3   "serviceURL": {
4
5     "url": "https://serviceURL:443"
6   }
7 ,
8   "settings": {
9
10    "name": "Version Control for Citrix Workspace",
11    "description": "Provides admin ability to Version Control for
12      Citrix Workspace",
13    "useForAppConfig": true,
14    "appSettings": {
15
16      "macos": [
17
18        "category": "AutoUpdate",
19        "userOverride": false,
20        "assignedTo": [
21          "AllUsersNoAuthentication"
22        ],
23        "settings": [
24          {
```

```
25
26     "name": "Auto update plugins settings",
27     "value": [
28         {
29
30             "pluginName": "Citrix Workspace",
31             "pluginId": "D99C3E77-FBF5-4B97-8EDA-4E381A1E0826",
32             "pluginSettings": {
33
34                 "deploymentMode": "Update",
35                 "upgradeToLatest": false,
36                 "minimumAllowedVersion": "23.04.0.36",
37                 "maximumAllowedVersion": "23.04.0.36",
38                 "delayGroup": "Medium",
39                 "detectRule": ""
40             }
41         }
42     ]
43 }
44 ]
45 }
46
47 ]
48 }
49
50 ]
51 }
52
53 }
54
55 }
56
57
58 <!--NeedCopy-->
```

When the range is set, Citrix Workspace app on the user's device is automatically updated to the highest available version that falls between the mentioned range.

If you want to auto-update Citrix Workspace app to a specific version, enter the same version in the `maximumAllowedVersion` and `minimumAllowedVersion` properties in the Global App Configuration service.

**Note:**

- To enable auto-update version control, the `upgradeToLatest` setting in the Global App Configuration service must be set to false. If the `upgradeToLatest` setting is true, the `maximumAllowedVersion` and `minimumAllowedVersion` is ignored.
- Do not modify the `pluginId`. The `pluginId` is mapped to Citrix Workspace app.
- If the administrator hasn't configured the version in the Global App Configuration service, Citrix Workspace app is updated to the latest available version by default.

- You can only use the version ranges that are set to update Citrix Workspace app. However, a downgrade isn't supported.
- This feature is supported from release 2301 onwards.

You can provide feedback for this technical preview by using the [Podio](#) form.

**Note:**

Technical previews are available for customers to test in their non-production or limited production environments, and share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Improved auto-update experience [Technical Preview]** The automatic update feature automatically updates the Citrix Workspace app to the latest version, without any user intervention. Citrix Workspace app periodically checks for any latest updates and downloads the latest available version of the app. By default, automatic updates are enabled, unless your admin disable the automatic updates.

Installation starts when the Citrix Workspace app or the sessions are idle.

**Note:**

Citrix Workspace app cannot be accessed during the installation.

When you start the Citrix Workspace app, a notification appears to indicate the status of the installation.

You can disable the auto-update feature by navigating to **Preferences > Advanced > Updates** and unselecting the **Automatically keep Workspace app up to date** option.

You can provide feedback for this technical preview by using the [Podio](#) form.

**Note:**

Technical previews are available for customers to test in their non-production or limited production environments, and share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Enhanced notch screen support** Starting with the 2301 version, Citrix Workspace app for Mac supports Macs with a notch display. Macs support a native notch screen in full screen mode for retina and multi-monitor displays. The area of the session in the notch screen is now much bigger and provides the customers with more screen space. This enhancement also supports high DPI scaling. The mouse position also appears accurate in all the external monitors connected. For more information, see [Enhanced notch screen support](#).

**Note:**

Ensure not to select the **Scale to fit below built-in camera** option in the Citrix Viewer. This option isn't selected by default and can be found only on Macs with notch display.

**App Protection enhancement** Starting with the 2301 version, App Protection is enhanced to protect the Citrix Workspace app. This enhancement includes protecting the authentication screen and the screen that you see after signing into the Workspace app. For more information, see [App Protection](#).

**Global App Configuration service channel support [Technical Preview]** The Global App Configuration service for Citrix Workspace allows a Citrix administrator to deliver Workspace service URLs and Workspace App settings through a centrally managed service. For more information, see [Global App Configuration service](#) documentation.

Administrators can now use the Global App Configuration service to define settings, which are applicable to specific user-groups. This feature ensures that some features or functionalities can be made available to only certain users as required, and not to others.

You can provide feedback for this technical preview by using the [Podio](#) form.

**Note:**

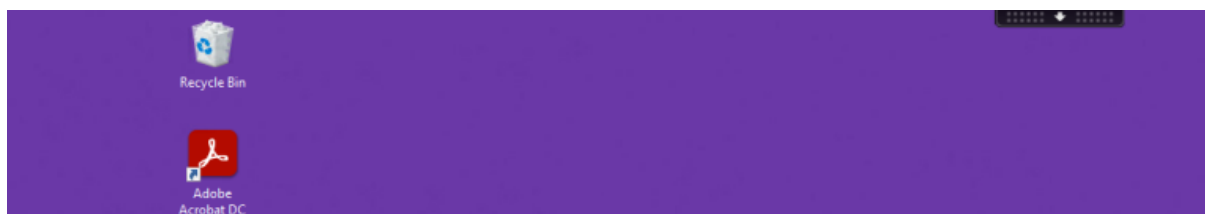
Technical previews are available for customers to test in their non-production or limited production environments, and share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Enhanced menu bar support** Starting with the 2301 version, the CWA fully supports the **Automatically hide and show the menu bar in full screen** option in MacOS. For versions earlier than macOS 13, you must navigate to **System Preferences > Dock & Menu Bar** and clear the **Automatically hide and show the menu bar in full screen** option. For macOS 13 and later versions, you must navigate to **System Preferences > Desktop & Dock** and clear the **Automatically hide and show the menu bar in**



**full screen** option. You have the provision to either enable or disable this option. This enhancement also supports high DPI scaling. The mouse position also appears accurate in all the external monitors connected. For more information, see [Enhanced menu bar support](#).

The figure below illustrates a window where the menu bar is hidden



The figure below illustrates a window where the menu bar appears



**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 107.1.1.13, based on Chromium version 107. For more information about the Citrix Enterprise Browser, see [Citrix Enterprise Browser](#) documentation.

**Set Citrix Enterprise Browser as the work browser** You can now configure Citrix Enterprise Browser as a work browser to open all work links. You can select an alternate browser to open non-work links.

A work link is a link that is associated with the web or SaaS apps that the administrator configures for the end user. When a user clicks any link within a native application, if it's a work link, it's opened through the Enterprise Browser. If not, it's opened through any other browser that the end-user selects.

For more information, see [Set Citrix Enterprise Browser as the work browser](#).

### Fixed issues

- HTTP Live Streaming (HLS) protocol with High-Efficiency Advanced Audio Coding (AAC-HE) stream fails to play back audio on Citrix Enterprise Browser. [CTXBR-3899]
- When you click a hyperlink in the custom portal, an error message appears before opening the link. Later, the link opens in a system browser, for example, Google Chrome instead of Citrix Enterprise Browser. [CTXBR-4051]

- When using Citrix Workspace app for Mac with a custom web store URL, the versions of the operating system and Citrix Workspace app might not be shown in the user agent string. [CVADHELP-21377]
- With this fix, certain third-party apps such as Epic or Kronos might not freeze when you start them. [HDX-46140]
- When you attempt to start a session using an ICA file from Citrix Workspace app 2301 for Mac Beta build for the first time, the session might quit unexpectedly. [HDX-47361]
- When you add the custom portal site to Citrix Workspace app for Mac, a blank page might appear. [RFMAC-12857]

## 2211.1

### What's new

This release addresses a few issues that help to improve overall performance and stability.

### Fixed issues

- You might face issues when you add or authenticate a store, or start a resource (apps or desktops) using the native Citrix Workspace app. [CVADHELP-22372]
- The incoming video and screen sharing might not work during Microsoft Teams optimized video calls. [HDX-50059]

## 2211

### What's new

#### **Workspace apps appear in the Dock with native app icons when opened [Technical Preview]**

Starting with the 2211 version, this feature is disabled by default.

This feature is a request-only preview. To get it enabled in your environment, fill out the [Podio form](#).

#### **Improved Mission Control and App Expose experience [Technical preview]**

Starting with the 2211 version, this feature is disabled by default.

This feature is a request-only preview. To get it enabled in your environment, fill out the [Podio form](#).

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 105.2.1.40, based on Chromium version 105. For more information about the Citrix Enterprise Browser, see [Citrix Enterprise Browser](#) documentation.

### Fixed issues

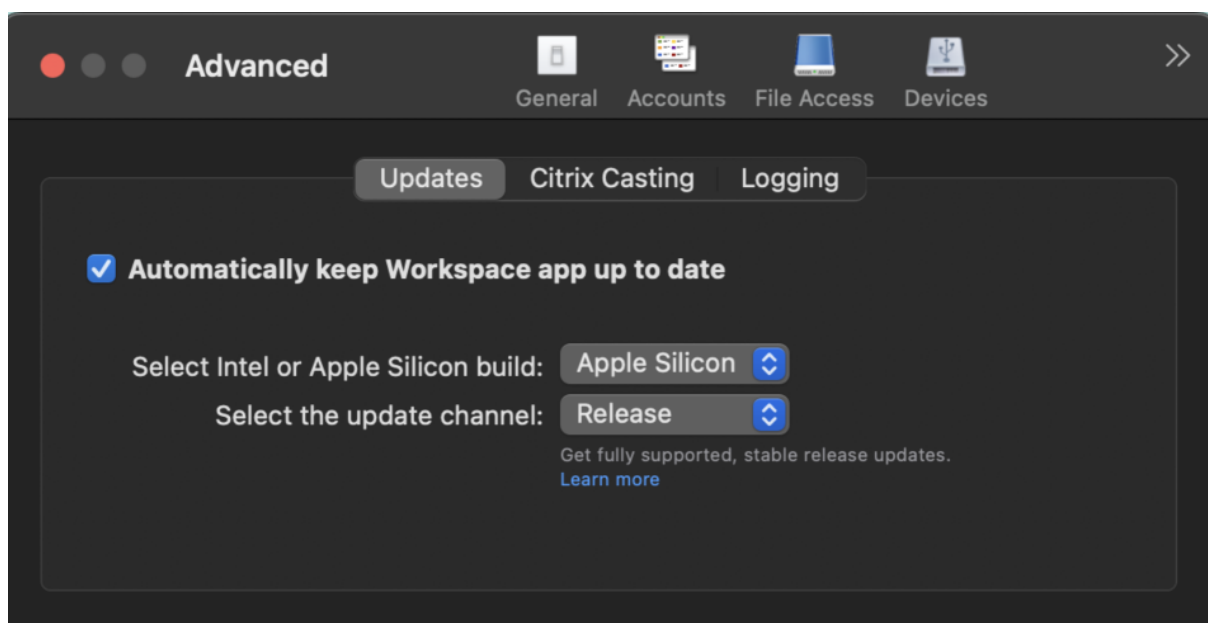
This release also addresses several issues that help to improve overall performance and stability.

### 2210

#### What's new

**macOS 13 Ventura Support** Citrix Workspace app for Mac is supported on macOS 13 Ventura (13.0).

**Improved automatic update experience on Mac with Apple Silicon (M1 Series)** Starting with this version, when you download the Universal Architecture build, you can choose between the Apple Silicon and Intel builds to support both the Apple Silicon and Intel based Mac machines.



On Apple Silicon machines, the users have the option to automatically update the Intel build even after having downloaded the Apple Silicon build. The option is provided in the **Preferences** tab.

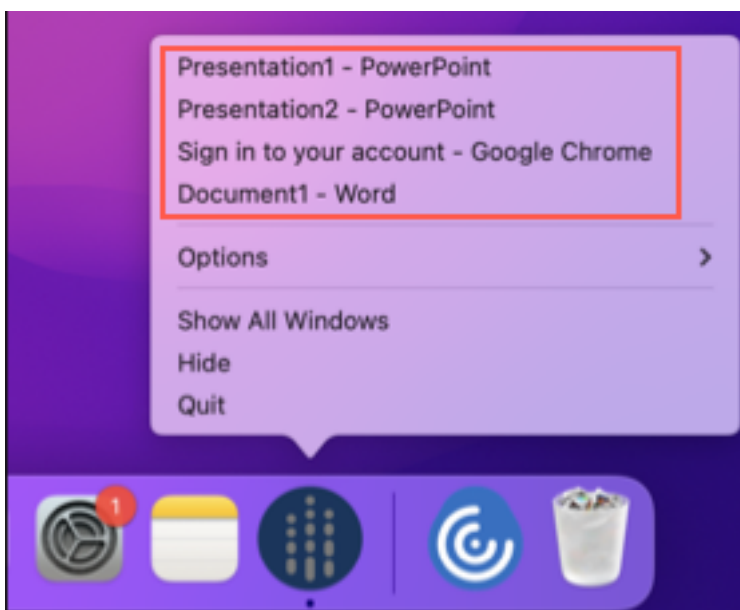
**Advanced configuration for automatic updates** You can configure Citrix Workspace automatic updates on Mac with Apple silicon (M1 Series) using the following methods:

- Graphical user interface
- Global App Configuration service (GACS)
- Mobile Device Management (MDM)
- StoreFront

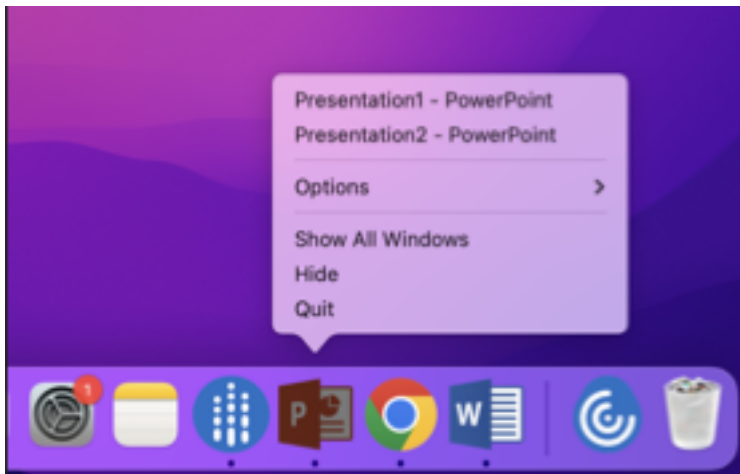
For more information, see [Advanced configuration for automatic updates](#).

### **Workspace apps appear in the Dock with native app icons when opened [Technical Preview]**

Previously, clicking virtual apps in the Citrix Workspace app triggered the Citrix Viewer where these apps would be available. If you open many apps, the apps or its instances opened in the Citrix Viewer. You can view the open apps by right-clicking the Citrix Viewer icon.



Starting with this version, when you open virtual apps, they appear in the Dock with their respective icons and are easily identifiable. You can then access the virtual app from the dock itself. If you open multiple instances of an app, these instances aren't duplicates in the Dock but are grouped within one instance in the Dock.

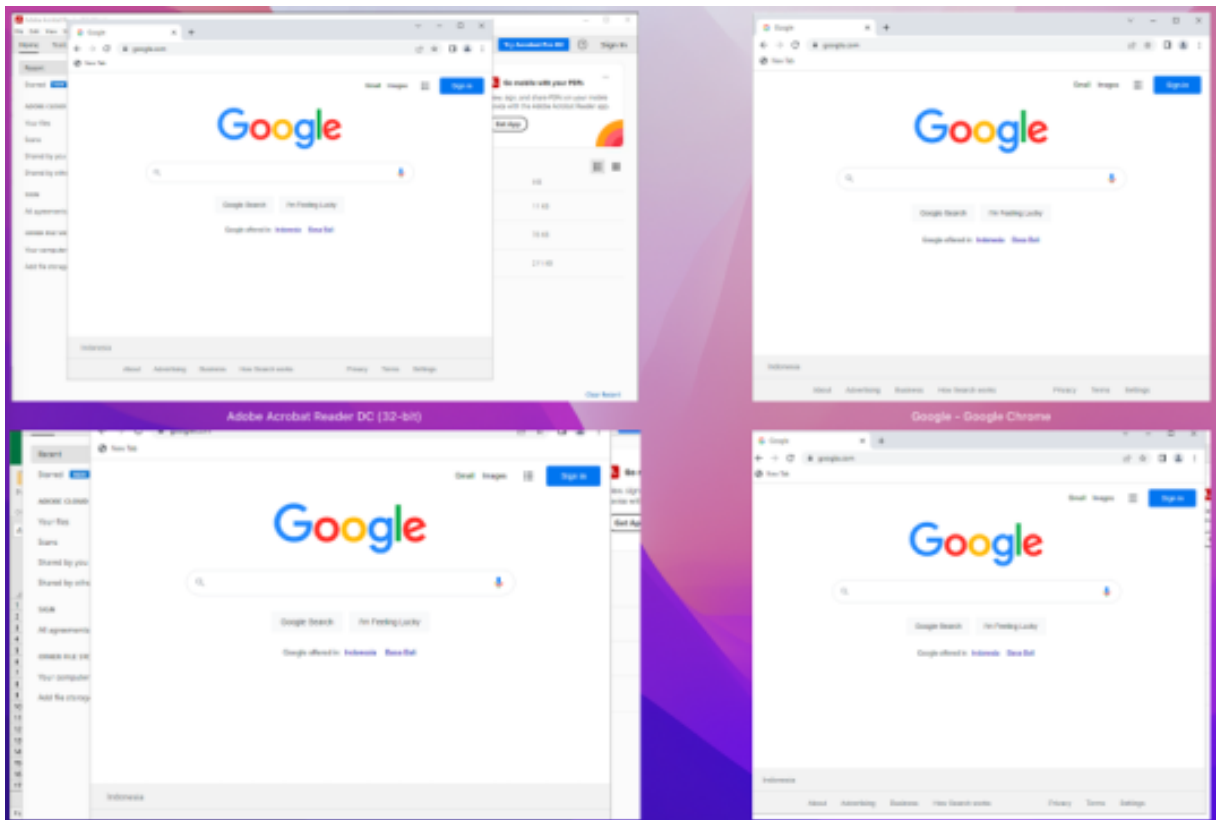


**Note:**

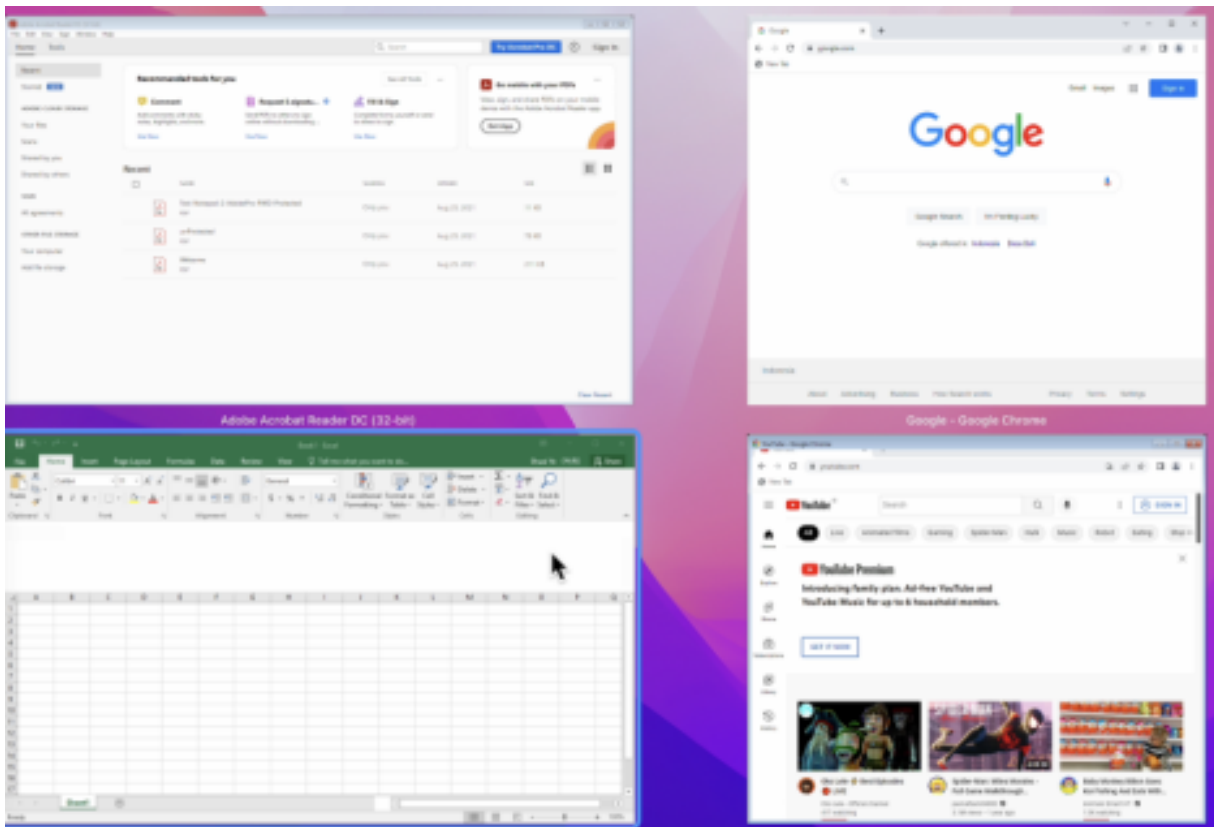
Technical previews are available for customers to test in their non-production or limited production environments, and share [feedback](#). Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Improved Mission Control and App Expose experience [Technical preview]** Previously, using the **Mission Control** or **App Expose** feature in a virtual app session resulted in the overlapping of many windows that were opened.

## Citrix Workspace app for Mac



Starting with this version, when you use the **Mission Control** or **App Expose** feature in a virtual app session and open many windows, the windows do not overlap, and you can easily choose from among them.



### Note:

Technical previews are available for customers to test in their non-production or limited production environments, and share [feedback](#). Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Improved graphics performance [Technical preview]** With this version, the performance of graphics is improved for desktop sessions.

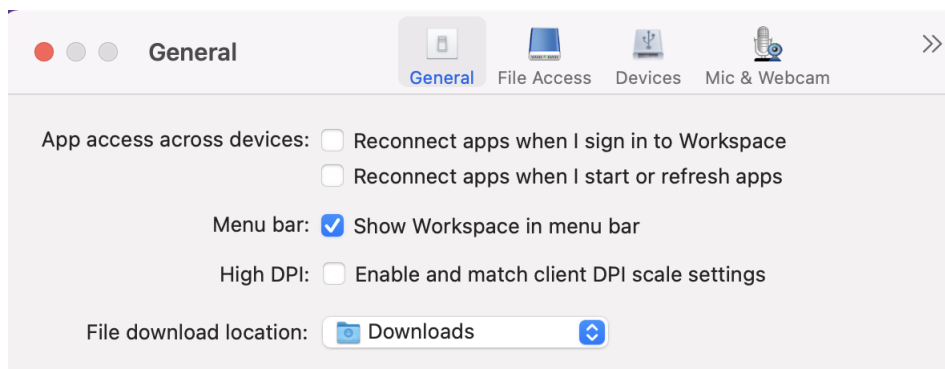
### Note:

Technical previews are available for customers to test in their non-production or limited production environments, and share [feedback](#). Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Support for high DPI** Citrix Workspace app for Mac is now compatible with one high DPI monitor with 4K or 5K resolution. With this feature, the text, images, and other graphical elements on virtual

desktop or app sessions appear in a size that can be viewed comfortably on these high-resolution monitors. For more information, see [Support for high DPI](#).

To enable this feature, navigate to **Preferences > General > High DPI**.



**Note:**

The number of external monitors you can use with your mac is always limited by the Mac model, as well as the resolution and refresh rate of each display. Refer to the technical specifications of your Mac to find out the supported number of external monitors. For more information, see [Connect one or more external displays with your Mac](#) in the Apple support article.

**Support for admin configuration of user devices through MDM tool** Admins can now configure the following settings while deploying Citrix Workspace app through any MDM deployment tool such as Citrix Endpoint Management:

- **StoreURLs** –Configure store details so it’s automatically added when the user opens the Citrix Workspace app, simplifying the sign-on experience.  
To add a store, provide the details for the **StoreURLs** setting. For example, `<string>https://myorg.com/?storename</string>`.
- **BlockStoreAddition** –Prevent the user from adding stores.  
To block the user from adding a store, set the value of the **BlockStoreAddition** setting to **True**.

For more information, see [Support for store configuration of user devices through MDM tool](#).

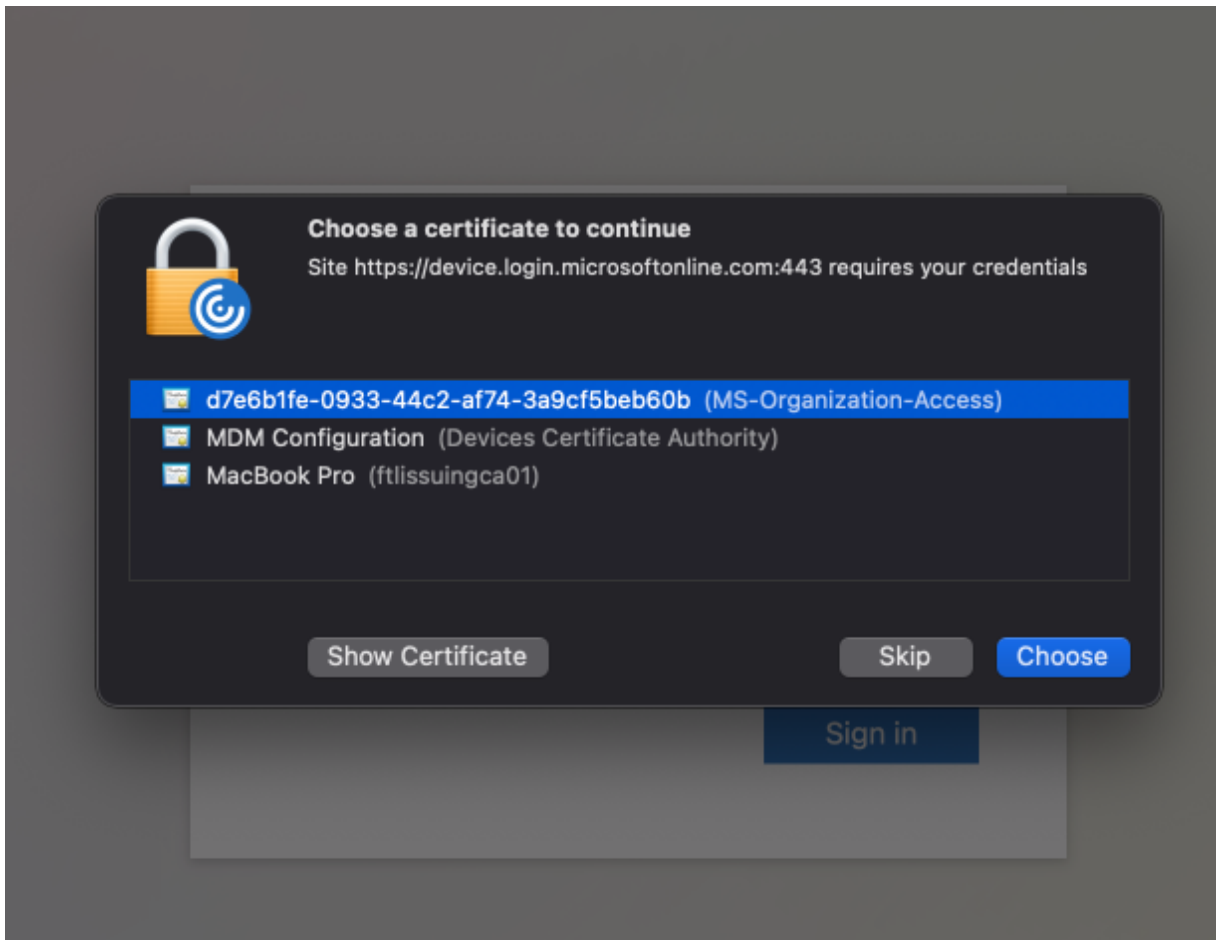
**Support for certificate-based authentication [Technical Preview]** You can now authenticate to Citrix Workspace app (cloud stores) by using a client certificate.

Previously, Certificate based authentication was supported on on-premises setups and customers on cloud setups were unable to sign in to Citrix Workspace app. This feature is disabled by default and admins must contact the Citrix help desk to enable this feature by filling this request form.



If your organization has configured Conditional Access with Azure Active Directory, then the user is prompted to select a Client Certificate for authentication while signing in. Certificate-based authentication adds another layer of security, ensuring that your device is compliant.

Once you add a store and enter valid credentials for that store, Citrix Workspace app displays a list of valid certificates available in your keychain for Client Authentication. If there's only one valid certificate in your keychain, it's selected by default.



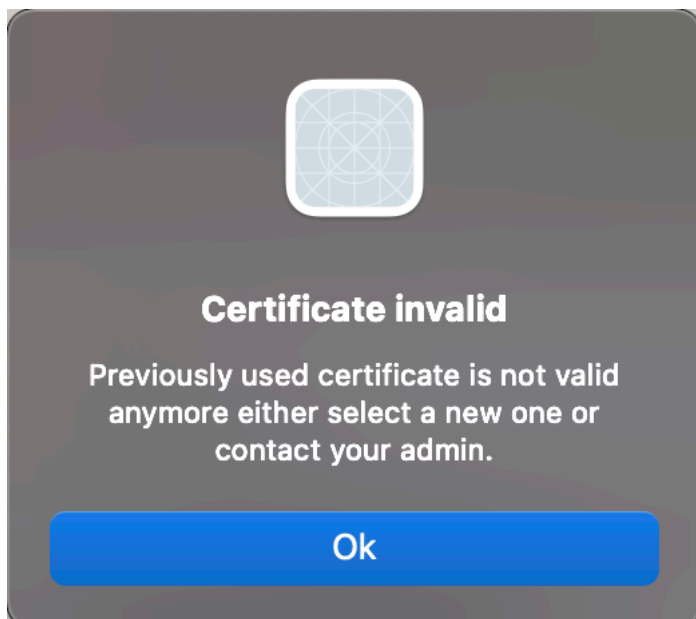
Once you choose a certificate, the identity provider validates it and the Workspace app store appears on successful validation.

**Note:**

- If there are no valid certificates in your keychain, the Citrix Workspace app performs the default handling for the certificate authentication request from the server. This might prevent the user from logging in.
- If your organization has configured Conditional Access with Azure Active Directory and valid certificates aren't found in your keychain, you can't log in to Citrix Workspace app.

If a previously selected certificate is no longer valid, an error message appears, prompting you to se-

lect a valid certificate or to contact your admin in the absence of one.



This feature is a request-only preview. To get it enabled in your environment, fill out the [Podio](#) form.

**Note:**

Technical previews are available for customers to test in their non-production or limited production environments, and share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Rebranding Citrix Workspace Browser** Citrix Workspace Browser is now Citrix Enterprise Browser. The custom scheme is now changed from `citrixworkspace://` to `citrixbrowser://`.

Implementing this transition in our products and their documentation is an ongoing process. Your patience during this transition is appreciated.

- The product UI, in-product content, and the images and instructions in product documentation will be updated in the coming weeks.
- It's possible that some items (such as commands and MSIs) might continue to retain their former names to prevent breaking existing customer scripts.
- Related product documentation

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 105.1.1.19, based on Chromium version 105. For more information about the Citrix Enterprise Browser, see [Citrix Enter-](#)

[prise Browser](#) documentation. and other resources (such as videos and blog posts) that are linked from this product documentation might still contain former names.

**Make Citrix Enterprise Browser the work browser [Technical Preview]** You can now configure Citrix Enterprise Browser to open all work or enterprise links and apps configured by your administrator in the Citrix Workspace app. This feature provides a way for you to open only work links or web and SaaS apps in the Citrix Enterprise Browser.

You can select an alternate browser to open any other non-work links or apps.

**Open all web and SaaS apps through the Citrix Enterprise Browser** From this version, all internal web apps and external SaaS apps available in the Citrix Workspace app open in Citrix Enterprise Browser.

**Support for browser extensions [Technical Preview]** You can add extensions that are provided by your administrator to the Citrix Enterprise Browser in a secure way. An administrator can deploy, manage, and control the extensions. End users can view and use the extension under `citrixbrowser://extensions` as required. For more settings, see [Global App Configuration service](#).

**Note:**

This feature is a request-only preview. To get it enabled in your environment, fill out the [Podio form](#).

For information on how to configure, see the [Citrix Enterprise Browser](#) documentation.

**Use Global App Configuration service to manage Citrix Enterprise Browser [Technical Preview]**

The administrator can use the Global App Configuration service for Citrix Workspace to deliver Citrix Enterprise Browser settings through a centrally managed service.

The Global App Configuration service is designed for administrators to easily configure Citrix Workspace and manage the Citrix Workspace app settings. This feature allows admins to use the Global App Configuration service to apply various settings or system policies to the Citrix Enterprise Browser on a particular store. The administrator can now configure and manage the following Citrix Enterprise Browser settings using the Global App Configuration service:

- “Enable CEB for all apps”- Makes the Citrix Enterprise Browser the default browser for opening web and SaaS apps from the Citrix Workspace app.
- “Enable save passwords”- Allow or deny end users the ability to save passwords.
- “Enable incognito mode”- Enable or disable incognito mode.
- “Managed Bookmarks”- Allow the administrator to push bookmarks to the Citrix Enterprise Browser.

- “Enable developer tools”- Enable or disable developer tools within the Enterprise Browser.
- “Delete browsing data on exit”- Allow the administrator to configure what data the Citrix Enterprise Browser deletes on exit.
- “Extension Install Force list”- Allow the administrator to install extensions in the Citrix Enterprise Browser.
- “Extension Install Allow list”- Allow the administrator to configure an allowed list of extensions that users can add to the Citrix Enterprise Browser. This list uses the Chrome Web Store.

### Notes:

- This feature is a request-only preview. To get it enabled in your environment, fill out the [Podio form](#).
- Technical previews are available for customers to test in their non-production or limited production environments, and to give customers an opportunity to share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It’s advised that Beta builds aren’t deployed in production environments.
- The name and value pair are case-sensitive.
- All the browser settings in [Global App Configuration service](#) are under the following category:

```
1 {
2
3     "category": "browser",
4     "userOverride": false,
5     "assignedTo": [
6         "AllUsersNoAuthentication"
7     ]
8 }
9
10
11 <!--NeedCopy-->
```

- The administrator can apply the settings to unmanaged devices as well. For more information, see [Global App Configuration service](#) documentation.

### Technical Preview

- Upgraded version of WebRTC for the optimized Microsoft Teams

For a complete list of Technical Preview features, see the [Features in Technical Preview](#) page.

### Fixed issues

- Citrix Workspace app might interrupt the restart or shutdown power action of a Mac device. [RFMAC-12530]
- The shift key might not work as expected in Citrix Workspace app for Mac version 2206. [CVADHELP-20674]

## 2209

### What's new

**Sign out of the custom web store when you close Citrix Workspace app** When the **signoutCustomWebstoreOnExit** setting is set to **True**, closing the Citrix Workspace app window signs you out of the custom web store. When you reopen the Citrix Workspace app, the web store URL is loaded again. You can configure the **signoutCustomWebstoreOnExit** setting in the Global App Configuration service. For more information, see [Sign out of the custom web store when you close Citrix Workspace app](#)

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser (formerly Citrix Workspace Browser) version 103.2.1.10, based on Chromium version 103. For more information about the Citrix Enterprise Browser, see [Citrix Enterprise Browser](#) documentation.

### Fixed issues

- Citrix Workspace app for Mac might start automatically when you restart Citrix Workspace app for Mac or install Citrix Workspace app. [RFMAC-12392]
- The screen sharing feature in Optimized Microsoft Teams for certain third-party apps might fail on Citrix Workspace app for Mac. The issue occurs when the Thinwire codec policy is set to **For entire screen**. As a result, the app sharing feature is disabled and no options are available in the sharing panel. [CVADHELP-20853]

## 2208.1

### What's new

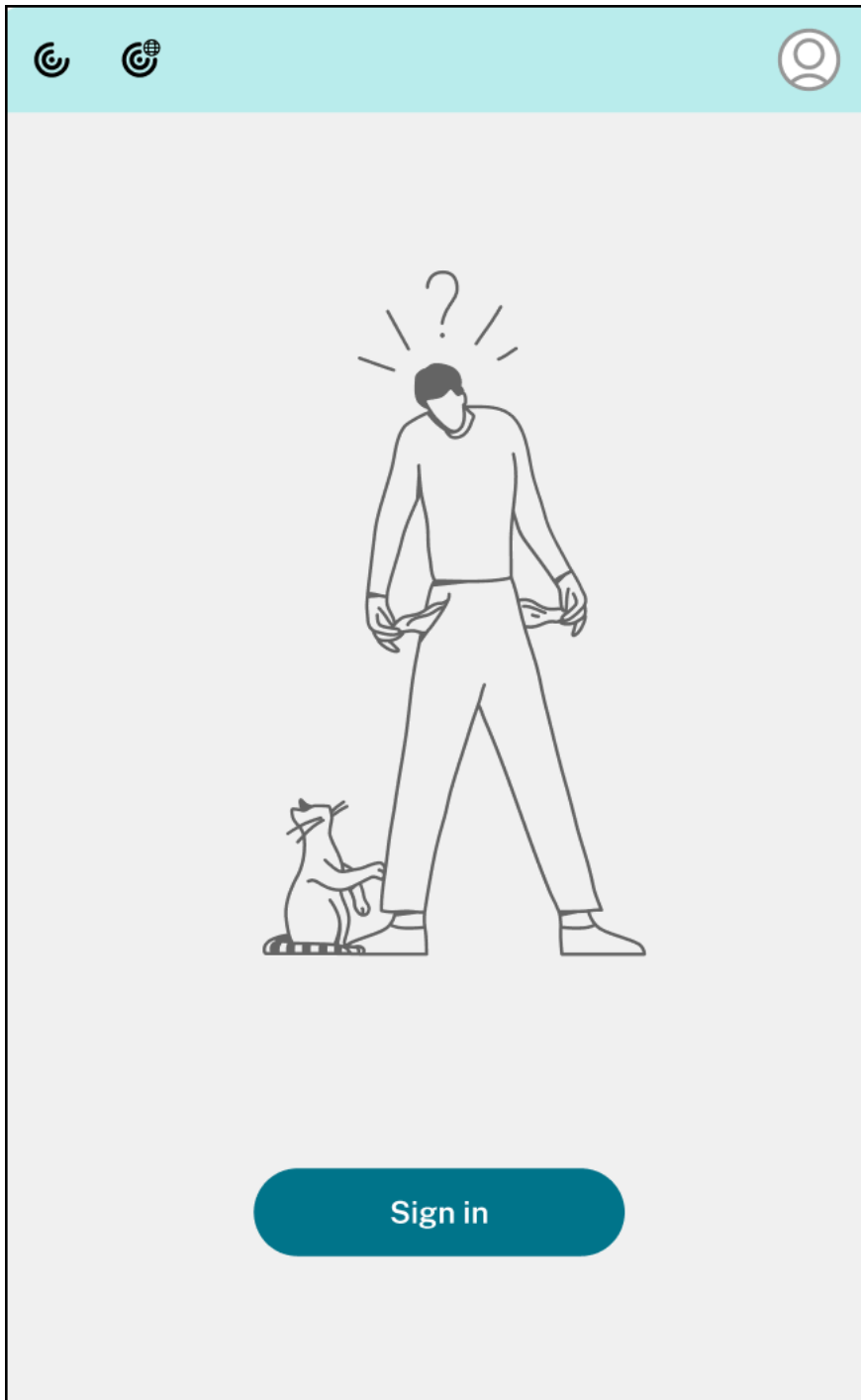
**View apps, desktops, and Citrix Enterprise Browser from the menu bar through a quick access menu** You can now view your most recently used or favorite apps and desktops or open a Citrix Enterprise Browser window by clicking the Citrix Workspace icon in the menu bar. This feature provides easy access to some of your resources without having to open the Citrix Workspace app.

**Note:**

This feature isn't available on on-premises setups.

The screenshot displays the Citrix Workspace app interface for Mac. At the top, there are two circular icons on the left and a circular icon with the letter 'V' on the right. Below these is a navigation bar with two tabs: 'Recents' (which is selected and underlined) and 'Favorites'. The main content area is divided into two sections: 'Apps' and 'Desktops'. The 'Apps' section lists five applications with their respective icons: Access 2016 (red 'A' icon), Concur (blue 'C' icon), Excel 2016 (green 'X' icon), Bitbucket - code (blue circular icon with a white 'B'), and Chrome (multi-colored circular icon). A blue link 'View all applications' is positioned at the bottom right of the 'Apps' section. The 'Desktops' section lists one desktop: 'Managed Win10 SIN Desktop' with a blue monitor icon. A blue link 'View all desktops' is positioned at the bottom right of the 'Desktops' section. At the very bottom of the interface, a grey bar contains the text 'Version: 22.06.0.0 (2206)'.

If you've not configured any accounts, a sign-in prompt appears.

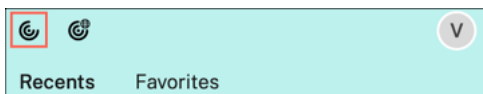


A maximum of 5 of your recently used or favorite apps or desktops appear in the options under the **Recent** and **Favorites** tabs respectively. To view the other apps in the Citrix Workspace app, click **View all applications**. To view the other desktops in the Citrix Workspace app, click **View all desktops**.

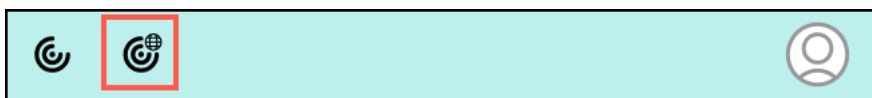


The screenshot displays the Citrix Workspace app interface for Mac. At the top, there is a teal header bar with two circular icons on the left and a circular profile icon with the letter 'V' on the right. Below the header, there are two tabs: 'Recents' (which is selected and underlined) and 'Favorites'. The main content area is divided into two sections: 'Apps' and 'Desktops'. The 'Apps' section lists five applications with their respective icons: Access 2016 (red 'A' icon), Concur (blue 'C' icon), Excel 2016 (green 'X' icon), Bitbucket - code (blue circular icon with a white 'B'), and Chrome (multi-colored circular icon). A blue link 'View all applications' is positioned at the bottom right of the Apps list. The 'Desktops' section lists one desktop with a blue monitor icon: 'Managed Win10 SIN Desktop'. A blue link 'View all desktops' is positioned at the bottom right of the Desktops list. At the very bottom of the interface, a grey bar contains the text 'Version: 22.06.0.0 (2206)'.

You can open the Citrix Workspace UI by clicking the Citrix Workspace app icon.

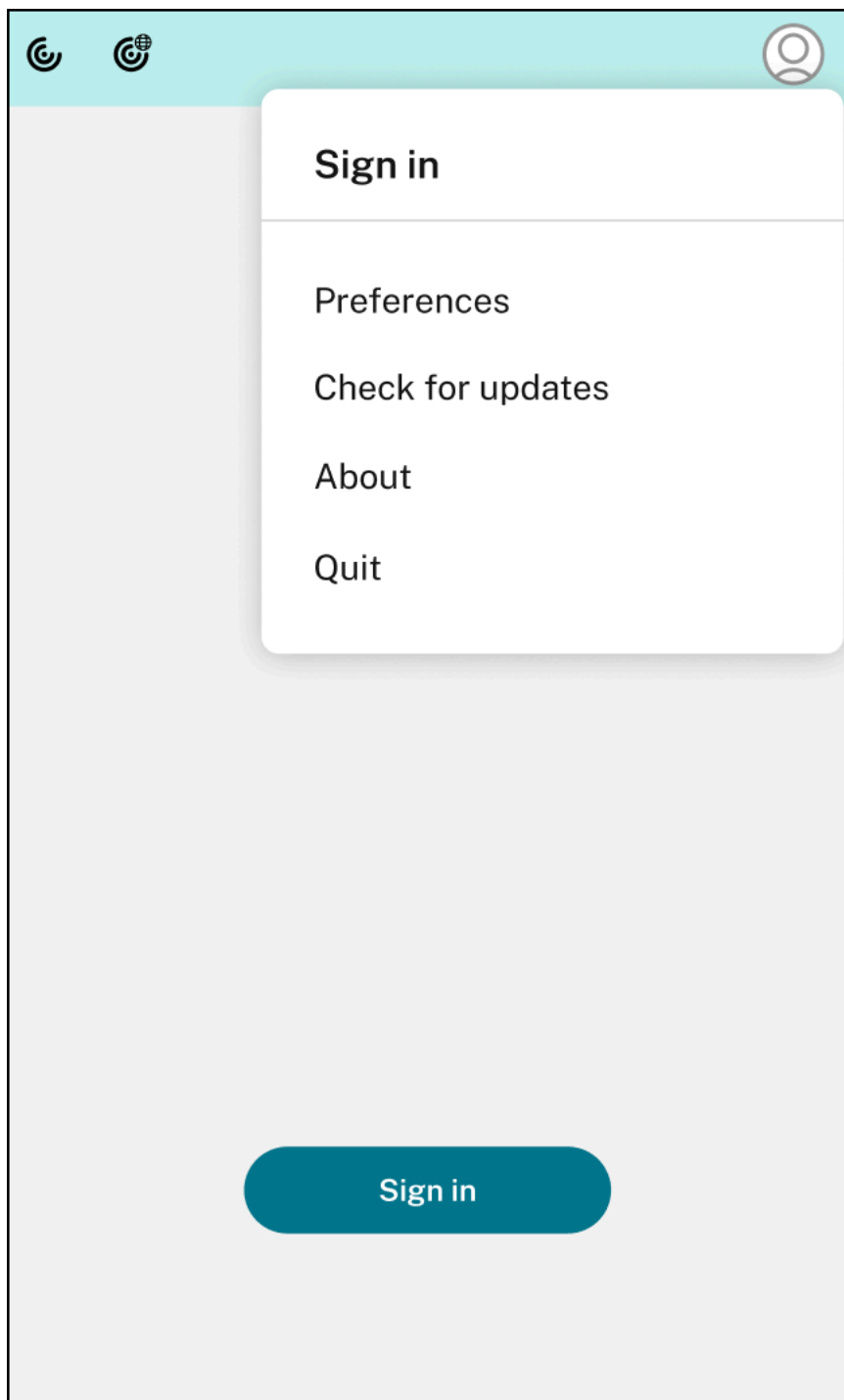


You can open the Citrix Enterprise Browser, without opening a web or SaaS app by clicking the Citrix Enterprise Browser icon.



**Note:**

The Citrix Enterprise Browser isn't available if the configured store doesn't have any web or SaaS apps. Further, it's available only if your admin has configured Citrix Secure Private Access.



You can view the following options when you click the **Account** icon in the top-right corner:

- Preferences
- Check for updates
- About
- Quit

For more information, see [View apps, desktops, and Citrix Enterprise Browser from the menu bar through a quick access menu](#).

**Support for authentication using FIDO2 [Technical Preview]** With this version, users can authenticate within an HDX session using password-less FIDO2 security keys. FIDO2 security keys provide a seamless way for enterprise employees to authenticate to apps or desktops that support FIDO2 without entering a user name or password. For more information about FIDO2 see [FIDO2 Authentication](#). This feature currently supports roaming authenticators (USB only) with PIN code and touch capabilities. You can configure FIDO2 Security Keys based authentication. For information about the prerequisites and using this feature, see [Local authorization and virtual authentication using FIDO2](#).

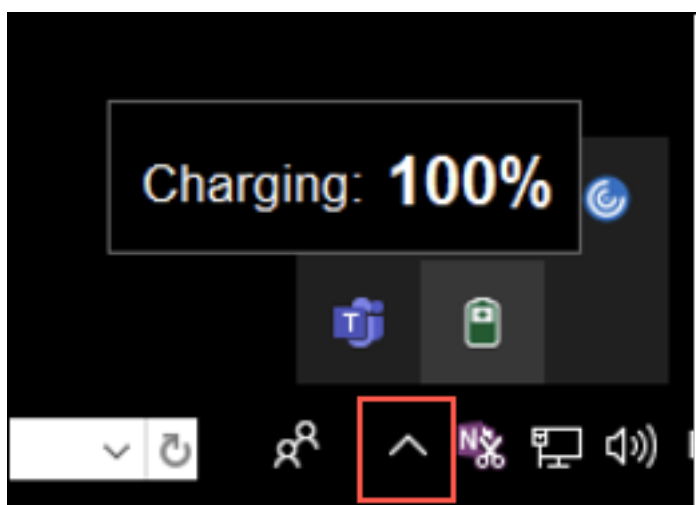
When you access an app or a website that supports FIDO2, a prompt appears, requesting access to the security key. If you've previously registered your security key with a PIN (a minimum of 4 and a maximum of 64 characters), then you must enter the PIN while signing in.

If you've registered your security key previously without a PIN, simply touch the security key to sign in.

**Note:**

Technical previews are available for customers to test in their non-production or limited production environments, and share [feedback](#). Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Battery status indicator** The battery status of the device now appears in the notification area of a Citrix Desktop session. To view the battery status within the desktop session, click the **Show hidden icons** arrow in the taskbar.



**Note:**

The battery status indicator does not appear for server VDAs.

For more information, see [Battery status indicator](#).

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 103.1.1.14, based on Chromium version 103. For more information about the Citrix Enterprise Browser, see [Citrix Enterprise Browser](#) documentation.

**Citrix Enterprise Browser Profiles** Profiles help you keep personal information such as history, bookmarks, passwords, and other settings separate for each of your Citrix Workspace accounts. Based on your Workspace store, a profile is created, allowing you to have a unique and personalized browsing experience.

**Note:**

After you upgrade to version 103.1.1.14 and sign in to the device for the first time, only your previously saved passwords are removed. When you sign in to the device using a different store for the first time, all your previously saved data is lost.

**Open all web and SaaS apps through the Citrix Enterprise Browser [Technical Preview]** From this version, all internal web apps and external SaaS apps available in the Citrix Workspace app open in Citrix Enterprise Browser. You can register for this technical preview by using this [Podio form](#).

**Note:**

Technical previews are available for customers to test in their non-production or limited production environments, and to give customers an opportunity to share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds aren't deployed in production environments.

**Fixed issues**

- When the Citrix Workspace login prompt appears, clicking the Cancel button doesn't close the popup and it appears repeatedly. [CVADHELP-19919]
- If you're using Direct Workload Connection in Citrix Cloud to connect to VDAs directly, a black screen appears and you're disconnected from the VDA. This issue occurs when Network Location Service (NLS) is enabled. [HDX-40588]

- When you use a multi-touch gesture to swipe between full-screen apps, the Citrix Workspace desktop session window turns black for a moment. This issue occurs on Macs with a notch display. [HDX-42314]

## 2206.1

### What's new

**Uninstall the app by dragging the Citrix Workspace app icon to the bin** You can now simply drag or move the Citrix Workspace app icon into the bin to completely uninstall the app.

Previously, dragging the Workspace app icon into the bin would remove the app but leave behind certain system files on your Mac. With this version, the Citrix Workspace app and all its associated files are removed from your device when you drag the icon to the bin.

To uninstall the Citrix Workspace app by dragging it to the bin, do the following:

1. Close the Citrix Workspace app, if it's running.
2. Drag the Citrix Workspace app to the bin.  
Alternatively, you can right-click on the Citrix Workspace app and select **Options > Move to Bin**.
3. Provide your system credentials when prompted.
4. Close all running apps (Citrix Workspace) and click **Continue** to confirm.  
The Citrix Workspace app and all its system files are deleted from your device.

For more information, see [Uninstall](#)

**Support for service continuity in the Safari browser** The Citrix Workspace service continuity feature is now supported for the Safari browser. Users must install Citrix Workspace app for Mac and the Citrix Workspace web extension. Service continuity removes (or minimizes) the dependency on the availability of the components involved in the connection process. It allows you to connect to your virtual apps and desktops regardless of the cloud services' health status. For more information about the service continuity feature, see section [Service continuity](#).

**Improved audio echo cancellation support [Technical Preview]** Citrix Workspace app now supports echo cancellation in adaptive audio and legacy audio codecs. This feature is designed for real-time audio use cases, and it improves the user experience.

Citrix recommends using adaptive audio.

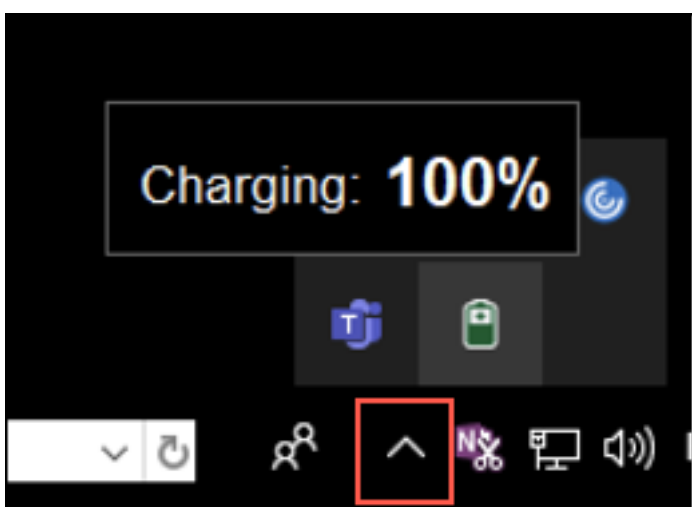
#### Note:

Technical previews are available for customers to test in their non-production or limited production environments, and share [feedback](#). Citrix does not accept support cases for feature previews

but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds must not be deployed in production environments.

**Enhancements to Optimized Microsoft Teams** In optimized Microsoft Teams, you can now use the video function when more than one virtual desktop or app session is in use. For more information, see [Enhancements to Optimized Microsoft Teams](#)

**Battery status indicator [Technical Preview]** The battery status of the device now appears in the notification area of a Citrix Desktop session.



**Note:**

The battery status indicator does not appear for server VDAs.

Technical previews are available for customers to test in their non-production or limited production environments, and share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It is advised that Beta builds are not deployed in production environments.

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 101.1.1.14, based on Chromium version 101. For more information about the Citrix Enterprise Browser, see [Citrix Enterprise Browser](#) documentation.

### Fixed issues

- The mouse pointer is misaligned on Macs with a notch display. [CVADHELP-19337]

- You're not signed out of the Workspace app when the inactivity timeout value lapses. This issue occurs intermittently. [CVADHELP-19812]
- You might get an error when you try to uninstall Citrix Workspace app. [CVADHELP-19121]
- In optimized Microsoft Teams, the video function might not work if you start another virtual desktop or app session. [HDX-40451]
- While sharing the screen or an app during the Microsoft Teams call, your peers might see visual artifacts. This issue occurs due to unstable frame rates, such as incorrect video playback (frozen or transient black frames). This release includes improved frame rates or sampling rates that help to reduce visual artifacts. [HDX-38032]

## 2204

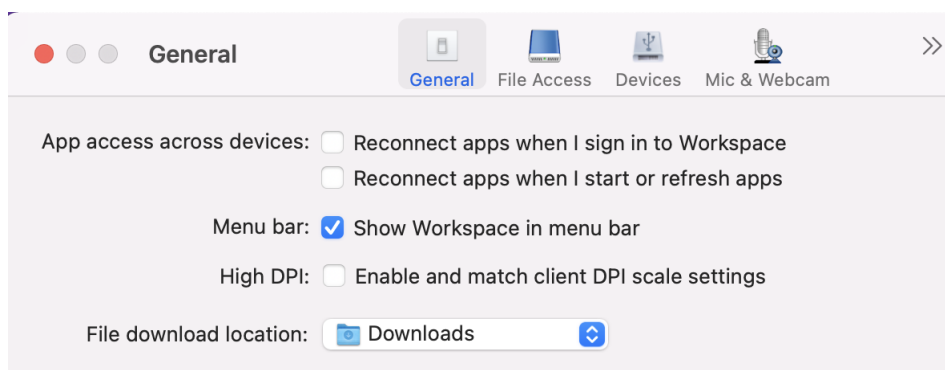
### What's new

**Global App Configuration service settings for allowedWebStoreURLs** Admins can now use Global App Configuration service to configure settings of Custom Web Stores. Admins can configure the Custom Web Stores by using the `allowedWebStoreURLs` property. For more information about the Global App Configuration service, see [Getting Started](#).

**Support to open Citrix Workspace app in maximized mode** Admins can configure the `maximise workspace window` property in the Global App Configuration service to enable the Citrix Workspace app to open in the maximized mode by default. For more information about the Global App Configuration service, see [Getting Started](#).

**Support for high DPI monitors [Technical preview]** Citrix Workspace app for Mac is now compatible with one high DPI monitor with 4K or 5K resolution. With this feature, the text, images, and graphical elements on virtual desktop or app sessions appear in a size that can be viewed comfortably on these high-resolution monitors.

To enable this feature, navigate to **Preferences > General > High DPI**.





Administrators can edit the **Display memory limit** policy, which specifies the maximum video buffer size in kilobytes for a desktop session, to suit the display resolution. The default value for the **Display memory Limit** policy is 65536 KB and is sufficient for one high DPI monitor with 4K resolution.

For virtual app sessions, the default value of **Display memory Limit** is sufficient as the app session doesn't support more than one display.

For virtual desktop sessions, administrators must navigate to **Citrix Studio > Policies > Display memory limit** and use a higher value, for example 393216 KB to use High DPI features for more than one external monitor or 5K resolution monitor.

For more information about the Display memory limit policy, see [Display memory limit](#).

Admins can edit the **Display memory limit** policy, which specifies the maximum video buffer size in kilobytes for a desktop session, to suit the display resolution. The default value for the Display memory Limit policy is 65536 KB and is sufficient for up to 2x4K monitors (2x32400KB). Admins must edit this value by navigating to **Citrix Studio > Policies > Display memory limit** and use a value of 393216 KB to use this feature.

For more information about the Display memory limit policy, see [Display memory limit](#).

**Note:**

This feature works with a maximum of two connected monitors.

Technical previews are available for customers to test in their non-production or limited production environments, and to give customers an opportunity to share [feedback](#). Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that Beta builds aren't deployed in production environments.

**Enhancement to Permanent Client Access License (CAL) for Remote Desktop Sessions** With this version, if you're running CAL in your environment to access remote desktops, when the client ID is greater than 15 characters, you can launch the remote desktop session with a permanent license.

To enable this feature, admins must configure the **default.ica** file by doing the following:

1. In the StoreFront server, navigate to `C:\inetpub\wwwroot\Citrix<StoreName>\App_Data` and open the **default.ica** file with any editor.
2. Add the following lines in the **[WFClient]** section:

```
isRDSLicensingEnabled=On
```

**Restore default keyboard settings** You can now restore the default keyboard settings if you have modified the settings in the keyboard preferences of Citrix Workspace app. To restore the keyboard

settings to its default values, open the Citrix Workspace app, navigate to **Preferences > Keyboard** and click **Restore Defaults**. Click **Yes** to confirm.

**App Protection compatibility with HDX optimization for Microsoft Teams** With this version, full monitor or desktop sharing is disabled when App Protection is enabled for the delivery group. When you click **Share content** in Microsoft Teams, the screen picker removes the **Desktop** option. You can only select the Window option to share any open app, if the VDA is 2109 or higher. If you're connected to VDA older than 2019, no content is selectable.

**Citrix Enterprise Browser** This release includes Citrix Enterprise Browser version 99.1.1.8, based on Chromium version 99. For more information about the Citrix Enterprise Browser, see [Citrix Enterprise Browser](#) documentation.

**Make Citrix Enterprise Browser your default browser** You can now make Citrix Enterprise Browser your default browser. Once you have made the Citrix Enterprise Browser your default browser, all links and Web and SaaS apps open in the Citrix Enterprise Browser by default. To make Citrix Enterprise Browser your default browser on macOS, do the following:

1. Open the Citrix Enterprise Browser and click the ellipsis icon and open the **Settings** menu.
2. Click the **Default Browser** option on the left pane.
3. In the Default browser page, click **Make default**. When prompted, click **Use Citrix Enterprise Browser** to confirm your choice and apply the changes.

### Fixed issues

- The mouse pointer is misaligned on Macs with a notch display. [CVADHELP-19337]
- You're not signed out of the Workspace app when the inactivity timeout value lapses. This issue occurs intermittently. [CVADHELP-19812]
- You might get an error when you try to uninstall Citrix Workspace app. [CVADHELP-19121]
- In optimized Microsoft Teams, the video function might not work if you start another virtual desktop or app session. [HDX-40451]
- While sharing the screen or an app during the Microsoft Teams call, your peers might see visual artifacts. This issue occurs due to unstable frame rates, such as incorrect video playback (frozen or transient black frames). This release includes improved frame rates or sampling rates that help to reduce visual artifacts. [HDX-38032]

## Known issues

### Known issues in 2402

- You might notice that the application screen is hidden at the notch when you enter full screen in the virtual sessions for some Macs. As a workaround, adjust the app window to make it fit below the screen notch. [HDX-63035]

### Known issues in 2311

The HTML5 Video redirection feature is disabled by default in Citrix Workspace app for Mac from version 2311. [HDX-53015]

### Known issues in 2308

- After upgrading Citrix Workspace app for Mac to version 2308, the preferences window might be unresponsive for any user actions. As a workaround, force quit Citrix Workspace app and restart it. For more information about forcing an app to close on a Mac, see [Force an app to close](#) in the Apple support article. [RFMAC-14596]

### Known issue in 2307

No new issues have been observed in this release.

### Known issue in 2306

No new issues have been observed in this release.

### Known issues in 2305

- After upgrading Citrix Workspace app for Mac to version 2305, certain third-party virtual apps that have pop-up dialogs for entering user name and password might become unresponsive upon opening. [CVADHELP-23032]

### Known issues in 2304

- A user with multiple accounts might see the Citrix Workspace app loading screen for a long time. As a workaround, you must quit Citrix Workspace app and restart it. [RFMAC-13432]

### Known issues in 2301.1

- You can't update to Citrix Workspace app for Mac version 2301.1 using the auto-update service. As a workaround, you must manually install the Citrix Workspace app for Mac version 2301.1 by downloading the .dmg file available on the [Downloads](#) page.

### Known issues in 2301

- On macOS Ventura devices, progressive web apps (PWA) fail to open. The following error message appears:

**App Name is damaged and can't be opened. You should move it to the Bin.**

As a workaround, right-click on the app and select Open. If you're using the keyboard, press the Ctrl key and click the app. Select Open. [CTXBR-3885]

- An infinite loading spinner might appear when users sign in to Citrix Workspace associated with Global App Configuration service. This issue doesn't impact StoreFront and custom web stores. [RFMAC-13086]

### Known issue in 2211.1

No new issues have been observed in this release.

### Known issues in 2211

- When using Citrix Workspace app for Mac 2209 and later versions, the user sign-in page might not be displayed while using the custom web portal. As a workaround, quit Citrix Workspace app by using the **Quit** option from Citrix Workspace icon in the menu bar. [CVADHELP-21377]

### Known issues in 2210

- On macOS 13 Ventura, the seamless app interaction might run into issues when you change the **All at Once default** option to the **One at a Time** option in the **Stage Manager** preference under the **Stage Manager** feature. [HDX-44567]
- Attempts to start a desktop session in offline mode might fail. As a workaround, resize the session window. [HDX-45081]
- When resizing a session to full-screen mode on a MacBook, the focal point of a cursor might appear slightly above the actual cursor position. As a workaround, navigate to **System Preferences > Dock & Menu Bar** and enable the **Automatically hide and show the menu bar in full screen** option. [HDX-45585]

- With the 2210 version, using Mission Control or App Expose features in an app session might cause Citrix Workspace app to close unexpectedly. [HDX-46130]
- When launching certain third-party apps such as Epic or Kronos, the sign-in window of the apps might be covered by another window. As a result, the entire session freezes. As a workaround, perform one of the following actions:
  - Drag the window that is blocking the sign-in window away from it.
  - Locate the sign-in window using the Mission Control feature.
  - Use the keyboard shortcut **Command+~** to switch windows.

[HDX-46140]

### **Known issues in 2209**

No new issues have been observed in this release.

### **Known issue in 2208.1**

No new issues have been observed in this release.

### **Known issue in 2206.1**

No new issues have been observed in this release.

### **Known issue in 2204**

- When traffic is tunneled through NGS, Citrix Workspace app might fail to upload or download files that are greater than 64 MB. [CTXBR-3354]

### **Known issues in 2203.1**

- You can't click the **Create** button in the Jira app if the browser window is minimized. [CTXBR-1976]
- Web socket connections aren't tunneled through Citrix Secure Private Access. [CTXBR-2439]
- After upgrading the Citrix Workspace app to version 2203, a question mark icon appears on the Citrix Enterprise Browser icon. This issue occurs if the Citrix Enterprise Browser was pinned to the dock before the upgrade. [CTXBR-2864]

- When you click the **Reset settings** option on the **Advanced** settings section of the Citrix Enterprise Browser, the log settings do not reset to default. As a workaround, click the **Reset to default log settings** option available on the **Logs** page. [CTXBR-2929]
- After upgrading Citrix Enterprise Browser from version 2201 to version 2203, you are unable to save new passwords and already saved passwords are lost. [CTXBR-3063]
- Full screen mode isn't available on Macs with a notch. [CVADHELP-19337]
- When you launch a desktop or app session using the browser, the session window launches in the background, behind the browser window. [RFMAC-11362]

### Known issues in 2201

- The client name appears with random characters in the Citrix Broker Service and the Citrix Director if you're using the Citrix Workspace app in the offline (intranet) mode. [RFMAC-10842]

### Known issues in 2112

- In Citrix Workspace app, you might experience intermittent failures when answering or making a Microsoft Teams call. The following error message appears:  
"Call could not be established." [HDX-38819]

### Known issues in 2111

No new issues have been observed in this release.

### Known issues in 2109.1

No new issues have been observed in this release.

### Known issues in 2109

- If you've configured the Citrix Workspace app using the `.cr` file, and signed in with your credentials, the home page appears after a delay. [RFMAC-9990]
- If a Progressive Web App (PWA) that is protected is opened on macOS, the *App Protection* policies aren't enforced. [RFMAC-10128]
- After you add stores in the Citrix Workspace app and change the **Current Reauthentication Period** in **Reauthentication Period for Workspace App** and switch from on-premises to the cloud

store after a few minutes, you're signed out of the cloud store and an authentication prompt appears. Once you sign in to the Citrix Workspace app, the spinner appears indefinitely and you're unable to sign in. [RFMAC-10140]

### **Known issues in 2108.1**

No new issues have been observed in this release.

### **Known issues in 2108**

- When you start a subscribed SaaS app after changing the authentication domain in the server console, the session does not start and the following error message appears:

“AuthDomain has changed. Please sign in again after some time”

[RFMAC-9616]

### **Known issues in 2107**

- When you change the authentication domain in the server console and sign in with your credentials, the following error message appears:

**Cannot connect to the server**

**You can access the store once you click OK.**

[RFMAC-9494]

### **Known issues in 2106**

- A black window appears when you share your screen. [HDX-30083]

### **Known issues in 2104**

No new issues have been observed in this release.

### **Known issues in 2102**

No new issues have been observed in this release.

### Known issues in 2101

- Attempts to access files under Network Shares from within Citrix Workspace app for Mac might fail even when the option is enabled. [RFMAC-7272]
- On macOS Big Sur, attempts to launch the web SAML single sign-on app on Citrix Workspace app for Mac might fail, displaying the following error message.

Page could not load. Please **try** again later or contact your administrator **for** assistance. Incident ID:-202

[RFMAC-7282]

### Known issues in 2012

- When you start a video call, Microsoft Teams might become unresponsive, displaying a **Citrix HDX not connected** error. As a workaround, restart Microsoft Teams or the VDA. [RFMAC-6727]
- Video calls on Microsoft Skype for Business aren't supported on macOS Big Sur (11.0.1).
- On macOS Big Sur (11.0.1), attempts to connect USB devices might fail, causing the session to exit unexpectedly. As a workaround, reconnect the USB device. [RFMAC-7079]

### Deprecation

For information about deprecated items, see the [Deprecation](#) page.

### Legacy documentation

For product releases that have reached End of Life (EOL), see [Legacy documentation](#).

### Third-party notices

Citrix Workspace app might include third-party software licensed under the terms defined in the following document:

[Citrix Workspace app for Mac Third-Party Notices](#)

### Features in Technical Preview













June 5, 2024



Features in Technical Preview are available to use in non-production or limited production environments, and to give customers an opportunity to share feedback. Citrix does not accept support cases for features in technical preview but welcomes feedback for improving them. Citrix might act on feedback based on its severity, criticality, and importance.



















### List of features in Technical Preview



The following table lists the features in technical preview. These features are request-only preview features. To enable and provide feedback for any of these features, fill out the respective forms.

Title	Available from version	Enablement form (Click the icon)	Feedback form (Click the icon)
<a href="#">Support for single sign-on to Citrix Secure Access automatically through Citrix Workspace app</a>	2402		
<a href="#">Client App Management for Zoom VDI plug-in</a>	2402		
<a href="#">Enhanced the Desktop Viewer toolbar</a>	2402		
<a href="#">Customize the Desktop Viewer toolbar</a>	2402		
<a href="#">Enable Packet Loss Concealment to improve audio performance</a>	2402		
<a href="#">Support for extending the desktop session to external monitors automatically</a>	2402		

## Citrix Workspace app for Mac

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Title	Available from version	Enablement form (Click the icon)	Feedback form (Click the icon)
<a href="#">Sustainability initiative from Citrix Workspace app</a>	2402		
<a href="#">Support for Citrix Secure Private Access for on-premises deployments</a>	2309		
<a href="#">Enhanced the High DPI option</a>	2308		
<a href="#">Support for Activity Manager on cloud stores</a>	2308		
<a href="#">Store-based configuration of file access</a>	2308		
<a href="#">Keyboard accessibility support for the toolbar on the Virtual Desktop</a>	2307		
<a href="#">Client App Management</a>	2305		
<a href="#">Rapid Scan</a>	2304		
<a href="#">Upgraded version of WebRTC for the optimized Microsoft Teams</a>	2210		

Title	Available from version	Enablement form (Click the icon)	Feedback form (Click the icon)
<a href="#">Support for an enhanced Single sign-on (SSO) experience for web and SaaS apps</a>	2203.1		

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### Support for single sign-on to Citrix Secure Access automatically through Citrix Workspace app

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Technical Preview from 2402  
version

[Enablement form](#)

[Feedback form](#)

---

Citrix Workspace app for Mac now automatically supports single sign-on (SSO) to Citrix Secure Access once your login to Citrix Workspace app. If you have both Citrix Secure Access agent and the Citrix Workspace app installed on your device, this feature allows you to automatically sign in to Citrix Secure Access through SSO when you login to Citrix Workspace app. For more information, see [Automatic single sign-on \(SSO\) to Citrix Secure Access through Citrix Workspace app - Preview](#) in the NetScaler documentation.

To enable this feature through MDM, administrator must use the following settings:

```
<key>EnableSecureAccessAutoLogin</key><true/>
```

**Note:**

- You need to use Citrix Secure Access version 24.03.1 or later to enable this feature.
- This feature is supported only on cloud stores and not for on-premises stores.

### Client App Management for Zoom VDI plug-in

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Technical Preview from 2402  
version

[Enablement form](#)

[Feedback form](#)

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Starting with the 2402 version, you can now manage the Zoom VDI plug-in using the Client App Management capability. With this feature, you can download, install, and auto-update the Zoom VDI plug-in from Citrix Workspace app.

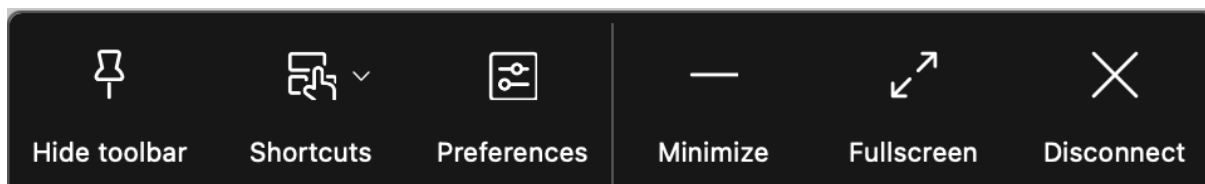
## Enhanced the Desktop Viewer toolbar

Technical Preview from 2402  
version

[Enablement form](#)

[Feedback form](#)

Starting with the 2402 version, the virtual desktop viewer toolbar is enhanced to be more intuitive, modern, and user-friendly.



The new toolbar provides the following options:

- **Show or hide toolbar** - Click this button to show or hide the Desktop Viewer toolbar. A notch appears when the toolbar is hidden.
- **Shortcuts** - Click this button to access the shortcuts.
- **Devices** - Click this button to access the options in the Devices section.
- **Preferences** - Click this button to access the options in the Preferences section.
- **Minimize** - Click this button to minimize the virtual session. This option is hidden in the full-screen mode.
- **Fullscreen** - Click this button to access the virtual session in full screen.
- **Restore** - Click this button to restore the virtual session from the full-screen mode.
- **Disconnect** - Click this button to sign out or to disconnect from a virtual session.

You can drag the toolbar across all screens in the virtual session. When you drag the toolbar, it can rotate automatically based on its placement on the screen. Once you release the drag, it gets positioned to the nearest edge of the screen.

## Customize the Desktop Viewer toolbar

Technical Preview from 2402  
version

[Enablement form](#)

[Feedback form](#)

Previously, you can completely disable the **Desktop Viewer** toolbar. However, you can't enable or disable a few options on the toolbar. With this release, you can customize the Citrix Workspace app for Mac toolbar by adding and removing options on the toolbar. For more information, see [Hide or show the desktop toolbar in the virtual desktop session](#).

You can configure the toolbar through the Mobile Device Management (MDM) settings. The following settings can hide the Device, Preferences, Minimize, and Full screen button:

```
1 <key>HiddenToolbarButtons</key>
2 <array>
3   <string>device</string>
4   <string>preferences</string>
5   <string>minimize</string>
6   <string>fullscreen</string>
7 </array>
8
9 <!--NeedCopy-->
```

**Note:**

You cannot hide the **Pin** button from the toolbar.

### Enable Packet Loss Concealment to improve audio performance

---

Technical Preview from 2402  
version

[Enablement form](#)

[Feedback form](#)

Starting with the 2402 version, the jitter buffer mechanism is improved, and the Packet Loss Concealment (PLC) is added for the Adaptive audio codec. PLC helps to reconstruct the lost data packets. This enhancement helps to improve the packet loss tolerance and jitter tolerance and thus improves audio performance for loss tolerant mode (EDT lossy) for audio.

To enable this feature, you also need to enable the Loss tolerant mode for the audio feature.

### Support for extending the desktop session to external monitors automatically

---

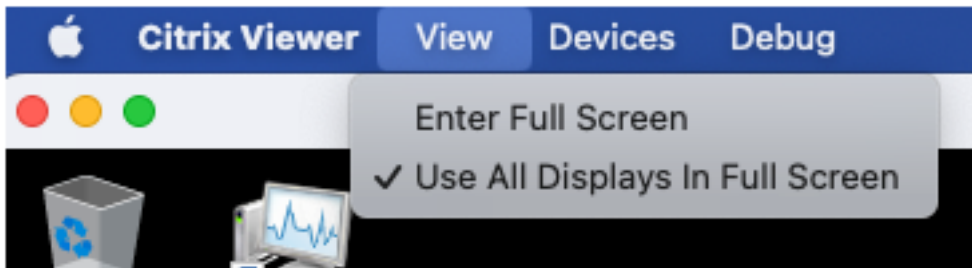
Technical Preview from 2402  
version

[Enablement form](#)

[Feedback form](#)

Starting with the 2402 version, Citrix Workspace app supports the extension of desktop sessions to external monitors automatically. When you launch the desktop session on the endpoint, if the external monitors are already connected to the endpoint, then the session is extended to external monitors automatically. When you disconnect the external monitor, the session can automatically adjust to extend only to the connected monitors.

To enable this feature, go to the **View** menu in the **Citrix Viewer** menu bar and select the **Use All Displays in Full Screen** option.



### Sustainability initiative from Citrix Workspace app

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Technical Preview from 2402  
version

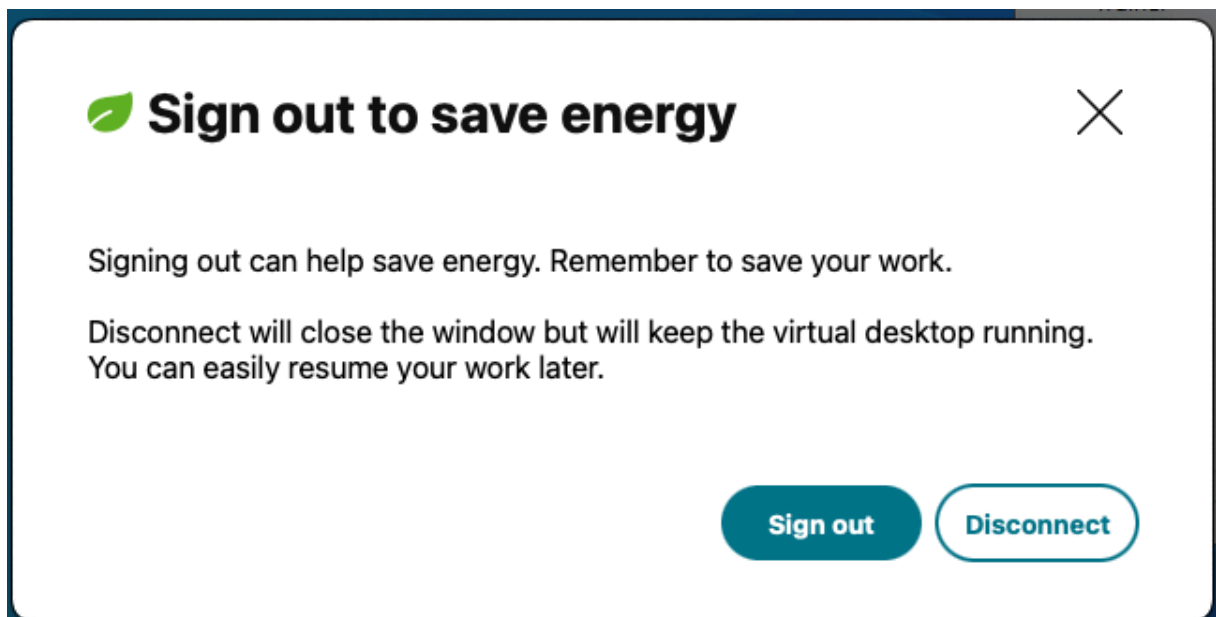
[Enablement form](#)

[Feedback form](#)

---

Starting with the 2402 version, Citrix Workspace app for Mac supports the **Sign out** option for the virtual desktop session. This feature might help conserve energy if you sign out from virtual machines when not in use.

When the user clicks **Disconnect** or **Sign out**, or closes a virtual desktop, then the following prompt is displayed, recommending the user to use the **Sign out** option to save energy.



### Support for Citrix Secure Private Access for on-premises deployments

Technical Preview from 2309  
version

[Enablement form](#)

[Feedback form](#)

---

Starting with the 2309 version, Citrix Workspace app for Mac supports Citrix Secure Private Access for on-premises deployments. For more information, see [Secure Private Access for on-premises - Preview](#).

## Enhanced the High DPI option

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Technical Preview from 2308  
version

[Enablement form](#)

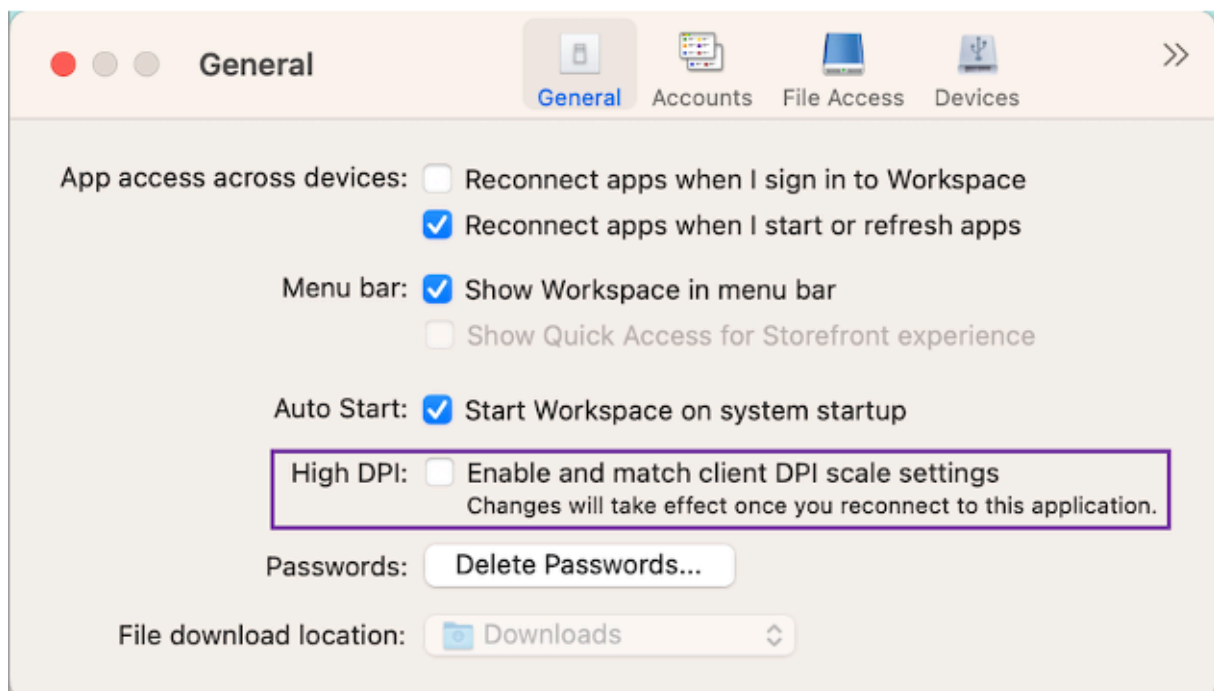
[Feedback form](#)

---

Previously, Citrix Workspace app supported the **High DPI** option for virtual desktop sessions only.

Starting with the 2308 release, enabling the **High DPI** option can also support for seamless app sessions. Also, you can now enable the High DPI option on three 4k monitors. These features are disabled by default.

To enable the **High DPI** option, you must select **Preferences > General**. On the **General** tab, select **Enable and match the client DPI scale settings**. Restart the application for the changes to take effect.



## Support for Activity Manager on cloud stores

Technical Preview from 2308 version

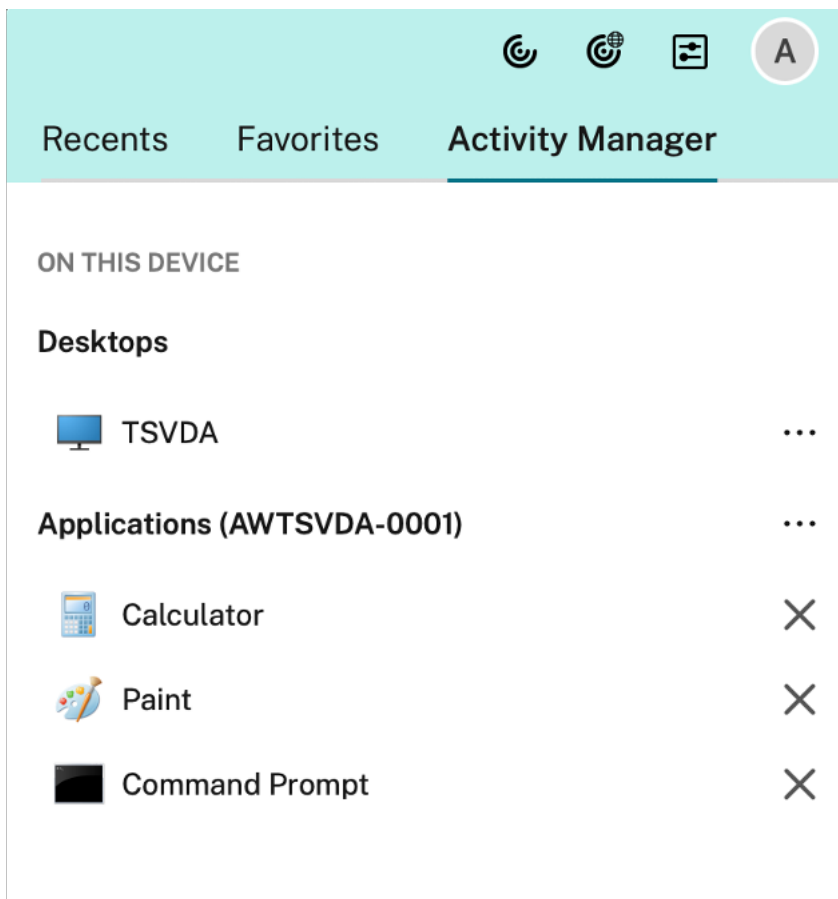
[Enablement form](#)

[Feedback form](#)

---

Citrix Workspace app for Mac supports the Activity Manager feature. This feature lets end users view and interact with all their active apps and desktop sessions at one place. You can disconnect or terminate the active sessions directly from the Activity Manager.

To view active sessions in the **Activity Manager**, select the Citrix Workspace app icon from the menu bar and then click **Activity Manager**. To disconnect active desktop sessions, select the respective ellipsis (...) menu and click **Disconnect**. Click the “X” button to terminate the active app session. For more information, see [Activity manager](#).



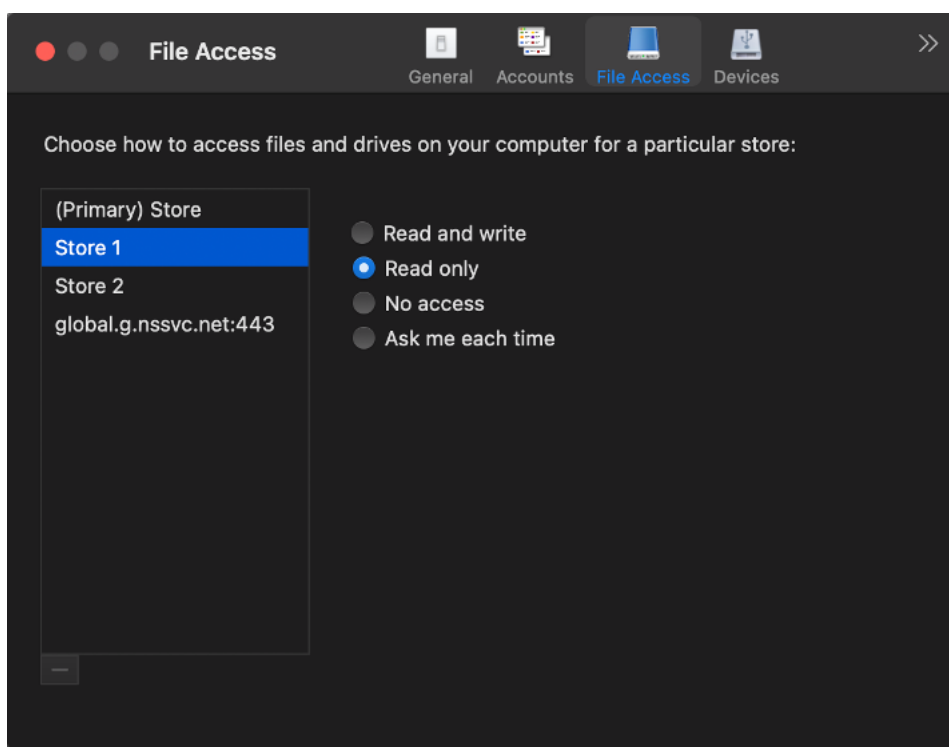
## Store-based configuration of file access



Starting with the 2308 release, the per-store file access is included as part of the client-selective trust feature. This enhancement allows you to provide access to files on a per store basis.

To enable file access for a store, you must select **Preferences > File Access**. On the **File Access** tab, select the store and the type of access required for that store. You can choose any of the following types of access for files and drives on your computer:

- **Read and write:** Provides read and write access to files and drives for the selected store.
- **Read only:** Provides read only access to files and drives for the selected store.
- **No access:** Restrict access to files and drives for the selected store.
- **Ask me each time:** Request permission to access files and drives each time when read or write access is required for the selected store.



## Keyboard accessibility support for the toolbar on the Virtual Desktop

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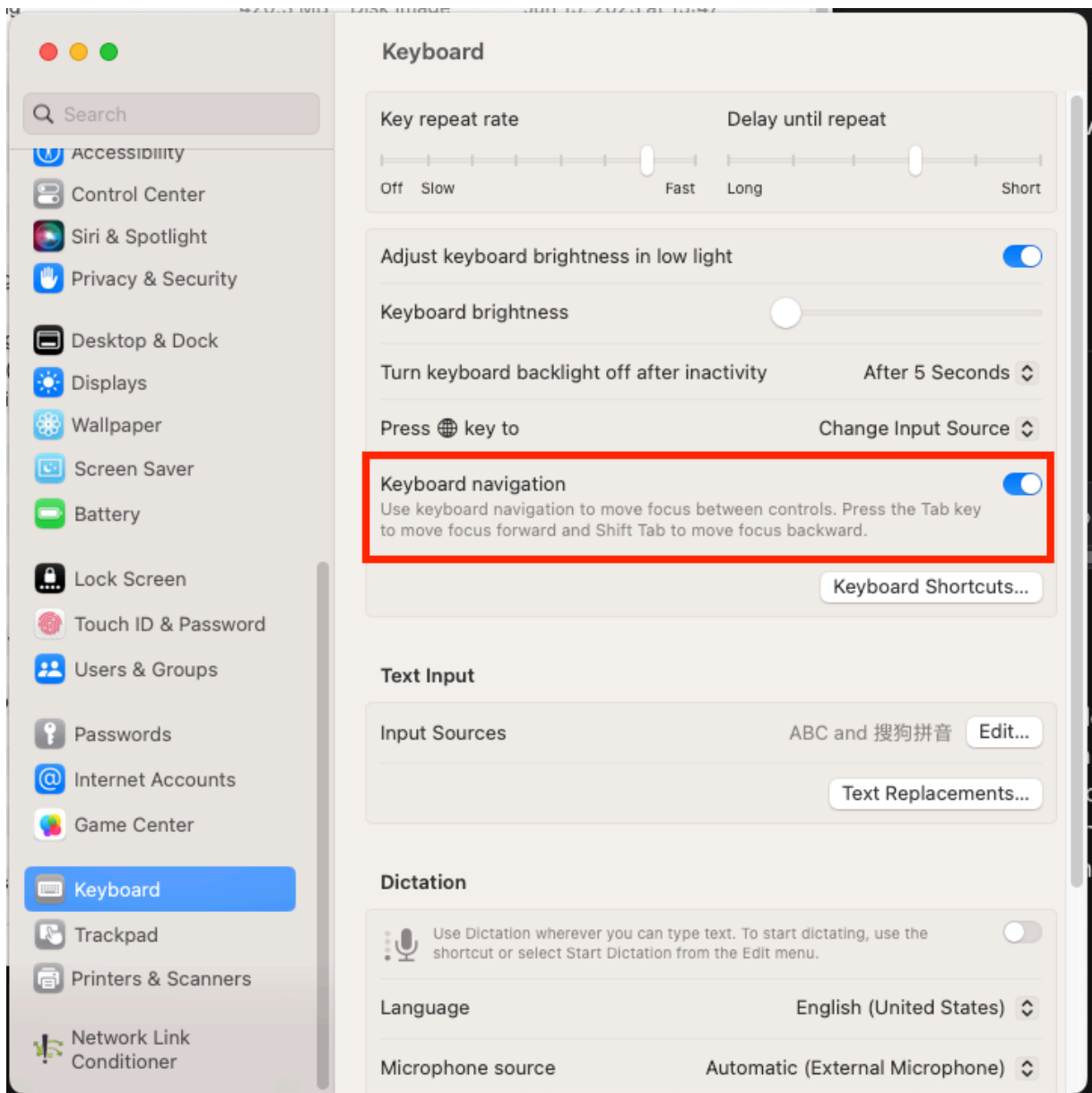
With the 2307 release, you can use the keyboard shortcut to access the Virtual Desktop Infrastructure (VDI) toolbar. From the **Citrix Viewer**, go to **View** in the menu bar and select **Use Toolbar shortcut** to use the keyboard shortcut. By default, the **Use Toolbar shortcut** option is enabled.



You can use the following keyboard shortcuts to access the VDI toolbar using the keyboard:

- **Shift + Command + T**: To activate the VDI toolbar.
- **Tab**: To navigate across the VDI Toolbar in the clockwise direction.
- **Shift + Tab**: To navigate across the VDI toolbar in the anti-clockwise direction.
- **Space**: To select an option on the VDI Toolbar.
- **Escape**: To close a modal in focus.

The toolbar and CWA preference window now support **Keyboard navigation**, which helps to navigate between the UI elements and highlights the element that is in focus.



## Client App Management

Technical Preview from 2305  
version

[Enablement form](#)

[Feedback form](#)

Citrix Workspace app 2305 for Mac now offers Client App Management capability that makes the Citrix Workspace app a single client app required on the end point to install and manage agents such as End Point Analysis (EPA) plug-in.

With this capability, administrators can easily deploy and manage required agents from a single management console.

**Note:**

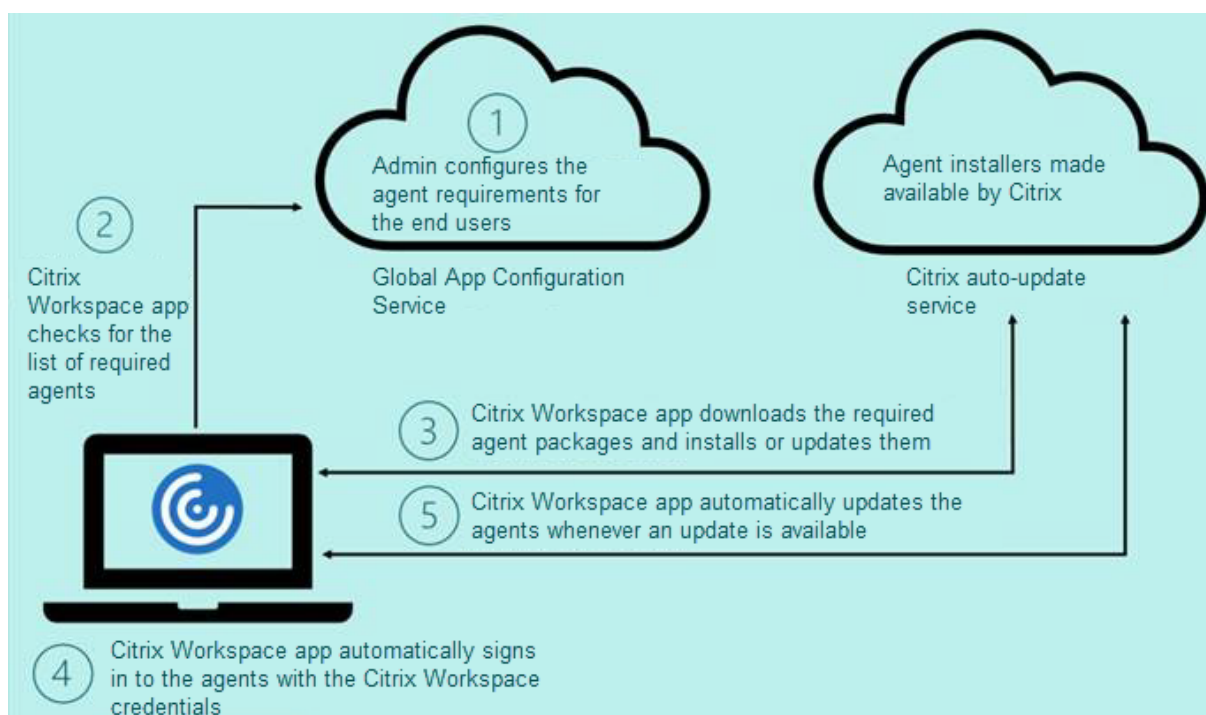
- This feature is applicable to Workspace (cloud) sessions only.
- Global App Configuration service is a prerequisite for this feature.

Client App Management includes the following steps:

- Administrators must specify the agents required on end users' devices in the Global App Configuration service. With this technical preview, administrators can specify an Endpoint Analysis (EPA) agent.
- Citrix Workspace app fetches the list of agents from Global App Configuration service.
- Based on the list fetched from Global App Configuration service, Citrix Workspace app downloads the agent packages through the auto-update service. If the agent isn't previously installed on the end point, Citrix Workspace app triggers the installation of the agent. If the agent is already installed, Citrix Workspace app triggers an update to the agent (if the version of the downloaded agent is higher than the installed version.)

Citrix Workspace app ensures to automatically update the agents whenever an update is available in the future.

The following diagram illustrates the workflow:



Example JSON file in Global App Configuration service:

```
1 {
2
3   "serviceURL": {
4     "url": "https://serviceURL:443"
5   }
6 },
7
8   "settings": {
9     "name": "Client App management",
10    "description": "Client App management",
11    "useForAppConfig": true,
12    "appSettings": {
13      "macos": [
14        {
15          "category": "AutoUpdate",
16          "userOverride": false,
17          "assignedTo": [
18            "AllUsersNoAuthentication"
19          ],
20          "settings": [
21            {
22              "name": "Auto update plugins settings",
23              "value": [
24                {
25                  "pluginName": "Citrix Endpoint
26                    Analysis",
27                  "pluginId": "7303CB73-42EE-42BB-
28                    A908-9E6575912106",
29                  "pluginSettings": {
30                    "deploymentMode": "
31                    InstallAndUpdate",
32                    "upgradeToLatest": true,
33                    "minimumAllowedVersion": "1.0",
34                    "maximumAllowedVersion": "24.0"
35                  },
36                  "delayGroup": "Medium",
37                  "stream": "",
38                  "isFTU": true,
39                  "isBlocking": true,
40                  "detectRule": ""
41                }
42              ]
43            }
44          ]
45        }
46      ]
47    }
48  }
49 }
```

```

50         ]
51     }
52
53     ]
54 }
55
56 }
57
58 }
59
60
61 <!--NeedCopy-->

```

The following table lists the Client App Management settings schema, values, and description.

Schema setting	Value	Description
isBlocking	True or False	When the isBlocking parameter is set to true, the plug-in is considered mandatory. The sign-in page appears only when the required plug-in is installed. Citrix recommends you set EPA as the mandatory plug-in.
pluginName		Friendly name for the plug-in. The pluginName can be modified.
pluginId		ID of the plug-in and must not be modified.
deploymentMode	InstallAndUpdate/Update	
maximumAllowedVersion		Maximum allowed version of the plug-in.
minimumAllowedVersion		Minimum allowed version of the plug-in.
upgradeToLatest	True or False	

Starting with the 2301 release, administrators can manage auto-update of EPA Clients for macOS through the Citrix Workspace app and single sign-on to Citrix Secure Access if you have already signed in to Citrix Workspace app.

## Auto-update of Endpoint Analysis (EPA)

You can now manage auto-update of [EPA Clients for macOS](#) through the Citrix Workspace app. Administrators must specify the agents required on end users' devices in the Global App Configuration service. If the agent is already installed and a new version of the agent is available, then the Citrix Workspace app updates the agent to the next higher version. Citrix Workspace app ensures to automatically update the agents whenever a new update is available in the future.

Example JSON file in Global App Configuration service:

```
1 {
2
3   "serviceURL": {
4
5     "url": "https://serviceURL:443"
6   }
7 ,
8   "settings": {
9
10    "name": "Client App management",
11    "description": "Client App management",
12    "useForAppConfig": true,
13    "appSettings": {
14
15      "macos": [
16        {
17
18          "category": "AutoUpdate",
19          "userOverride": false,
20          "assignedTo": [
21            "AllUsersNoAuthentication"
22          ],
23          "settings": [
24            {
25
26              "name": "Auto update plugins settings",
27              "value": [
28                {
29
30                  "pluginName": "Citrix Endpoint
31                    Analysis",
32                  "pluginId": "7303CB73-42EE-42BB-
33                    A908-9E6575912106",
34                  "pluginSettings": {
35
36                    "deploymentMode": "
37                      InstallAndUpdate",
38                    "upgradeToLatest": true,
39                    "minimumAllowedVersion": "1.0",
40                    "maximumAllowedVersion": "7.0",
41                    "delayGroup": "Medium",
42                    "stream": "",
```

```
40         "isFTU": false,
41         "isBlocking": false,
42         "detectRule": ""
43     }
44 }
45 }
46 ]
47 ]
48 }
49 ]
50 ]
51 }
52 ]
53 ]
54 }
55 }
56 }
57 }
58 }
59 }
60 }
61 <!--NeedCopy-->
```

The meaning of the properties and their possible values for the deploymentMode key are as follows:

- “InstallAndUpdate”: The plug-in can be freshly installed and updated with a new version.
- “Update”: Only update is allowed, no fresh install.
- “None”: No action needed for this plug-in.

### Single sign-on to Citrix Secure Access using Citrix Workspace app

You can single sign-on to Citrix Secure Access if you have already signed in to Citrix Workspace app. When you sign in to Citrix Workspace app and open Citrix Secure Access, you are not asked to authenticate by entering the credentials. It automatically proceeds with the authentication. This feature provides users with a seamless experience by allowing single sign-on to different Citrix applications. This feature is available only for customers on cloud stores. Along with the latest version of Citrix Workspace app, you must have a compatible version of Citrix Secure Access (22.12.2 and later versions).

### Rapid Scan

---

Technical Preview from 2304  
version

[Enablement form](#)

[Feedback form](#)

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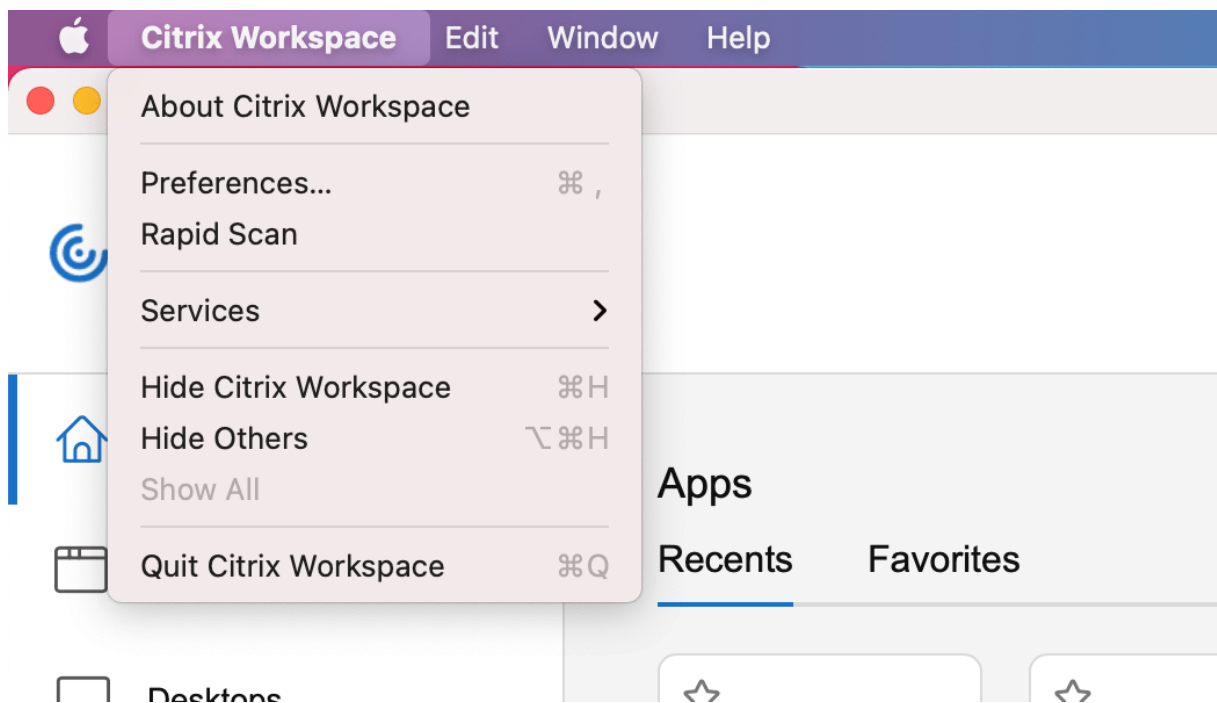
If you’re logged into Citrix Workspace app on multiple devices, you can use the Rapid Scan feature to scan multiple documents with an iOS device, and then transfer those scanned documents to a Mac

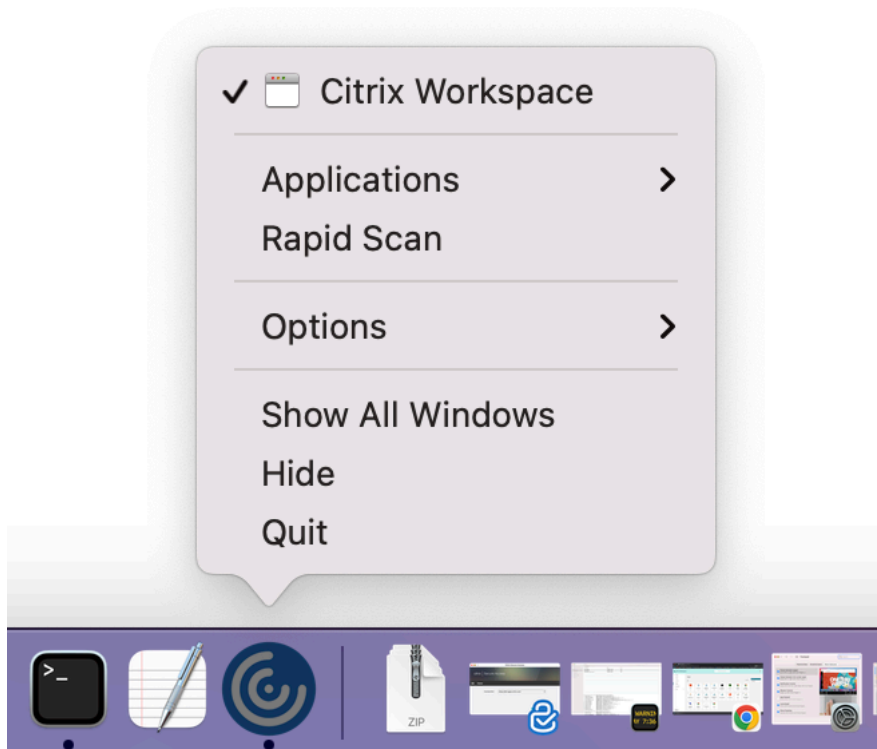


device.

For instructions on how to use the Rapid Scan feature to scan documents, follow these steps:

1. On your Mac device, right-click on the Citrix Workspace app icon in your desktop session and then click **Rapid Scan** to display a QR code.
2. On your iOS device, click **Settings > Rapid Scan**.
3. Scan the QR code displayed on your Mac device to establish the connection between your Mac and iOS devices.
4. Scan any document and send it to your Mac device.
5. In your desktop session on your Mac device, you can locate the documents you scanned in the Finder.





### Prerequisites

- Client drive mapping (CDM) must be enabled for the store.
- You must be signed into the same account in the Citrix Workspace app on both your iOS device and Mac device.
- You must be connected to the same Wi-Fi.
- The minimum version required of Citrix Workspace app for Mac is 2304.
- This feature is supported on Citrix Workspace app for iOS version 23.3.5 onwards.
- Rapid Scan requires read and write access on your device. To enable access, follow these steps:
  1. From your profile, click **Application Settings > Store Settings**.
  2. Click your current store.
  3. Click **Device Storage** and select **Read and write access**.

### Upgraded version of WebRTC for the optimized Microsoft Teams

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Technical Preview from 2210  
version

[Enablement form](#)

[Feedback form](#)

---

Starting with the 2210 version, the version of WebRTC that is used for the optimized Microsoft Teams is upgraded to version M98.

### **Support for an enhanced Single sign-on (SSO) experience for web and SaaS apps**

---

Technical Preview from 2203.1  
version

[Enablement form](#)

[Feedback form](#)

---

This feature simplifies the configuration of SSO for internal web apps and SaaS apps while using third party identity providers (IdPs). The enhanced SSO experience reduces the entire process to a few commands. It eliminates the mandatory prerequisite to configure Citrix Secure Private Access in the IdP chain to set up SSO. It also improves the user experience, provided the same IdP is used for authenticating the Citrix Workspace app and the particular web or SaaS app that is launched from Citrix Workspace app.

### **Technical Preview to General Availability (GA)**

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Service or feature	General availability version
Support for H.265 video decoding	2402
Upgraded HDX Reducer to Version 4	2402
Loss tolerant mode for audio	2402
Support for Audio volume synchronization	2402
Support for background blur for webcam	2402
Support for screen sharing when App protection is enabled	2402
Support for authentication using FIDO2 when connecting to on-premises store	2311
Enhanced virtual apps and desktops launch experience for Workspace (Cloud users only)	2311
Improved graphics performance	2308

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Service or feature	General availability version
Increase in the number of supported virtual channels	2308

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## Native support for Mac with Apple Silicon (M1 and M2 series)

January 25, 2024

### Native support for Mac with Apple Silicon (M1 and M2 series) - Universal architecture

With the release of the Universal Architecture build, Citrix Workspace app now provides native support for Macs with Apple silicon (M1 and M2 series). The Universal Architecture build can run on any Mac device, irrespective of their processor architecture.

If you are using the x86\_64 Intel-based architecture build of Citrix Workspace app for Macs with Apple Silicon (M1 and M2 series), then you must use Rosetta emulation to run the app.

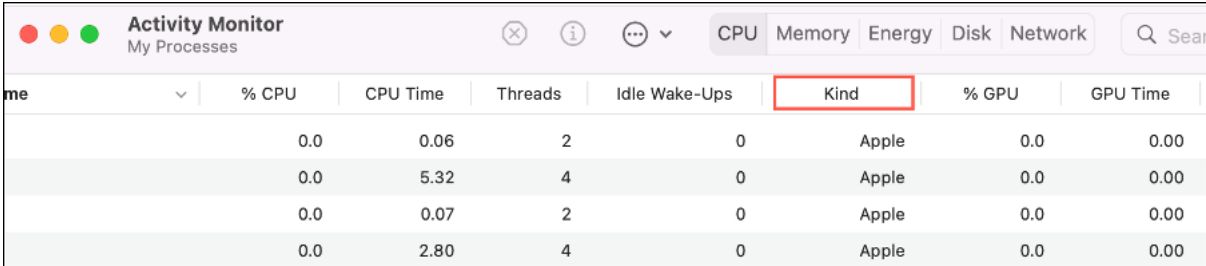
You can download the latest version of Universal Architecture build and x86\_64 Intel-based Architecture build at [Downloads](#).

**Note:**

Citrix will soon deprecate the x86\_64 Intel-based Architecture build of Citrix Workspace app. Citrix continue to support Universal Architecture build for both Intel-based Macs and Macs with Apple Silicon (M1 and M2 Series). Keep a look out for an announcement in the [Deprecation](#) section.

If you're using Citrix Workspace app on a Mac running Apple silicon (M1 and M2 series), you must upgrade the HDX RealTime Optimization Pack (RTOP). You can upgrade by installing the HDX RealTime Media Engine 2.9.500 for Mac from the Citrix website at [Downloads](#).

To determine if the Citrix Workspace app is running natively on Apple silicon, open **Activity monitor** on your Mac. The column title **Kind** in the **CPU** tab indicates whether the Workspace app is running on an Apple Silicon or Intel processor.



The screenshot shows the macOS Activity Monitor window with the 'CPU' tab selected. The 'Kind' column is highlighted with a red box. The table below represents the data visible in the screenshot.

Name	% CPU	CPU Time	Threads	Idle Wake-Ups	Kind	% GPU	GPU Time
	0.0	0.06	2	0	Apple	0.0	0.00
	0.0	5.32	4	0	Apple	0.0	0.00
	0.0	0.07	2	0	Apple	0.0	0.00
	0.0	2.80	4	0	Apple	0.0	0.00

### Migrating between different builds of Citrix Workspace app

You can migrate Citrix Workspace app from the x86\_64 Intel-based Architecture build to the universal architecture build and the other way around.

To migrate between builds, download the latest version of the build at [Downloads](#) and do the manual installation. For more information, see [Manual install](#).

Alternatively, you can migrate between builds using the GUI. This option is applicable only for users on Mac with Apple silicon (M1 and M2 series). For more information about migration using the graphical user interface, see [Configure Citrix Workspace automatic updates using the graphical user interface](#).

#### Note:

Uninstalling the app isn't required for migrating between builds.

### Citrix Virtual Channel SDK

The Citrix Virtual Channel software development kit (VCSDK) supports writing server-side applications and client-side drivers for more virtual channels using the ICA protocol. The server-side virtual channel applications are on Citrix Virtual Apps and Desktops servers. If you want to write virtual drivers for other client platforms, contact Citrix Technical support.

The Virtual Channel SDK provides:

- The Citrix Virtual Driver Application Programming Interface (VD-API) is used with the virtual channel functions in the Citrix Server API SDK (WF-API SDK) to create new virtual channels. The virtual channel support provided by VD-API makes it easy to write your own virtual channels.
- The Windows Monitoring API, which enhances the visual experience and support for third-party applications integrated with ICA.
- Working source code for virtual channel sample programs to demonstrate programming techniques.

The Virtual Channel SDK requires the WF-API SDK to write the server side of the virtual channel.

## Load Custom Virtual Channels on Macs with Apple Silicon (M1 and M2 series)

As an end-user, you can load the Custom Virtual Channel SDK (VCSDK) successfully on a Mac with the M1 and M2 chipset. With universal architecture, you must load the VCSDK by recompiling your Custom Virtual Channels using the latest VCSDK on the M1 and M2 chipset device. You can download the universal architecture build from the **Virtual Channel SDK 2204 for macOS (Apple silicon) - Universal Architecture** section at [Downloads](#).

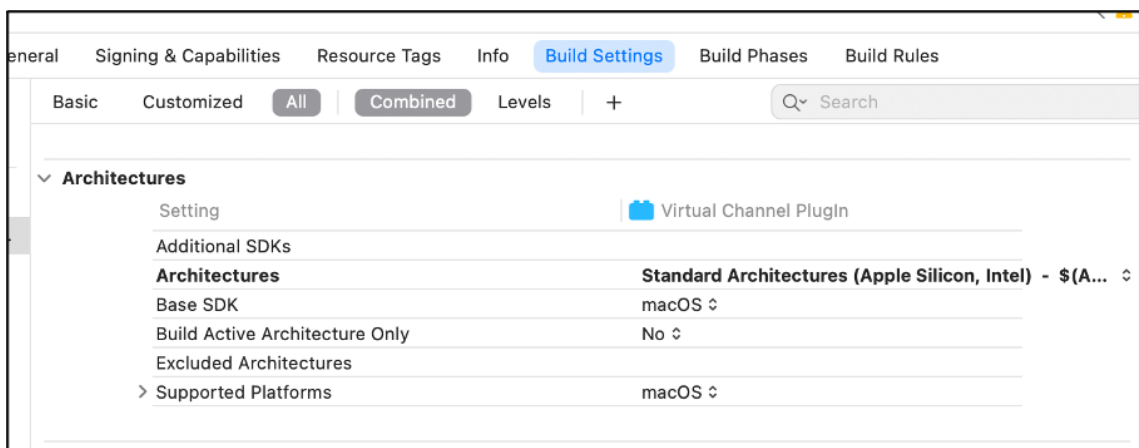
To load the VCSDK, do the following:

1. Download Virtual Channel SDK 2204 for macOS from [Downloads](#).
2. Open your Custom Virtual Channel project in Xcode.
3. Change your code.
4. Compile your Custom Virtual Channel to generate the virtual channel bundle.

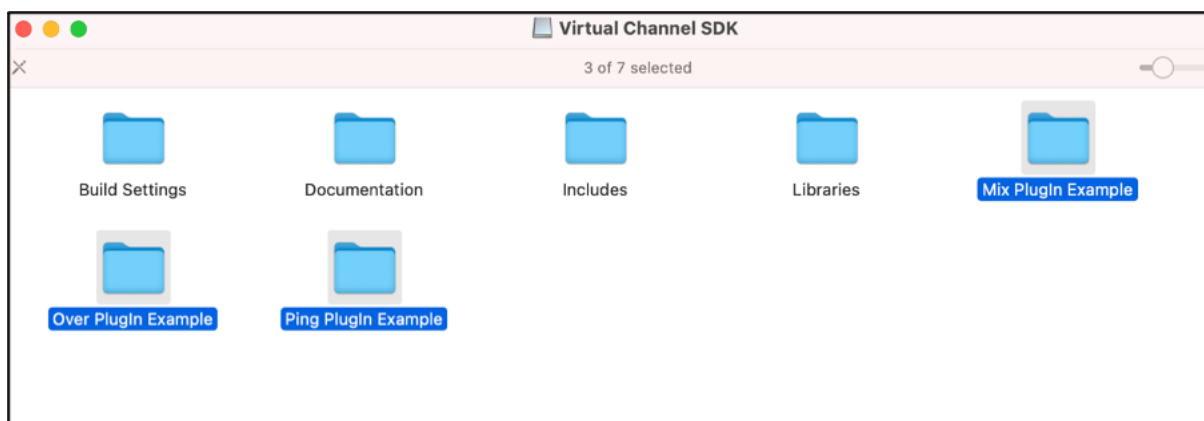
## Test your Virtual Channel Software Development Kit (VCSDK)

If you're using the Citrix Virtual Channel Software Development Kit (VCSDK), you must customize so your customized virtual channels run correctly. To test your VCSDKs, do the following:

1. Ensure that all the linked libraries of your customized virtual channels are compiled for Universal Binary.
2. Change the Project file to support Universal Binary:
  - Open **Project > Build Settings**.
  - Set **Architectures** to **Standard Architectures**.



Examples for the VCSDK can be found inside *VCSDK.dmg*. These examples support Apple's Universal macOS Binary that runs natively on both Apple silicon and Intel-based Mac computers. Because it contains executable code for both architectures. You can use these examples as a reference.



### Modernized Citrix Virtual Channel SDK for Citrix Workspace app for Mac

Starting with the 2311 version, the Citrix Virtual Channel Software Development Kit (VCSDK) supports writing server-side applications and client-side drivers for more virtual channels using the ICA protocol. The server-side virtual channel applications are on Citrix Virtual Apps and Desktops servers. This version of the SDK supports writing new virtual channels and screen sharing for Citrix Workspace app for Mac.

For more information, see [Citrix Virtual Channel SDK for Citrix Workspace app for Mac](#) in the Developer documentation.

### Increase in the number of supported virtual channels

Previously, Citrix Workspace app for Mac supported up to 32 virtual channels. Starting with the 2308 version, you can use up to 64 virtual channels in a session.

## Citrix Workspace app 2405 for Mac - Preview

July 2, 2024

You can download Citrix Workspace app for Mac 2405 preview version from the [Downloads](#) page.

For information on installation, see [Install](#) page.

You can give the EAR feedback using the [podio](#) form.

#### Note:

This is an Early Access Build shared for the purpose of testing or validation with the intent to make organizations ready for the upcoming release and is NOT advised to be deployed in production

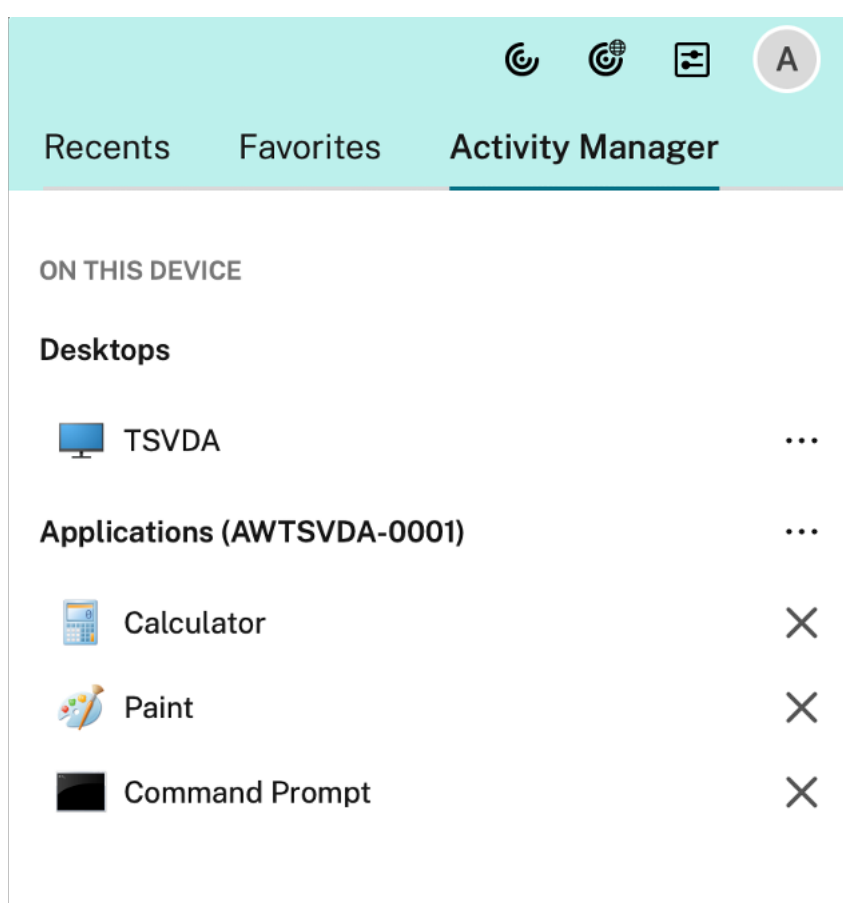
environments.

## What's new

### Support for Activity Manager on the quick access menu for cloud stores

Starting with the version 2405, Citrix Workspace app for Mac supports the Activity Manager feature. This feature lets end users view and interact with all their active apps and desktop sessions at one place. You can disconnect or terminate the active sessions directly from the Activity Manager.

To view active sessions in the Activity Manager, select the Citrix Workspace app icon from the menu bar and then click **Activity Manager**.



You can perform the following actions on the active desktop sessions by clicking the respective ellipsis(...) button.

- **Disconnect:** The remote session is disconnected, but the apps and desktops are active in the background.
- **Log out:** Logs out from the current session. All the apps in the sessions are closed, and any unsaved files are lost.



- **Shut Down:** Closes your disconnected desktops.
- **Force Quit:** Forcefully powers off your desktop in case of a technical issue.
- **Restart:** Shuts down your desktop and starts it again.

For active seamless app session, you can terminate the app session by clicking the close (X) button.

For more information, see [Activity manager](#).

### **Support for resetting Citrix Workspace app**

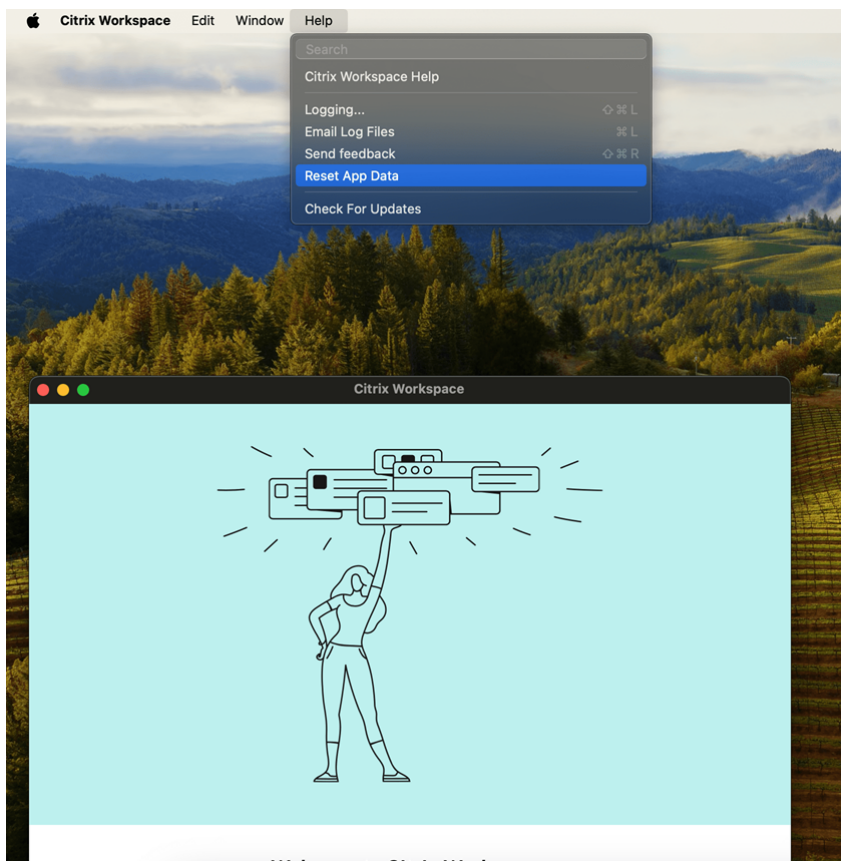
Starting with the 2405 version, Citrix Workspace app for Mac supports the **Reset App Data** option. This feature allows users to quickly resolve issues resulting from conflicts caused by cache or settings by resetting the app and get unblocked without external assistance.

When you reset the Citrix Workspace app :

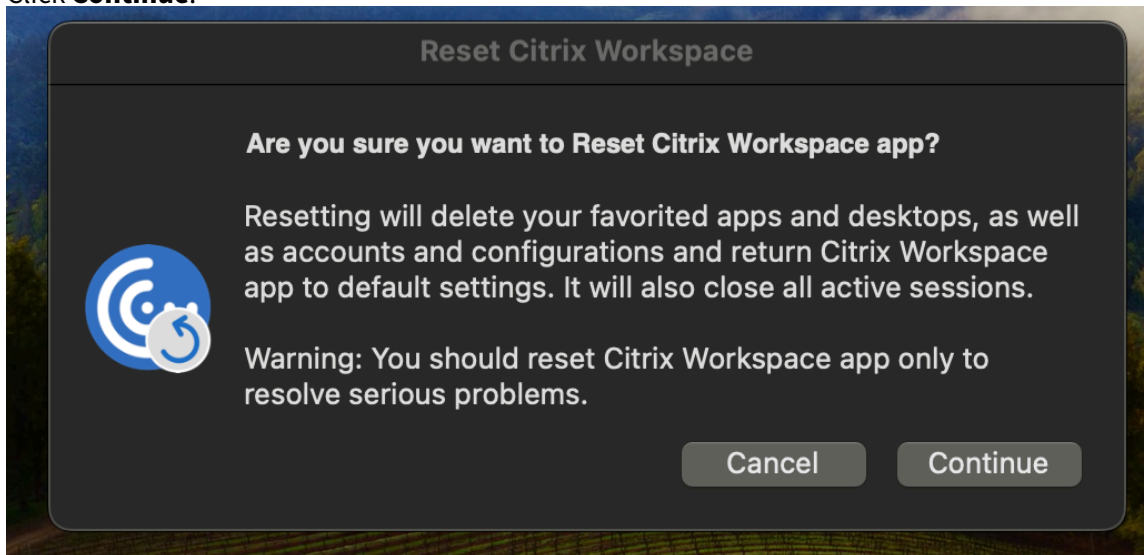
- The app is reverted to its default state (similar to just after fresh installation).
- All cache is cleared.
- Any added stores are removed.
- Preference settings are return to their default state.

### **How to Reset Citrix Workspace app**

1. Open the Citrix Workspace app.
2. On the menu bar, navigate to **Help > Reset App Data**.



3. Click **Continue**.



4. Click **Quit**



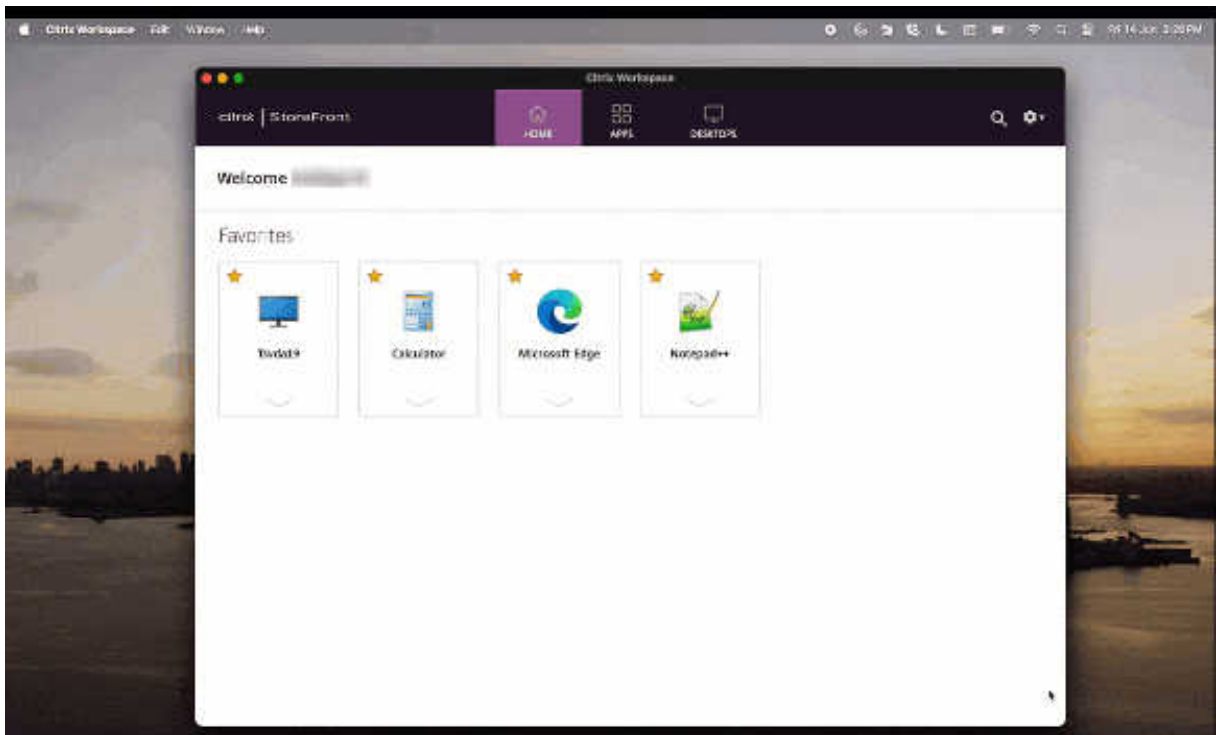
### **Support for device touch ID for FIDO2 password-less authentication**

Previously, Citrix Workspace app supported FIDO2 password-less authentication through the roaming authenticators (USB only) with PIN code and touch.

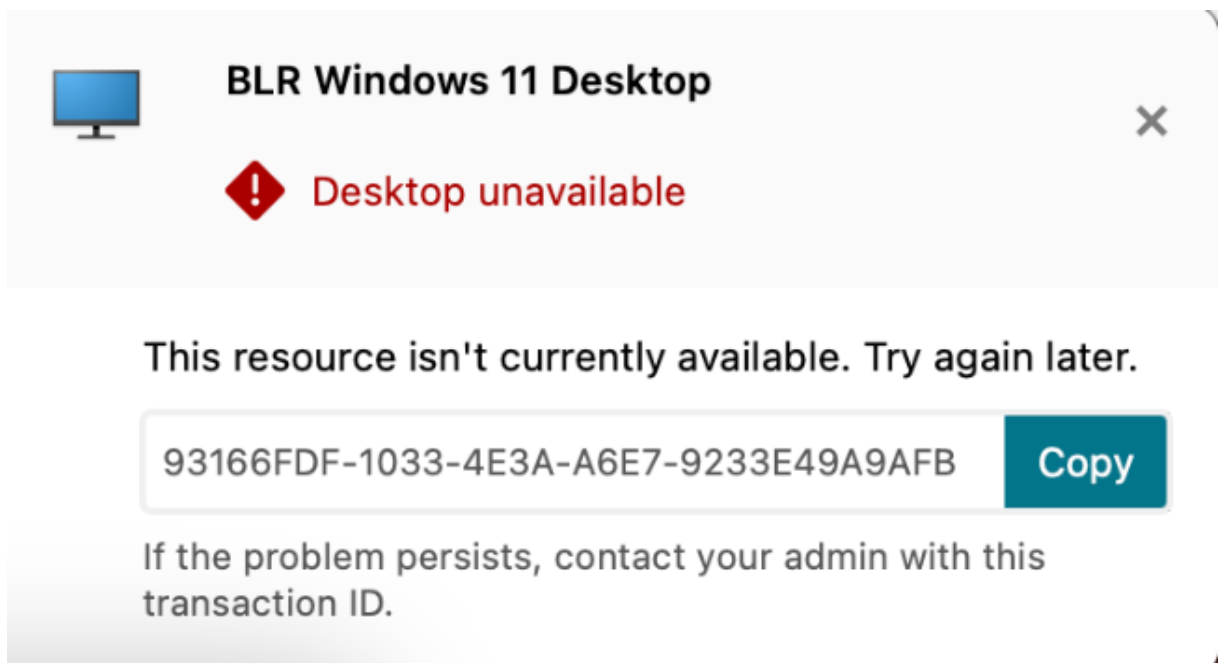
Starting with the version 2405, Citrix Workspace app now supports device touch ID for FIDO2 password-less authentication, enhancing the sign-in experience for users. With this feature, users can securely sign in to the store configured on the Citrix Workspace app using the device touch ID, eliminating the need for passcodes or passwords. This feature enhances both usability and security of Citrix Workspace app for macOS users. This feature is enabled by default.

### **Enhanced virtual apps and desktops launch experience for on-premises stores and custom web portals**

Starting with the 2405 version, the enhanced virtual apps and desktops launch experience is now supported for on-premises stores and custom web portals. This feature enhances the opening experience of Citrix resources to be more intuitive, informative, and user-friendly.



The launch progress notification now appears at the lower-right corner of your screen. A progress status of the resources, which are in the process of being opened is shown. You cannot retrieve the notification once you dismiss it. The notification stays for a few seconds from the time you start the session. If the session fails to start, then the notification shows the failure message.



## **Support for automatic installation of the End-Point Analysis (EPA) plug-in with Citrix Workspace app**

Previously, users were required to manually download and install the End-Point Analysis (EPA) plug-in during the Citrix Workspace app login.

Starting from version 2405, Citrix Workspace app supports the automatic installation of the EPA plug-in during installation or updates. When you install or update Citrix Workspace app, the EPA plug-in is included by default. This enhancement eliminates the need for separately installing the EPA plug-in, resulting in a smoother experience during Citrix Workspace app setup.

## **Support for optionally installing Citrix Enterprise Browser**

Starting with version 2405, you have the flexibility to choose whether to install Citrix Enterprise Browser during the installation of the Citrix Workspace app for Mac. Additionally, if you've already installed Citrix Enterprise Browser with Citrix Workspace app, you can uninstall Citrix Enterprise Browser using the Global App Configuration service and Mobile Device Management (MDM). This feature allows administrators to maintain compliance by controlling whether Citrix Enterprise Browser is allowed for use on their managed devices.

**Configuration** You can opt to install the Citrix Enterprise Browser using the Installer GUI and Command Line interface. If Citrix Enterprise Browser is already installed, then you can uninstall by pushing settings through the Global App Configuration service and MDM.

## **Install using the command line**

- **Install Citrix workspace app with Citrix Enterprise Browser**

To install Citrix Enterprise Browser during the Citrix Workspace app installation using the command line, run the following command:

```
1 sudo installer -pkg path_to_pkg -target / -verboseR
2
3 <!--NeedCopy-->
```

For example:

```
1 sudo installer -pkg /Volumes/Citrix\ Workspace/Install\ Citrix\
   Workspace.pkg -target / -verboseR
2 <!--NeedCopy-->
```

- **Install only Citrix workspace app**

To opt out from installing Citrix Enterprise Browser during the Citrix Workspace installation using the command line, run the following command with the attached [citrix\\_enterprise\\_browser\\_optedoutchoices.xml](#) file:

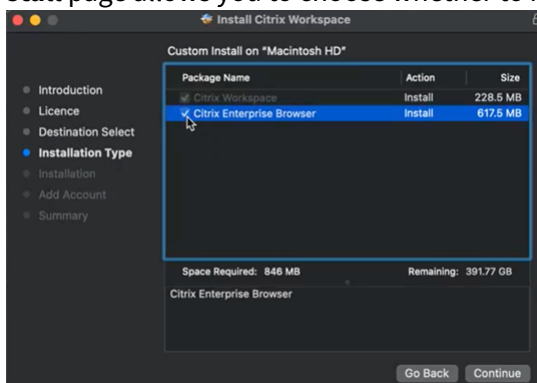
```
1 sudo installer -applyChoiceChangesXML path_to_ChoiceChangesXML -pkg
   path_to_pkg -target /
2
3 <!--NeedCopy-->
```

For example:

```
1 sudo installer -applyChoiceChangesXML ./
   citrix_enterprise_browser_optedoutchoices.xml -pkg /Volumes/Citrix\
   Workspace\Install\Citrix\ Workspace.pkg -target /
2 <!--NeedCopy-->
```

### Install using the installer GUI (Graphical User Interface)

1. During the installation of Install Citrix Workspace.pkg through the installer GUI, the **Custom Install** page allows you to choose whether to install Citrix Enterprise Browser or not.

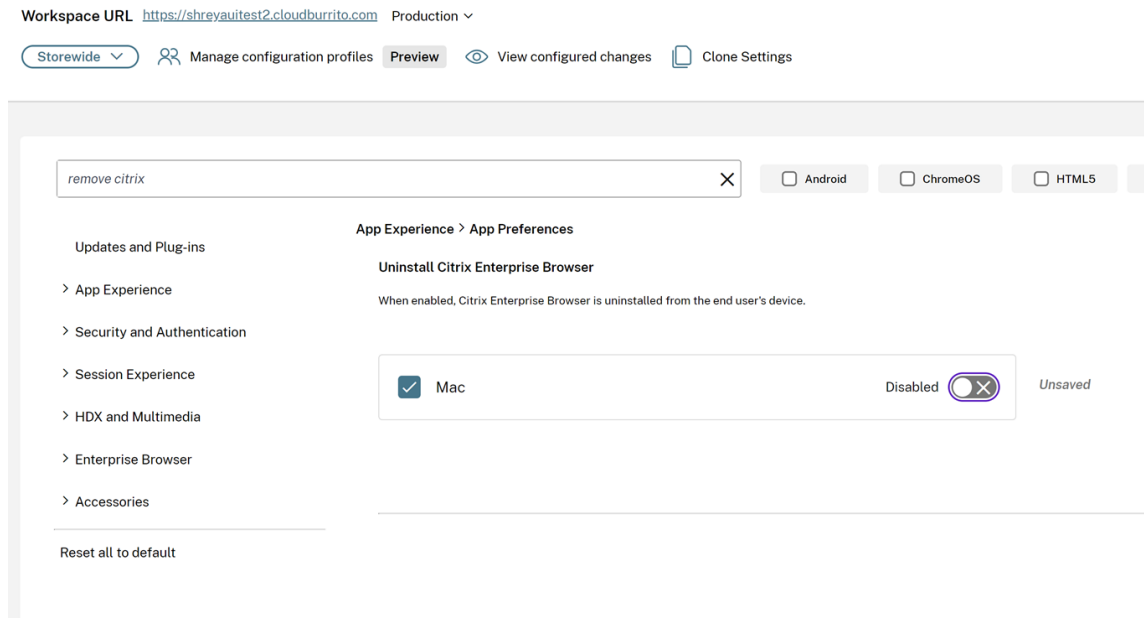


2. In the **Custom Install** page, do one of the following:
  - Select **Citrix Enterprise Browser** checkbox - In this case, both Citrix Workspace app and Citrix Enterprise Browser are installed.
  - Deselect **Citrix Enterprise Browser** checkbox - In this case, only Citrix Workspace app is installed.
3. If you deselect it, only Citrix Workspace app is installed.
4. If you select it, both Citrix Workspace app and Citrix Enterprise Browser are installed.  
For more information about the installation, see [Manual install](#).

**Uninstall using the Global App Configuration service** To uninstall the Citrix Enterprise Browser, do the following steps:

1. Go to [Citrix Cloud](#) and sign in with your Citrix Cloud credentials.

2. Navigate to **Workspace Configuration > App Configuration**.
3. From the list of configured store URLs, select the store for which you want to uninstall the Citrix Enterprise Browser and then click **Configure**.
4. Navigate to **App Experience > App Preferences**, select the **Mac** checkbox and toggle the button to **Enabled**. If enabled, then the Citrix Workspace Browser is uninstalled from the end user's device.



5. Click **Publish Drafts** to save the settings.

**Uninstall Citrix Enterprise Browser using the Mobile Device Management** To uninstall the Citrix Enterprise Browser, run the following command:

```
1 <key>RemoveCitrixEnterpriseBrowser</key> <true/>
2 <!--NeedCopy-->
```

### Upgraded version of WebRTC for the optimized Microsoft Teams

The version of WebRTC that is used for the optimized Microsoft Teams is upgraded to version M117.

### Support for printing PDF documents with selected orientation

Starting with the version 2405, you can now print PDF documents with the correct orientation whether it's portrait or landscape. This feature ensures that the printed output aligns perfectly with the intended layout. This feature is enabled by default.

## Enable Packet Loss Concealment to improve audio performance

Starting with the 2405 version, the jitter buffer mechanism is improved, and the Packet Loss Concealment (PLC) is added for the Adaptive audio codec. PLC helps to reconstruct the lost data packets. This enhancement helps to improve the packet loss tolerance and jitter tolerance and thus improves audio performance for loss tolerant mode (EDT lossy) for audio.

To enable this feature, you also need to enable the [Loss tolerant mode for the audio](#) feature.

This feature is enabled by default.

To disable this feature through Mobile Device Management (MDM), administrators must use the following settings:

```
1 <key> PacketLossConcealmentEnabled</key><false/>
2 <!--NeedCopy-->
```

After running the command, restart the session for the changes to take effect.

## Modernized Citrix Virtual Channel SDK for Citrix Workspace app for Mac

Starting with the 2405 version, the Citrix Virtual Channel Software Development Kit (VCSDK) supports the desktop and screen sharing VCSDK API and gbuffer sharing.

For more information, see [Virtual driver screen sharing and app-sharing functions](#).

## Enhancement to the keyboard Settings

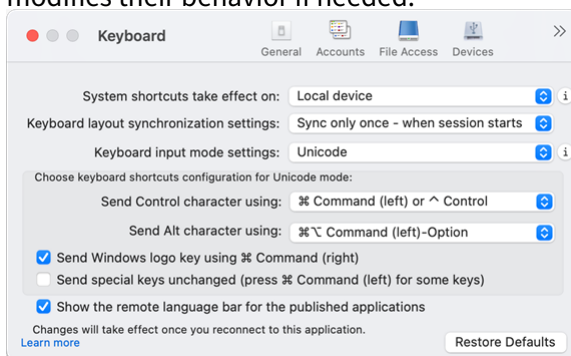
Starting with the 2405 version, Citrix Workspace app now provides an improved keyboard settings user interface (UI) by categorizing setting options and adding helpful tip icons.

The following settings are now available as secondary options under the **Unicode input mode** setting:

- Send Control character using
  - This setting specifies an alternative key to act as the Control key (often used for shortcuts like Ctrl+C for copy) within the virtual session. On different keyboards or operating systems, the Control key might be in different locations, so this setting allows customization to maintain consistency for a better user experience.
- Send Alt character using
  - This setting specifies which key can act as the Alt key (used for accessing alternate functions of keys, like Alt+Tab for switching windows).



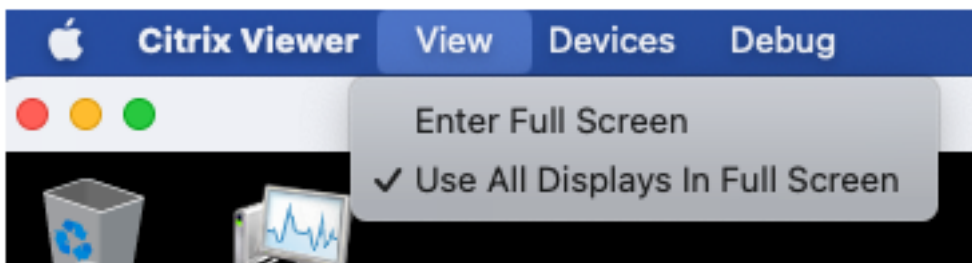
- Send Windows logo key using Command (right)
  - This setting specifies the right Command key on a Mac keyboard to function as the Windows logo key. This setting is particularly useful for macOS users who use the Command key frequently but need the functionality of the Windows logo key when using Windows or applications that recognize it.
- Send special keys unchanged (press Command (left) for some keys)
  - This setting keeps certain special keys (like function keys, escape, etc.) unchanged in their function, except when the left Command key is pressed. It allows for a hybrid approach where the default behavior of special keys is retained, but pressing the left Command key modifies their behavior if needed.



### Support for extending the desktop session to external monitors automatically

Starting with the 2405 version, Citrix Workspace app supports the extension of desktop sessions to external monitors automatically. With this feature, when you launch the desktop session on the endpoint, if the external monitors are already connected to the endpoint, then the session is extended to external monitors automatically. When you disconnect the external monitor, the session can automatically adjust to extend only to the connected monitors.

To enable this feature, go to the **View** menu in the Citrix Viewer menu bar and select the **Use All Displays in Full Screen** option.



### **Support for Mac VoiceOver on the virtual desktop and seamless app sessions (Technical Preview)**

Starting with the 2405 version, Citrix Workspace app for Mac supports the Mac VoiceOver feature within a virtual desktop and seamless app sessions. This feature allows users to receive verbal descriptions of UI elements and content within the sessions. These features enhance accessibility and ensure compliance with WCAG requirements.

To request access for this feature, fill out this [Enablement form](#).

#### **Note:**

- Technical previews are available for customers to test in their non-production or limited production environments, and to give customers an opportunity to share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It is advised that Beta builds aren't deployed in production environments.
- You can provide feedback for this feature using this [Feedback form](#).

### **Provision to manage multiple proxy servers using PAC files (Technical Preview)**

Starting with the version 2405, you can use multiple proxy servers that allow the HDX sessions to select appropriate proxy servers for accessing specific resources. This selection is based on the proxy rules configured in the Proxy Auto-Configuration (PAC) file. Using this file, you can manage the network by mentioning which network traffic must be sent through a proxy server and which must be sent directly. Additionally, the PAC URL supports both **http://** and **file://** protocols.

To request access for this feature, fill out this [Enablement form](#).

#### **Note:**

- Technical previews are available for customers to test in their non-production or limited production environments, and to give customers an opportunity to share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It is advised that Beta builds aren't deployed in production environments.
- You can provide feedback for this feature using this [Feedback form](#).

### **Support for Plug and play webcam redirection (Technical Preview)**

Starting with the 2405 version, Citrix Workspace app for Mac now supports plug and play (PnP) webcam redirection for Linux VDA and Windows VDA. With this feature, when you connect a built-in or

external camera to your device, it is automatically detected in the virtual sessions. If you unplug a camera from the device, Citrix Workspace app for Mac can promptly detect the change and remove the disconnected cameras from your selection options in the virtual sessions.

To request access for this feature, fill out this [Enablement form](#).

**Note:**

- Technical previews are available for customers to test in their non-production or limited production environments, and to give customers an opportunity to share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It is advised that Beta builds aren't deployed in production environments.
- You can provide feedback for this feature using this [Feedback form](#).

### **Support for managing composite USB device redirection using DDC policies (Technical Preview)**

Starting with the 2405 version, you can manage the composite USB device redirection using the DDC policies. The rules set on the server take preferences over the rules set on the client. Client can interpret the value set on server.

With this release, Citrix Workspace app for Mac supports the following policies which helps you to manage the usage of the composite USB device redirection using the DDC policies:

- Client USB device redirection
- Client USB device redirection rules
- Client USB device redirection rules (Version 2)
- Allow existing USB devices to be automatically connected
- Allow newly arrived USB devices to be automatically connected

**Note:**

For more information about configuring the preceding policies, see [Client USB device redirection](#) in the Citrix Virtual Apps and Desktops document.

### **Desktop Viewer's updates according to the policies**

- If the Client USB device redirection policy is set to Prohibited on DDC, Devices on the toolbar is set to invisible and the Devices option on the Citrix Workspace app preferences screen won't be visible.
- Based on the values set for **Allow existing USB devices to be automatically connected** and **Allow newly arrived USB devices to be automatically connected** policies, the following check-

boxes might be enabled or disabled on the Devices option on the Citrix Workspace app preferences screen:

- When a session starts, connect devices automatically
- When a new device is connected while a session is running, connect devices automatically

**Limitation:**

If the users only redirect one interface of composite USB device for an application, then the other interfaces can not be used by other applications.

To request access for this feature, fill out this [Enablement form](#).

**Note:**

- Technical previews are available for customers to test in their non-production or limited production environments, and to give customers an opportunity to share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It is advised that Beta builds aren't deployed in production environments.
- You can provide feedback for this feature using this [Feedback form](#).

**Support for HTML format on the Citrix Workspace app for Mac clipboard (Technical Preview)**

Starting with version 2405, Citrix Workspace app for Mac supports the seamless copying and pasting of HTML-formatted text between a Mac local app and a virtual app or desktop session running through Citrix Workspace app for Mac. Whether you're working locally or in a virtual session, this functionality ensures that HTML content is accurately retained during the copy-and-paste process. With this feature, you can copy and paste large HTML text between local and virtual sessions without any restrictions.

This feature is disabled by default in clipboard redirection policy.

To enable the HTML format for clipboard, you need to add an entry for CF\_HTML (and any other in "Client clipboard write allowed formats" and "Session clipboard write allowed formats") in the ICA policy settings. For more information, see [Client clipboard redirection](#).

**Note:**

- Client clipboard write allowed formats does not apply if the Client clipboard redirection policy is set to **Prohibited** or **Restrict client clipboard write policy** is disabled.
- Session clipboard write allowed formats does not apply if the Client clipboard redirection policy is set to **Prohibited** or **Restrict session clipboard write** policy is disabled.

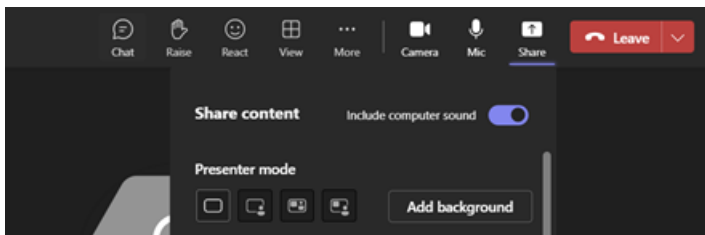
To request access for this feature, fill out this [Enablement form](#).

### Note:

- Technical previews are available for customers to test in their non-production or limited production environments, and to give customers an opportunity to share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It is advised that Beta builds aren't deployed in production environments.
- You can provide feedback for this feature using this [Feedback form](#).

### Support for sharing system audio on Microsoft teams [Technical Preview]

Starting with the 2405 version, Citrix Workspace app for Mac supports sharing the system audio during the Microsoft Teams meeting. With this feature, you can now share the audio playing on your VDA with the participants in a meeting. Select the **Include computer sound** option to allow sharing the system audio to the meeting.



To request access for this feature, fill out this [Enablement form](#).

**Limitations** This feature is supported only on published desktops.

### Note:

- This feature is available only after future update roll-out from Microsoft Teams.
- Technical previews are available for customers to test in their non-production or limited production environments, and to give customers an opportunity to share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It is advised that Beta builds aren't deployed in production environments.
- You can provide feedback for this feature using this [Feedback form](#).

### Support for YUV444 color format (Technical Preview)

Starting with the 2405 version, Citrix Workspace app for Mac introduces support for the YUV444 color format. YUV444 is a color format that provides better color accuracy and image clarity compared to

the default YUV420 format. It ensures more vibrant and accurate colors, especially when working with multimedia content. This enhancement improves video playback quality and image fidelity.

---

Mac CPU type	Video codec	Support YUV444 (hardware) decode
Intel	H.264	No
Intel	H.265	Yes
AppleSilicon	H.264	Yes
AppleSilicon	H.265	Yes

---

**Note:**

- Macs with Apple silicon support YUV444 using both H.264 and H.265 with hardware acceleration.
- Macs with Intel architecture do not support H.264 YUV444 decoding with hardware acceleration. In this case, Citrix Workspace app fall back to the supported color format automatically.

**Enabling YUV444 For full-screen H.264:**

To enable YUV444 for full-screen H.264 video, configure the following policies on the Delivery Controller (DDC):

- Visual Quality: Always lossless / Build to lossless
- Allow visually lossless compression: Enabled
- Additional Requirements for full-screen H.265:

If you're using full-screen H.265 video with YUV444, ensure the following:

- Citrix Virtual Apps and Desktops version 2209 or newer
- Graphics hardware that meets the requirements:
- NVIDIA Pascal GPU or newer
- Intel 6th generation GPU or later
- AMD Generation GCN3 or later

**Recommended Policies**

- Use video codec: "Use when Preferred" or "For the Entire Screen"
- Optimize for 3D Graphics: Enabled

- Hardware Encoding: Enabled

To request access for this feature, fill out this [Enablement form](#).

**Note:**

- Technical previews are available for customers to test in their non-production or limited production environments, and to give customers an opportunity to share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It is advised that Beta builds aren't deployed in production environments.
- You can provide feedback for this feature using this [Feedback form](#).

### **Enhancements to the smart card reader authentication (Technical Preview)**

Starting with the version 2405, Citrix Workspace app supports the plug and play functionality for the smart card readers. With this feature, users can conveniently use their smart cards without needing to manually connect the reader before launching an ICA session. The system automatically detects and initializes the reader once the smart card is inserted.

Additionally, Citrix Workspace app now supports to handle concurrent smart card command requests more efficiently. When multiple processes on the Virtual Delivery Agent (VDA) read the smart card simultaneously, the redirection speed is improved.

These enhancements ensure smoother user experience while using the smart card reader for authentication.

To request access for this feature, fill out this [Enablement form](#).

**Note:**

- Technical previews are available for customers to test in their non-production or limited production environments, and to give customers an opportunity to share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It is advised that Beta builds aren't deployed in production environments.
- You can provide feedback for this feature using this [Feedback form](#).

### **Support for fast smart card (Technical preview)**

Starting with the version 2405, Citrix Workspace app supports the Fast smart card feature. Fast Smart card is an improvement over the existing HDX PC/SC-based smart card redirection. It improves performance significantly when smart cards are used in high-latency WAN environments.

**Enabling the fast smart card logon on Citrix Workspace app** To enable this feature, you need to specify the location of the PKCS#11 library file on the Smart card settings in Citrix Workspace app preferences. For more information, see [Specifying a PKCS#11 module for smart card authentication](#)

**Disabling the fast smart card logon on Citrix Workspace app** To disable fast smart card logon on Citrix Workspace app, set the “PKCS#11 module” in Citrix Workspace app Preferences to “None Selected”.

To request access for this feature, fill out this [Enablement form](#).

**Note:**

- Fast smart card logon is enabled by default on the VDA and disabled by default on Citrix Workspace app.
- Earlier versions of Citrix Workspace app for Mac employed the PKCS#11 module to establish SSL connections, rather than relying on smart card redirection and authentication. Presently, fast smart cards on Citrix Workspace app for Mac exclusively support cards that utilize the RSA algorithm. Attempting to configure an incompatible PKCS#11 module can lead to authentication failure.
- Technical previews are available for customers to test in their non-production or limited production environments, and to give customers an opportunity to share feedback. Citrix does not accept support cases for feature previews but welcomes feedback for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It is advised that Beta builds aren't deployed in production environments.
- You can provide feedback for this feature using this [Feedback form](#).

## **Citrix Enterprise Browser**

This release includes Citrix Enterprise Browser version 125.1.1.24, based on Chromium version 125. For more information, see the [Citrix Enterprise Browser](#) documentation.

**Additional security restrictions for Citrix Enterprise Browser** Citrix introduces the following additional restrictions to enhance the security and user experience of Citrix Enterprise Browser with Secure Private Access and Global App Configuration service (GACS).

- Personal data masking
- Copy
- Paste
- Upload restriction by file type
- Download restriction by file type
- Printer management



- Audio Capture Allowed
- Video Capture Allowed

**Personal data masking** Administrators can use the **Personal data masking** policy to mask various types of sensitive information such as credit card numbers, social security numbers, and dates. Additionally, you have the flexibility to define custom rules for detecting specific types of sensitive information and masking it accordingly. The **Personal data masking** policy has the option to fully or partially mask the information. You can manage this policy through Secure Private Access.

**Copy** Administrators can enable or disable copying of data from a SaaS or internal web app with this access policy when accessed via Citrix Enterprise browser. The default value is Enabled. You can manage this policy through Secure Private Access.

**Paste** Administrators can enable or disable pasting of copied data into the SaaS or internal web app with this access policy when accessed via Citrix Enterprise Browser. The default value is Enabled. You can manage this policy through Secure Private Access.

**Upload restriction by file type** Restrict file uploads based on the MIME (multi-purpose internet mail extensions) types. Unlike the **Uploads** policy, which allows you to enable or disable all file uploads, the **Upload restriction by file type** policy allows you to enable or disable file uploads for specific MIME types. You can manage this policy through Secure Private Access.

**Download restriction by file type** Restrict file downloads based on the MIME (multi-purpose internet mail extensions) types. Unlike the **Downloads** policy, which allows you to enable or disable all file downloads, the **Download restriction by file type** policy allows you to enable or disable file downloads for specific MIME types. You can manage this policy through Secure Private Access.

**Printer management** Enterprises can now prevent the printing of confidential documents and unauthorized data sharing. Admins can configure this policy through Secure Private Access and can specify a printer for an app too. Admins can configure network printers, local printers, and print using the **Save as PDF**. End users can **Save as PDF** and print to admin-configured printers.

The following options are available:

- **Network printers:** A network printer is a printer that can be connected to a network and used by multiple users.
  - Disabled: Printing from any network printers in the network is disabled.
  - Enabled: Printing from all network printers is enabled. If printer hostnames are specified, then all other network printers apart from the ones specified are blocked.

**Note:**

Printers are identified by their hostnames.

- **Local printers:** A local printer is a device directly connected to an individual computer through a wired connection. This connection is typically facilitated through USB, parallel ports, or other direct interfaces.

Disabled: Printing from all local printers is disabled.

Enabled: Printing from all local printers is enabled.

- **Print using Save as PDF**

Disabled: The **Save as PDF** option for saving the content in PDF format is disabled.

Enabled: The **Save as PDF** option for saving the content in PDF format is disabled.

**Note:**

If any of the printing options are disabled, then the disabled printing options appear grayed out.

**Audio Capture Allowed** Administrators can use this policy to enable or disable audio capture access. When an administrator enables this policy, or leaves it unset, users are prompted to allow audio capture access. When an administrator disables this policy, these prompts are turned off, and audio capture is blocked. You can manage this setting through Global App Configuration service.

**Video Capture Allowed** Administrators can use this policy to enable or disable video capture access. When an administrator enables this policy, or leaves it unset, users are prompted to allow video capture access. When an administrator disables this policy, these prompts are turned off, and video capture is blocked. You can manage this setting through Global App Configuration service.

**Note:**

- Policies such as **Personal data masking**, **Copy**, and **Paste** are available for StoreFront stores on both Windows and Mac operating systems.
- Policies such as **Upload restriction by file type**, **Download restriction by file type**, **Audio Capture Allowed**, and **Video Capture Allowed** are available for both Workspace and StoreFront stores on both Windows and Mac operating systems.
- The policies configured through Global App Configuration service are applied at the browser level, meaning that all apps opened on Citrix Enterprise Browser are affected by these policies. Whereas, the policies configured through Secure Private Access are applied on a per-app (per-URL) basis.
- When you configure a policy through both GACS and Secure Private Access, the policy applied through Secure Private Access takes precedence over GACS.
- When both **Uploads** and **Upload restriction by file type** policies are enabled in a policy,

the **Uploads** policy takes precedence over the other. Similarly, When both **Downloads** and **Download restriction by file type** policies are enabled in a policy, the **Downloads** policy takes precedence over the other.

- For **Printing** policy, the local printer policy applies to USB printers as well.

### Fixed issues

- You might notice that the newly added apps are not visible to the end user on the automatic refresh of Citrix Workspace app. [CVADHELP-25189]
- When using Citrix Workspace app on the macOS Sonoma, you might notice that the USB devices such as mouse, keyboard and other peripheral devices are not accessible locally once connected to the virtual session. [CVADHELP-2413]
- When using the optimized Microsoft Teams 2.1 in the virtual session, you might notice that that the sender and receiver sees the video stretched with incorrect aspect ratio during the call. [HDX-66354]
- When using the optimized Microsoft Teams in the virtual session, you might notice that the echo cancellation feature is not working in the virtual session. [HDX-65123]

### Known issues

- After upgrading from Citrix Workspace app version 2402 or 2402.10 to 2405, you might rarely notice that the resource icons are not displayed correctly on Citrix Workspace app for the on-premises stores. As a workaround, close all running applications and quit Citrix Workspace app. Then, relaunch and authenticate into the Citrix Workspace app to display the icons correctly. [RFMAC-16042]

## System requirements and compatibility

July 2, 2024

### Supported operating systems

Citrix Workspace app for Mac supports the following operating systems:

- macOS Sonoma 14.5
- macOS Ventura 13
- macOS Monterey 12

- macOS Big Sur 11

At any point in time, Citrix supports only the latest and the previous two macOS operating systems (N, N-1, and N-2) only.

### **Compatible Citrix products**

Citrix Workspace app is compatible with all the currently supported versions of Citrix Virtual Apps and Desktops, Citrix DaaS (formerly Citrix Virtual Apps and Desktops service), and Citrix Gateway as listed in the [Citrix Product Lifecycle Matrix](#).

### **Compatible browsers**

Citrix Workspace app for Mac is compatible with the following browsers:

- Google Chrome
- Microsoft Edge
- Safari

### **Hardware requirements**

- 1 GB of free disk space
- A working network or Internet connection to connect to servers

## **Connections, Certificates, and Authentication**

### **Connections**

Citrix Workspace app for Mac supports the following connections to Citrix Virtual Apps and Desktops and Citrix DaaS (formerly Citrix Virtual Apps and Desktops service):

- HTTPS
- ICA-over-TLS
- ICA-over-DTLS

Citrix Workspace app for Mac supports the following configurations:

---

For LAN connections

For secure remote or local connections

---

StoreFront using StoreFront services or Citrix Receiver for website;

Citrix Gateway 12.x-13.x, including VPX

---

## Certificates

### Important:

If you're running macOS 10.15, ensure that your system is compliant with Apple's [requirements for trusted certificates in macOS 10.15](#). Perform this check before you upgrade to Citrix Workspace app for Mac version 2106.

**Private (Self-signed) certificates** If a private certificate is installed on the remote gateway, you must install the root certificate for the organization's certificate authority on the user device. Then, you can successfully access Citrix resources using Citrix Workspace app for Mac.

### Note:

When the remote gateway's certificate can't be verified upon connection, an untrusted certificate warning appears, as the root certificate isn't included in the local keystore. When a user continues to add a store, the store addition fails. However, on the web browser, the user might be able to authenticate to the store but connections to sessions fail.

## Importing root certificates for devices

Obtain the certificate issuer's root certificate and email it to an account configured on your device. When clicking the attachment, you're asked to import the root certificate.

**Wildcard certificates** Wildcard certificates are used in place of individual server certificates for any server within the same domain. Citrix Workspace app for Mac supports wildcard certificates.

**Intermediate certificates with Citrix Gateway** If your certificate chain includes an intermediate certificate, the intermediate certificate must be mapped to the Citrix Gateway server certificate. For information on this task, see [Citrix Gateway](#) documentation. For more information about installing, linking, and updating certificates, see [How to Install and Link Intermediate Certificate with Primary CA on Citrix Gateway](#).

**Server Certificate Validation Policy** Citrix Workspace app for Mac has a stricter validation policy for server certificates.

**Important**

Before installing this version of Citrix Workspace app for Mac, confirm that the server or gateway certificates are correctly configured as described here. Connections can fail if:

- the server or gateway configuration includes a wrong root certificate
- the server or gateway configuration does not include all intermediate certificates
- the server or gateway configuration includes an expired or otherwise invalid intermediate certificate
- the server or gateway configuration includes a cross-signed intermediate certificate

When validating a server certificate, Citrix Workspace app for Mac uses **all** the certificates supplied by the server (or gateway). Citrix Workspace app for Mac then checks whether the certificates are trusted. If none of the certificates are trusted, the connection fails.

This policy is stricter than the certificate policy in web browsers. Many web browsers include a large set of root certificates that they trust.

The server (or gateway) must be configured with the correct set of certificates. An incorrect set of certificates might cause Citrix Workspace app for Mac's connection to fail.

Suppose that a gateway is configured with these valid certificates. This configuration is recommended for customers who require stricter validation, by determining exactly which root certificate is used by Citrix Workspace app for Mac.

Then, Citrix Workspace app for Mac checks that all these certificates are valid. Citrix Workspace app for Mac also checks that it already trusts the "Root Certificate". If Citrix Workspace app for Mac does not trust the "Root Certificate", the connection fails.

**Important**

Some certificate authorities have more than one root certificate. If you require this stricter validation, ensure that your configuration uses the appropriate root certificate. For example, there are currently two certificates ("DigiCert/GTE CyberTrust Global Root", and "DigiCert Baltimore Root/Baltimore CyberTrust Root") that can validate the same server certificates. On some user devices, both root certificates are available. On other devices, only one is available ("DigiCert Baltimore Root/Baltimore CyberTrust Root"). If you configure "GTE CyberTrust Global Root" at the gateway, Citrix Workspace app for Mac connections on those user devices fail. Consult the certificate authority's documentation to determine which root certificate must be used. Root certificates eventually expire, as do all certificates.

**Note:**

Some servers and gateways never send the root certificate, even if configured. Stricter validation is then not possible.

Now suppose that a gateway is configured with these valid certificates. This configuration, omitting the root certificate, is normally recommended:

- “Example Server Certificate”
- “Example Intermediate Certificate”

Then, Citrix Workspace app for Mac uses these two certificates. It then searches for a root certificate on the user device. If it finds a trusted certificate that validates correctly, such as “Example Root Certificate”, the connection succeeds. Otherwise, the connection fails. This configuration supplies the intermediate certificate that Citrix Workspace app for Mac needs, but also allows Citrix Workspace app for Mac to choose any valid, trusted, root certificate.

Now suppose that a gateway is configured with these certificates:

- “Example Server Certificate”
- “Example Intermediate Certificate”
- “Wrong Root Certificate”

A web browser might ignore the wrong root certificate. However, Citrix Workspace app for Mac does not ignore the wrong root certificate, and the connection fails.

Some certificate authorities use more than one intermediate certificate. In this case, the gateway is normally configured with all the intermediate certificates (but not the root certificate) such as:

- “Example Server Certificate”
- “Example Intermediate Certificate 1”
- “Example Intermediate Certificate 2”

### **Important**

Some certificate authorities use a cross-signed intermediate certificate, intended for situations when there’s more than one root certificate. An earlier root certificate is still in use at the same time as a later root certificate. In this case, there are at least two intermediate certificates. For example, the earlier root certificate “Class 3 Public Primary Certification Authority” has the corresponding cross-signed intermediate certificate “Verisign Class 3 Public Primary Certification Authority - G5.” However, a corresponding later root certificate “Verisign Class 3 Public Primary Certification Authority - G5” is also available, which replaces “Class 3 Public Primary Certification Authority.” The later root certificate does not use a cross-signed intermediate certificate.

### **Note**

The cross-signed intermediate certificate and the root certificate have the same Subject name (Issued To), but the cross-signed intermediate certificate has a different Issuer name (Issued By).

This difference in name distinguishes the cross-signed intermediate certificate from an ordinary intermediate certificate (such “Example Intermediate Certificate 2”).

This configuration, omitting the root certificate and the cross-signed intermediate certificate, is normally recommended:

- “Example Server Certificate”
- “Example Intermediate Certificate”

Avoid configuring the gateway to use the cross-signed intermediate certificate, as it selects the earlier root certificate:

- “Example Server Certificate”
- “Example Intermediate Certificate”
- “Example Cross-signed Intermediate Certificate”[not recommended]

It isn’t recommended to configure the gateway with only the server certificate:

- “Example Server Certificate”

In this case, if Citrix Workspace app for Mac can’t locate all the intermediate certificates, the connection fails.

## Authentication

For connections to StoreFront, Citrix Workspace app for Mac supports the following authentication methods:

Authentication method	Workspace for Web using browsers	StoreFront Services site (native)	Citrix Gateway to Workspace for Web (browser)	Citrix Gateway to StoreFront Services site (native)
Anonymous	Yes	Yes		
Domain	Yes	Yes		Yes*
Domain pass-through				
Security token				Yes*



	Workspace for	StoreFront	Citrix Gateway to Workspace	Citrix Gateway to StoreFront
Authentication method	Web using browsers	Services site (native)	for Web (browser)	Services site (native)
Two-factor au- thentication (domain with security token)				Yes*
SMS				Yes*
Smart card	Yes	Yes		Yes*
User certificate				Yes (Citrix Gateway Plug-in)

\*Available only for deployments that include Citrix Gateway, with or without installing the associated plug-in on the device.

## Connectivity requirements

### Feature flag management

If an issue occurs with Citrix Workspace app in production, we can disable an affected feature dynamically in Citrix Workspace app even after the feature is shipped. To do so, we use feature flags and a third-party service called LaunchDarkly.

You do not need to make any configurations to enable traffic to LaunchDarkly, except when you have a firewall or proxy blocking outbound traffic. In that case, you enable traffic to LaunchDarkly via specific URLs or IP addresses, depending on your policy requirements.

You can enable traffic and communication to LaunchDarkly in the following ways:

### Enable traffic to the following URLs

- [events.launchdarkly.com](https://events.launchdarkly.com)
- [stream.launchdarkly.com](https://stream.launchdarkly.com)
- [clientstream.launchdarkly.com](https://clientstream.launchdarkly.com)
- [Firehose.launchdarkly.com](https://firehose.launchdarkly.com)
- [mobile.launchdarkly.com](https://mobile.launchdarkly.com)

**List IP addresses in an allow list** If you must list IP addresses in an allow list, for a list of all current IP address ranges, see [LaunchDarkly public IP list](#). You can use this list to ensure that your firewall configurations are updated automatically in keeping with the infrastructure updates. For details about the status of the infrastructure changes, see [LaunchDarkly Statuspage](#) page.

**LaunchDarkly system requirements** Ensure that the apps can communicate with the following services if you have split tunneling on Citrix ADC set to **OFF** for the following services:

- LaunchDarkly service.
- APNs listener service

**Provision to disable LaunchDarkly service through MDM tool** Starting with version 2210, you can disable the LaunchDarkly service on Citrix Workspace app, irrespective of whether their users are inside or outside the organization's firewall. To disable the LaunchDarkly service, set the value for the **DisableFeatureFlag** setting to True.

This service is available for admins who manage Mac devices using the MDM tool.

**Note:**

Disabling the FeatureFlag requires the admin to restart the device for this setting to take effect.

For more information on how to use MDM, see [Mobile Device Management](#).

## Install, uninstall, and upgrade

May 23, 2024

Citrix Workspace app for Mac contains a single installation package and supports remote access through Citrix Gateway, and Secure Web Gateway.

You can install Citrix Workspace app for Mac in any of the following ways:

- From the Citrix website
- Automatically from Workspace for Web
- Using an Electronic Software Distribution (ESD) tool.

By default, the Citrix Workspace app is installed in the **Applications** directory. The installation paths are as follows:

- Full install - `"/Applications/Citrix\ Workspace.app/"`

- Citrix Workspace app for Mac executable - `"/Applications/Citrix\ Workspace.app/Contents/MacOS/Citrix\ Workspace"`

## Manual install

### By a user from Citrix.com

As a first-time user, you can download Citrix Workspace app for Mac from Citrix.com or your own download site. You can then set up an account by entering an email address instead of a server URL. Citrix Workspace app for Mac determines the Citrix Gateway or StoreFront server associated with the email address. Then it prompts the user to log on and continue the installation. This feature is referred to as email-based account discovery.

#### Note:

A first-time user is a user who does not have Citrix Workspace app for Mac installed on their user device.

Email-based account discovery for a first-time user does not apply if you have downloaded from a location other than Citrix.com (such as a Citrix Receiver for website).

If your site requires the configuration of Citrix Workspace app for Mac, use an alternate deployment method.

### Using an Electronic Software Distribution (ESD) tool

A first-time Citrix Workspace app for Mac user must enter a server URL to set up an account.

### From Citrix Downloads page

You can install Citrix Workspace app for Mac from a network share, or directly on to the user device. You can install the app by downloading the file from the Citrix website at [Downloads](#).

To install Citrix Workspace app for Mac:

1. Download the `.dmg` file for the version of Citrix Workspace app for Mac that you want to install from the Citrix website.
2. Open the downloaded file.
3. On the Introduction page, click **Continue**.
4. On the **License** page, click **Continue**.
5. Click **Agree** to accept the terms of the License Agreement.
6. On the **Installation Type** page, click **Install**.

7. On the **Add Account** page, select **Add Account** and then click **Continue**.
8. Enter the user name and password of an administrator on the local device.

### Using the terminal command

You can install Citrix Workspace app for Mac using the terminal commands.

To install Citrix Workspace app for Mac:

1. Download the `.dmg` file for the version of Citrix Workspace app for Mac that you want to install from the [Downloads](#) page.
2. Open the downloaded `CitrixWorkspaceApp.dmg` file.
3. Drag the `Install Citrix Workspace.pkg` file into the folder.
4. Open the terminal app.
5. Run the following command in the terminal:

```
1 sudo installer -pkg <path_to_package>/<package_name>.pkg -target /
2 <!--NeedCopy-->
```

6. Enter the Administrator password, if prompted.
7. After running the command, Citrix Workspace app is successfully installed.

### Uninstall

#### Using the bin

You can now simply drag or move the Citrix Workspace app icon into the bin to completely uninstall the Citrix Workspace app for Mac.

To uninstall the Citrix Workspace app, do the following:

1. Close the Citrix Workspace app, if it's running.  
To close the Citrix Workspace app, use one of the following methods:
  - From the menu bar, click **Citrix Workspace** and then **Quit Citrix Workspace**,
  - From the dock, right click on the Citrix Workspace app and select **Quit** from the options,
  - Press the **Command-Q** keys, or
  - From the Quick Access menu, click the **Account** icon and then **Quit**.

#### Note:

If you don't close the Citrix Workspace app as per the preceding steps, you might get the

following error message after performing the next step:

*The item “Citrix Workspace” can’t be moved to the Trash because it’s open.*

2. Drag the Citrix Workspace app from the **Application** folder to the bin.  
Alternatively, you can right-click the Citrix Workspace app and select **Options > Move to Bin**.
3. Provide your system credentials when prompted.
4. Close all running apps (Citrix Workspace) and click **Continue** to confirm.  
The Citrix Workspace app and all its system files are deleted from your device.

### Using the .dmg file

You can also uninstall Citrix Workspace app for Mac manually by opening the .dmg file. Select **Uninstall Citrix Workspace App** and follow the on-screen instructions. The .dmg file is the file that is downloaded from Citrix when installing Citrix Workspace app for Mac for the first time. If the file is no longer on your computer, download the file again from [Citrix Downloads](#) to uninstall the application.

### Using the terminal command

You can uninstall Citrix Workspace app for Mac using the terminal commands.

To uninstall Citrix Workspace app for Mac:

1. Open the terminal app.
2. Run the following command in the terminal:

```
1 sudo /Library/Application\ Support/Citrix\ Receiver/Uninstall\  
   Citrix\ Workspace.app/Contents/MacOS/Uninstall\ Citrix\  
   Workspace --nogui  
2 <!--NeedCopy-->
```

3. After running the command, Citrix Workspace app and all its system files are deleted from your device.

### Upgrade

Citrix Workspace app for Mac sends you notifications when there is an update available for an existing version or an upgrade to a newer version. For more information about automatic updates, see [Automatic update](#).

You can upgrade Citrix Workspace app for Mac from any of the previous versions of Citrix Workspace app for Mac. For more information about updating the app manually, see [Manual update](#).

When you upgrade to a newer version of Citrix Workspace app for Mac, the previous version is uninstalled automatically. You don't need to restart your machine.

## Update

March 21, 2024

### Manual update

To manually update the Citrix Workspace app for Mac, download and install the latest version of the app from the [Citrix Downloads](#) page.

### Automatic update

When a new version of the Citrix Workspace app releases, Citrix pushes the update on the system that has the Citrix Workspace app installed. You're notified of the available update.

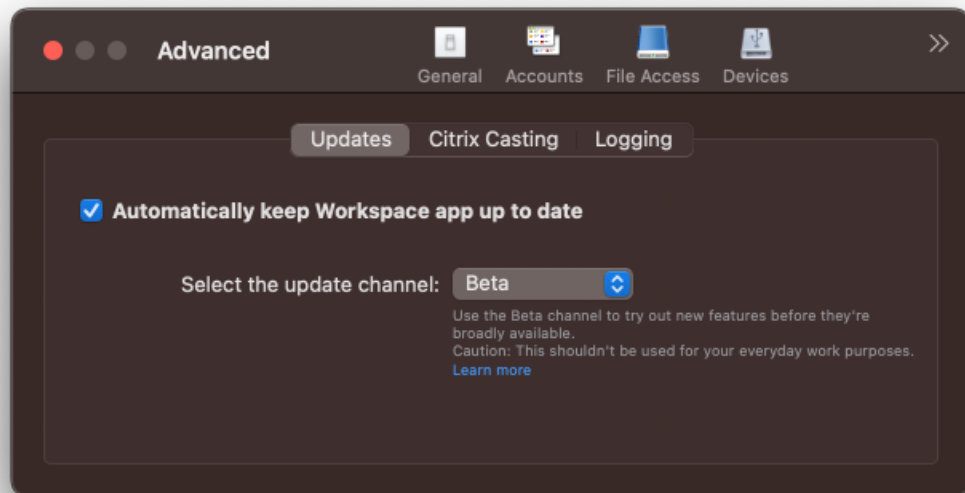
#### Note:

- If you've configured an SSL intercepting outbound proxy, add an exception to the Workspace auto-update server <https://downloadplugins.citrix.com/> to receive updates from Citrix.
- Auto-update isn't available for Citrix Workspace app versions earlier than 2301.1. For more information, see Knowledge Center article [CTX491310](#).
- Your system must have an internet connection to receive updates.
- Workspace for web users can't download the StoreFront policy automatically.
- Citrix HDX RTME for macOS is included in Citrix Workspace Updates. You're notified of the available HDX RTME update on the Citrix Workspace app.
- Starting with Version 2111, Citrix Workspace updates log paths are modified. The Workspace updates logs are present at `/Library/Logs/Citrix Workspace Updater`. For information about collecting logs, see the Log collection section.

### Installing Citrix Workspace app Beta program

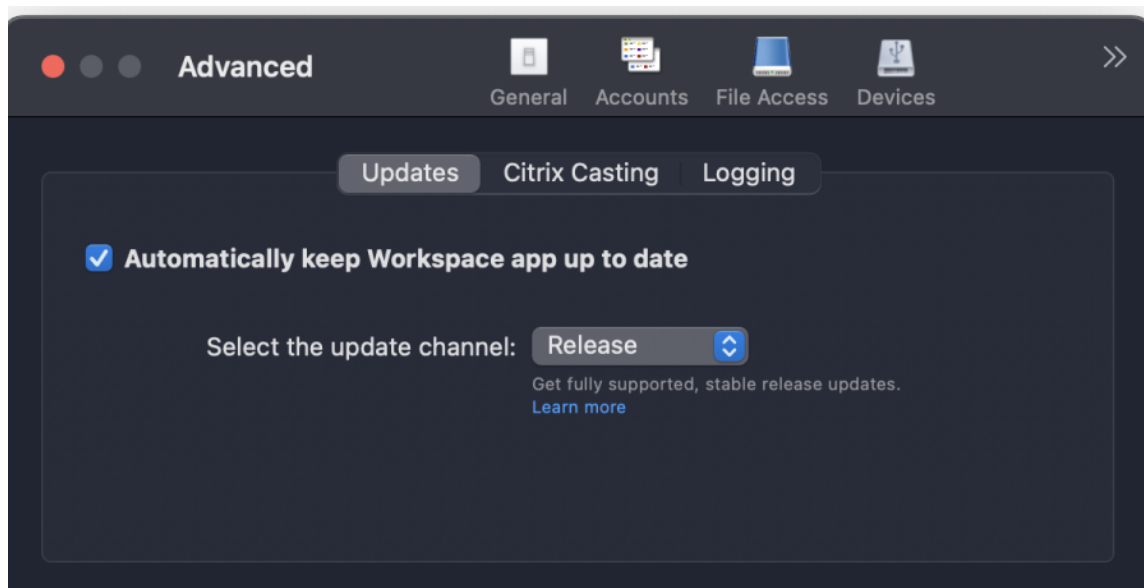
You receive an update notification when the Citrix Workspace app is configured for automatic updates. To install the Beta build on your system, perform the following steps:

1. Open Citrix Workspace app.
2. Right-click on Citrix Workspace in the toolbar and click **Preferences > Advanced**.
3. Select **Beta** from the drop-down list, when the Beta build is available.



To switch from a Beta build to a Release build, perform the following steps:

1. Open Citrix Workspace app.
2. Right-click on Citrix Workspace in the toolbar and click **Preferences > Advanced**.
3. Select **Release** from the **Select the update channel** drop-down list.



### Note:

Beta builds are available for customers to test in their non-production or limited production environments, and to share feedback. Citrix does not accept support cases for beta builds but welcomes [feedback](#) for improving them. Citrix might or might not act on feedback based on its severity, criticality, and importance. It's advised that you do not deploy Beta builds in production environments.

### Auto-update version control

Administrators can now manage the auto-updated version of Citrix Workspace app for the devices in the organization.

Administrators can control the version by setting the range for `maximumAllowedVersion` and `minimumAllowedVersion` properties in the Global App Configuration service.

Example JSON file in Global App Configuration service:

```
1 {
2
3   "serviceURL": {
4
5     "url": "https://serviceURL:443"
6   }
7 ,
8   "settings": {
9
10    "name": "Version Control for Citrix Workspace",
11    "description": "Provides admin ability to Version Control for
12      Citrix Workspace",
13    "useForAppConfig": true,
14    "appSettings": {
15
16      "macos": [
17
18        {
19          "category": "AutoUpdate",
20          "userOverride": false,
21          "assignedTo": [
22            "AllUsersNoAuthentication"
23          ],
24          "settings": [
25
26            {
27
28              "name": "Auto update plugins settings",
29              "value": [
30
31                {
32                  "pluginName": "Citrix Workspace",
33                  "pluginId": "D99C3E77-FBF5-4B97-8EDA-4E381A1E0826",
```



```
32         "pluginSettings": {
33
34             "deploymentMode": "Update",
35             "upgradeToLatest": false,
36             "minimumAllowedVersion": "23.07.0.63",
37             "maximumAllowedVersion": "23.07.0.63",
38             "delayGroup": "Medium",
39             "detectRule": ""
40         }
41     }
42 }
43
44 ]
45 }
46
47 ]
48 }
49
50 ]
51 }
52
53 }
54
55 }
56
57
58 <!--NeedCopy-->
```

When the range is set, Citrix Workspace app on the user's device is automatically updated to the highest available version that falls between the mentioned range.

If you want to auto-update Citrix Workspace app to a specific version, enter the same version in the `maximumAllowedVersion` and `minimumAllowedVersion` properties in the Global App Configuration service.

**Note:**

- To enable auto-update version control, set the **upgradeToLatest** setting to false in the Global App Configuration service. If the **upgradeToLatest** setting is true, `maximumAllowedVersion` and `minimumAllowedVersion` is ignored.
- Do not modify the `pluginId`. The `pluginId` is mapped to Citrix Workspace app.
- If the administrator hasn't configured the version in the Global App Configuration service, Citrix Workspace app is updated to the latest available version by default.
- You can only use the version ranges that are set to update Citrix Workspace app. However, a downgrade isn't supported.
- This feature is supported from release 2307 onwards.

### **Improved auto-update experience**

The auto-update feature automatically updates the Citrix Workspace app to the latest version without the need for any user intervention.

Citrix Workspace app periodically checks and downloads the latest available version of the app. Citrix Workspace app determines the best time to install based on user activity not to cause any disruptions.

### **Advanced configuration for automatic updates (Citrix Workspace Updates)**

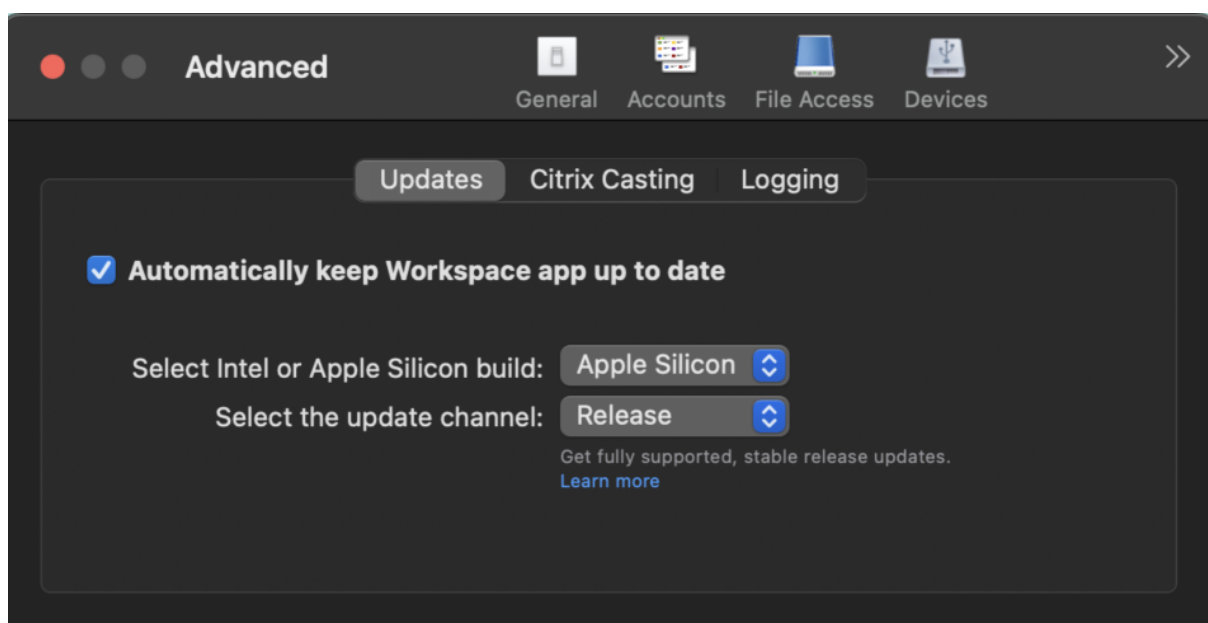
You can configure Citrix Workspace updates using the following methods:

- Graphical user interface (GUI)
- Global App Configuration service (GACS)
- Mobile Device Management (MDM)
- StoreFront

### **Configure Citrix Workspace automatic updates using the graphical user interface**

Individual users can override the Citrix Workspace updates setting using the **Advanced** preferences dialog box, which is a per-user configuration and the settings apply only to the current user. To configure the update using the GUI, perform the following steps:

1. Select the Citrix Workspace app helper icon on your Mac.
2. From the drop-down list, select **Preferences > Advanced > Updates**.
3. Select the build for which you want to install the automatic updates. It can be either the Apple Silicon or Intel build (only applicable for users on Mac with Apple silicon (M1 Series)).



### Configure Citrix Workspace automatic updates using StoreFront

1. Use a text editor to open the `web.config` file, which is typically in the `C:\inetpub\wwwroot\Citrix\Roaming` directory.
2. Locate the user account element in the file (Store is the account name of your deployment).

For example: `<account id=... name="Store">`

Before the `</account>` tag, navigate to the properties of that user account:

```
1 <properties>
2     <clear />
3 </properties>
4 <!--NeedCopy-->
```

3. Add the auto-update tag after the `<clear />` tag.

```
1 <account>
2
3     <clear />
4
5     <account id="d1197d2c-ac82-4f13-9346-2ee14d4b0202" name="
6         F84Store"
7         description="" published="true" updaterType="Citrix"
8         remoteAccessType="None">
9
10        <annotatedServices>
11
12        <clear />
```

```
12
13     <annotatedServiceRecord serviceRef="1__Citrix_F84Store">
14
15         <metadata>
16
17             <plugins>
18
19                 <clear />
20
21             </plugins>
22
23             <trustSettings>
24
25                 <clear />
26
27             </trustSettings>
28
29             <properties>
30
31                 <property name="Auto-Update-Check" value="Disabled"
32                     />
33
34                 <property name="Auto-Update-DeferUpdate-Count" value
35                     ="1" />
36
37                 <property name="Auto-Update-Rollout-Priority" value=
38                     "fast" />
39
40                 <property name="Auto-Update-Architecture" value="
41                     Universal" or "Intel" />
42
43             </properties>
44
45         </metadata>
46
47     </annotatedServiceRecord>
48
49 </annotatedServices>
50
51 <metadata>
52
53     <plugins>
54
55         <clear />
56
57     </plugins>
58
59     <trustSettings>
60
61         <clear />
62
63     </trustSettings>
```

```
61     <properties>
62
63     <clear />
64
65     </properties>
66
67     </metadata>
68
69     </account>
70
71 <!--NeedCopy-->
```

The meaning of the properties and their possible values are detailed as follows:

- **Auto-Update-Check:** Indicates that Citrix Workspace app detects an update automatically when available.
  - Auto (default) –Checks and performs updates automatically
  - Manual –updates are only fetched when the user makes a check request from the Citrix Workspace app system tray menu,
  - Disabled –Updates checks aren’t performed.
- **Auto-Update-Rollout-Priority:** Indicates the delivery period in which you can receive the update.
  - Fast –updates are rolled-out to the users towards the beginning of the delivery period.
  - Medium –updates are rolled-out towards the middle of the delivery period.
  - Slow –updates are rolled-out towards the end of the delivery period.
- **Auto-Update-DeferUpdate-Count:** Indicates the number of counts that you can defer the notifications for the updates.

**Note:**

This configuration is applicable only for interactive updates and not when the silent auto-update feature is enabled, as the user doesn’t get any option to defer the updates.

- -1: The user can defer the auto-update any number of times.
- 0: The user can’t view the remind me later option.
- number: The user can view remind later options with the given count.

### Configure Citrix Workspace automatic updates using the GACS

Administrators can use GACS to configure the automatic updates to either Apple Silicon or Intel builds by using the following settings:

“name”:“autoUpdateArchitecture”

“value”:“Universal”or “Intel”

### Configure Citrix Workspace automatic updates using the MDM

Administrators can use MDM to configure the automatic updates to either Apple Silicon or Intel builds by using the following settings:

```
<key>AutoUpdateArchitecture</key>
```

```
<string>Universal</string> or <string>Intel</string>
```

```
<key>AutoUpdateState</key>
```

```
<string>Auto</string> or <string>Manual</string> or <string>Disabled</string>
```

For more information on how to use MDM, see [Mobile Device Management](#).

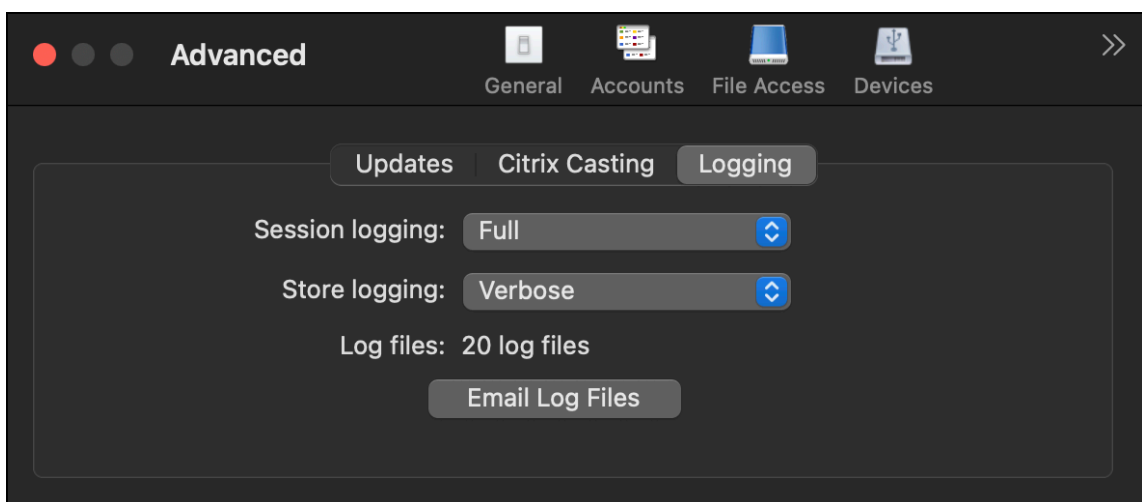
### Log collection

Log collection simplifies the process of collecting logs for Citrix Workspace app. The logs help Citrix to troubleshoot, and, in cases of complicated issues, provide support.

You can collect logs using the GUI.

#### Collecting logs:

1. Open Citrix Workspace app.
2. Right-click on Citrix Workspace in the toolbar and click **Preferences > Advanced**.
3. Select **Logging**.



4. Select one of the following session log levels:

- **Disabled (Default):** Minimum logs are collected for basic troubleshooting.
- **Connection Diagnostics:** Identifies errors while connecting. All logging is enabled up until the point when the session is deemed successful.
- **Full:** Captures everything including the connection diagnostics. Once enabled, the Citrix Workspace app will store up to 10 session logs after which they're deleted starting with the oldest to maintain 10 logs.

**Note:**

Selecting the **Full** logging option can impact performance and must be used only while troubleshooting an issue because of the amount of data. Do not enable full logging during normal use. Enabling this level of logging triggers a warning dialog that must be acknowledged for you to continue.

5. Select one of the following store log levels:
  - **Disabled (Default):** Minimum logs are collected for basic troubleshooting.
  - **Normal:** Only store communication logs are collected.
  - **Verbose:** Detailed authentication and store communication logs are collected.
6. Click **Email Log Files** to collect and share logs as a .zip file.

## Enhanced Universal Architecture builds for virtual apps and desktops session

From the 2311 version, the Universal Architecture build can now automatically choose to run the virtual sessions in the native Apple Silicon mode or Intel mode. It uses the Rosetta emulation to launch the virtual session in Intel mode. The virtual session launches in the native Apple Silicon mode, if the virtual channel SDK is built based on the native Apple Silicon architecture or there's no virtual channel SDK. However, the virtual session launches in the Intel mode using the Rosetta emulation, if the virtual channel SDK is built based on the x86\_64 Intel-based architecture.

This enhancement to the Universal Architecture build improves the launch experience on Macs with the Apple Silicon chipset. For users on Macs with the Intel-based chipset, there is no change, and the Universal Architecture build continues to run the virtual sessions natively.

## Configure Citrix Workspace app

June 5, 2024

You can configure Citrix Workspace app for Mac using Global App Configuration service User Interface (UI) and Mobile Device Management. Settings can be configured for both cloud (Citrix Workspace) and on-premises (Citrix StoreFront) environments.

For more information, see the following:

- [Global App Configuration service](#)
  - [Configure settings for cloud stores](#)
  - [Configure settings for on-premises stores](#)
- [Mobile Device Management](#)

## **USB redirection**

HDX USB device redirection enables redirection of USB devices to and from a user device. A user can connect a flash drive to a local computer and access it remotely from a virtual desktop or a desktop hosted application. For more information, see [USB](#).

## **Keyboard layout synchronization**

Keyboard layout synchronization enables you to switch between the preferred keyboard layouts on the client device. This feature is disabled by default. After you enable this feature, the client keyboard layout automatically synchronizes to the virtual apps and desktops. For more information, see [Keyboard layout synchronization](#).

## **Channel support for Global App Configuration service**

The Global App Configuration service for Citrix Workspace allows a Citrix administrator to deliver Workspace service URLs and Workspace App settings through a centrally managed service. Global App Configuration service now allows administrators to test the settings before rolling it out to all users. This feature allows to resolve any issues before applying the global app configurations to the entire user base.

You can achieve the channel support by mapping the settings that you want to test to a channel and then add the channel in the payload. For more information, see [Global App Configuration service documentation](#).

## **Mobile Device Management**

July 2, 2024

Citrix Workspace app now supports Mobile Device Management (MDM) that allows the administrators to configure, secure, and support Citrix Workspace app for Mac by enforcing policies through any MDM tool.



## Install and uninstall Citrix Workspace app through the MDM

You can use terminal commands to install and uninstall the Citrix Workspace app through the MDM. For more information about using the terminal commands to install and uninstall, see the [Manual install](#) and [Uninstall](#) section.

To install Citrix Workspace app for Mac:

1. Download the `.dmg` file for the version of Citrix Workspace app for Mac that you want to install from the [Downloads](#) page.
2. Open the downloaded `CitrixWorkspaceApp.dmg` file.
3. Drag the `Install Citrix Workspace.pkg` file into the folder.
4. Use the following terminal command to install the package through MDM:

```
1 sudo installer -pkg /Volumes/Citrix\ Workspace/Install\ Citrix\
  Workspace.pkg -target /
2 <!--NeedCopy-->
```

To uninstall Citrix Workspace app:

You can use the following terminal command to uninstall the Citrix Workspace app through MDM:

```
1 sudo /Library/Application\ Support/Citrix\ Receiver/Uninstall\ Citrix
  \ Workspace.app/Contents/MacOS/Uninstall\ Citrix\ Workspace --
  nogui
2 <!--NeedCopy-->
```

## Settings supported on MDM

Setting	Description	Key	Value	Value type	Default Value	Supported version
<a href="#">Enable/disable loss tolerant mode for audio redirection</a>	Allows administrators to enable or disable the loss-tolerant mode (EDT lossy) for audio redirection.	EdtUnreliableAudio	True/false	Boolean	True	2402
<a href="#">Enable/disable audio volume synchronization</a>	Allows administrators to enable or disable the synchronization of audio volume between the VDA and your audio devices.	EnableVolumeSync	True/false	Boolean	True	2402

Setting	Description	Key	Value	Value type	Default Value	Supported version
<a href="#">Enable/Disable H.265 video decoding</a>	Allows administrators to enable or disable the H.265 video codec (HEVC) for hardware acceleration of remote graphics and videos.	EnableXdecoder/H265	True/False	Boolean	True	2402

Setting	Description	Key	Value	Value type	Default Value	Supported version
<a href="#">Select browser for FIDO2 web Authentication</a>	Allows administrators to select the type of browser used for authenticating an end user into Citrix Workspace app. For more information about the description of values, see <a href="#">FIDO2 based authentication when connecting to cloud and on-premises store</a>	WebBrowserFocusStore/System.PrivateSession/Enable/Cloud/WithPrivateSession	System.PrivateSession/Enable/Cloud/WithPrivateSession	String	Browser	2307
<a href="#">Enable/disable FIDO2 authentication for HDX session</a>	Allows administrators to enable or disable FIDO2 authentication within an HDX session.	Fido2Enabled	true/false	Boolean	true	2307

Setting	Description	Key	Value	Value type	Default Value	Supported version
<a href="#">Quick access menu for StoreFront</a>	Allows administrators to enable or disable the <b>Quick access</b> menu for On-prem stores.	ShowQuickAccessForStoreFront	true/false	Boolean	false	2307
<a href="#">Auto update – AutoUpdateState</a>	Updates Citrix Workspace app to the latest version without any user intervention automatically.	AutoUpdateState	Auto/Manual/Disabled	String	Auto	2305
<a href="#">Enable Azure Active Directory</a>	Allows administrators to configure and enforce Azure Active Directory conditional access policies for users authenticating to Citrix Workspace app.	enableAAD	true/false	Boolean	False	2305

## Citrix Workspace app for Mac

Setting	Description	Key	Value	Value type	Default Value	Supported version
<a href="#">Auto start of Citrix Workspace app</a>	Controls Citrix Workspace app for Mac to start automatically whenever a computer is turned on by an end user.	AutoLaunchAppOnFirstStart	True	Boolean	True	2304
<a href="#">Pre-configuration of Store URL</a>	Allows administrators to preconfigure and add the store details to the Workspace app so that the end users don't have to do it.	StoreURLs	<Store URL>	String	NA	2210
<a href="#">Block new Store addition by end-user</a>	Prevents the end user from adding a store in the Workspace app on their endpoint devices.	BlockStoreAddition	True/false	Boolean	False	2210

Setting	Description	Key	Value	Value type	Default Value	Supported version
<a href="#">Show/Hide menu bar</a>	Shows or hides the Citrix Workspace menu on the Mac menu bar.	ShowHelperInMenuBar	True	Boolean	True	2208.1
<a href="#">Auto update - AutoUpdateChannel</a>	Allows administrators to ensure whether a Citrix Workspace app receives GA updates or Beta updates when the auto-update is enabled.	AutoUpdateChannel	PROD/EAR	String	PROD	2201

### Schema for reference

```

1 <array>
2   <dict>
3     <key>ShowHelperInMenuBar</key>
4     <true/>
5     <key>AutoLaunchAppOnRestart</key>
6     <true/>
7     <key>StoreURLs</key>
8     <array>
9       <string>PROVIDE STORE URL HERE</string>
10    </array>
11    <key>BlockStoreAddition</key>
12    <false/>
13    <key>CEIPEnabled</key>
14    <true/>

```

```

15     <key>AutoUpdateArchitecture</key>`
16     <string>Universal</string>
17     <key>AutoUpdateState</key>
18     <string>Enable</string>
19     <key>AutoUpdateChannel</key>
20     <string>PROD</string>
21     <key>PayloadDisplayName</key>
22     <string>Citrix Workspace</string>
23     <key>PayloadIdentifier</key>
24     <string>com.citrix.receiver.nomas</string>
25     <key>PayloadType</key>
26     <string>com.citrix.receiver.nomas</string>
27     <key>PayloadUUID</key>
28     <string>3BE38AD3-7D95-423F-BD7B-8A4D1F5208EF</string>
29     <key>PayloadVersion</key>
30     <integer>1</integer>
31     <key>WebBrowserForAuthentication</key>
32     <string>System</string>
33     <key>Fido2Enabled</key>
34     <false/>
35     <key>ShowQuickAccessForStoreFront</key>
36     <true/>
37     <key>EnableXdecoderForH265</key>
38     <false/>
39     <key>EnableVolumeSync</key>
40     <false/>
41     <key>EdtUnreliableAllowed</key>
42     <false/>
43     </dict>
44 </array>
45
46 <!--NeedCopy-->

```

## Store configuration

May 6, 2024

### Support for store configuration of user devices through MDM tool

Admins can now configure the following settings while deploying Citrix Workspace app through any MDM deployment tool such as Citrix Endpoint Management:

- **StoreURLs** –Configure store details so it’s automatically added when the user opens the Citrix Workspace app, simplifying the sign-on experience.

To add a store, provide the details for the **StoreURLs** setting. For example:

```
<array>
```



```
<string>https://myorg.com/?storename</string>
</array>
```

You can also add multiple stores as follows:

```
<array>
<string>https://myorg.com/?storename1</string>
<string>https://myorg.com/?storename2</string>
</array>
```

To add the StoreURLs to Citrix Workspace app, the user must quit and relaunch Citrix Workspace app.

- **BlockStoreAddition** – Prevent the user from adding stores.

To block the user from adding a store, set the value of the **BlockStoreAddition** setting to **True**.

For more information, see [Mobile Device Management](#).

## StoreFront to Workspace migration

As your organization transitions from on-premises StoreFront to Workspace, users are required to manually add the new Workspace URL to the Citrix Workspace app. This feature enables admins to seamlessly migrate users from a StoreFront store to a Workspace store with minimal user interaction.

Consider, all your end users have a StoreFront store `storefront.com` added to their Workspace app. As an administrator, you can configure a StoreFront URL to Workspace URL Mapping `{'storefront.com': 'xyz.cloud.com'}` in the Global App Configuration service. The Global App Configuration service pushes the setting to all Citrix Workspace app instances, on both managed and unmanaged devices that have the StoreFront URL `storefront.com` added.

Once the setting is detected, Citrix Workspace app adds the mapped Workspace URL `xyz.cloud.com` as another store. When the end user launches the Citrix Workspace app, the Citrix Workspace store opens. The previously added StoreFront store `storefront.com` remains added to the Citrix Workspace app. Users can always switch back to the StoreFront store `storefront.com` using the **Switch Accounts** option in the Citrix Workspace app. Admins can control the removal of the StoreFront store `storefront.com` from the Citrix Workspace app at the users' end points. The removal can be done through the global app config service.

To enable the feature, do the following steps:

1. Configure StoreFront to Workspace mapping using the Global App Configuration service. For more information on the Global App config service, see [Global App Configuration service](#).

## 2. Edit the payload in the app config service:

```
1 {
2   "serviceURL": Unknown macro: \{
3     "url" }
4
5   ,
6   "settings":{
7
8     "name":"Productivity Apps", [New Store Name]
9     "description":"Provides access StoreFront to Workspace Migration",
10    "useForAppConfig":true,
11    "appSettings":
12    {
13      "macos":[ Unknown macro: \{
14        "category" }
15
16    ]
17  }
18
19  }
20
21  }
22
23 <!--NeedCopy-->
```

### Note:

If you're configuring the payload for the first time, use **POST**.

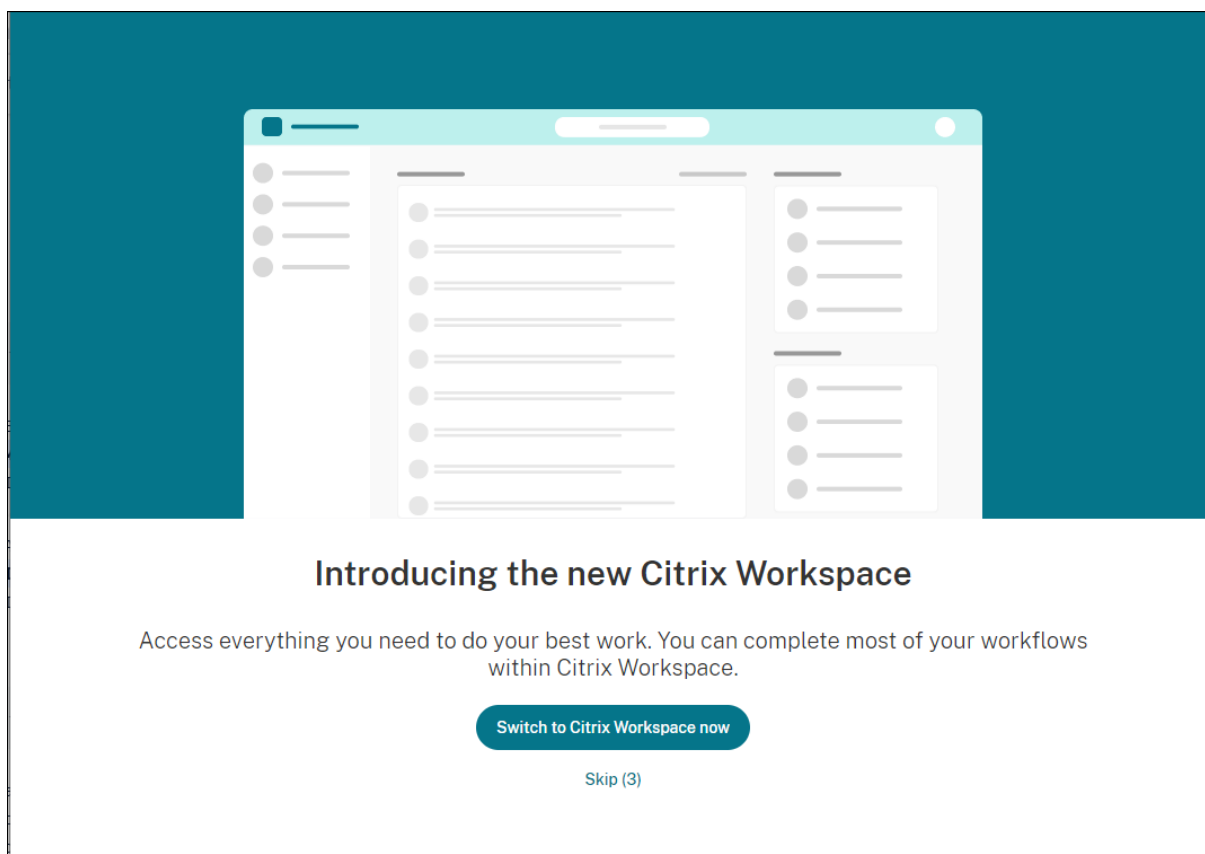
If you're editing the existing payload configuration, use **PUT** and check that you have the payload that consists of all the supported settings.

3. Specify the StoreFront URL `storefront.com` as the value for **URL** in the **serviceURL** section.
4. Configure the Workspace URL `xyz.cloud.com` inside the section **migrationUrl**.
5. Use **storeFrontValidUntil** to set the timeline for the removal of the StoreFront store from the Citrix Workspace app. This field is optional. You can set the following value based on your requirement:
  - Valid date in the format (YYYY-MM-DD)

### Note:

If you've provided a past date, then the StoreFront store is removed immediately upon URL migration. If you've provided a future date, then the StoreFront store is removed on the set date.

Once the app config service settings are pushed, the following screen appears:



When the user clicks **Switch to Citrix Workspace now**, the Workspace URL is added to Citrix Workspace app and the authentication prompt appears. Users have a limited option to delay the transition up to three times.

## Custom web store

### Support for custom web stores

Starting with the 2112 version, you can access your organization's custom web store from the Citrix Workspace app for Mac. Previously, you accessed all customized stores through the browser only. To use this feature, the admin must add the custom web store to the list of allowed URLs in the `allowedWebStoreURLs` property in the Global App Configuration service.

Citrix Workspace app for Mac loads the custom web stores with a browser-like experience and extends App Protection capabilities to custom web stores. Making the custom portal accessible from the native Citrix Workspace App provides comprehensive capabilities and user experience for this feature. For more information about Global App Configuration service, see [Getting Started](#).

To add a custom web store URL, perform the following steps:

1. Open the Citrix Workspace app and navigate to **Accounts**.

2. In the **Accounts** window, click the + icon and type the URL.

To delete a custom web store URL, perform the following steps:

1. Open the Citrix Workspace app and navigate to **Accounts**.
2. In the **Accounts** window, select the account you want to delete and click the - icon.

## Support for customized URLs through 301 redirects

Starting with the 2106 version, you can add URLs that redirect to Citrix Workspace from StoreFront or Citrix Gateway through HTTP 301 redirects.

If you're migrating from StoreFront to Citrix Workspace, you can redirect the StoreFront URL to a Citrix Workspace URL through an HTTP 301 redirect. As a result, when adding an old StoreFront URL, you're automatically redirected to Citrix Workspace.

### Example of a redirect:

The StoreFront URL `https://< Citrix Storefront url>/Citrix/Roaming/Accounts` can be redirected to a Citrix Workspace URL: `https://<Citrix Workspace url>/Citrix/Roaming/Accounts`.

#### Note:

- Citrix Workspace app for Mac does not support Dual Tone Multi Frequency (DTMF) with Microsoft Teams due to pending changes from Microsoft.
- From the 2106 release onward, the Citrix Viewer's version number and the Citrix Workspace app's version number might not match. This change does not affect your experience.

## Email-based auto-discovery of store

Starting with the 2109 version, You can provide your email address in Citrix Workspace app for Mac to automatically discover the store associated with the email address. If there are multiple stores associated with a domain, by default the first store returned by the Global App Configuration service is added as the store of choice. Users can always switch to another store if necessary.

## Sign out of the custom web store when you close Citrix Workspace app

When the **signoutCustomWebstoreOnExit** setting is set to **True**, closing the Citrix Workspace app window signs you out of the custom web store. When you reopen the Citrix Workspace app, the web store URL is loaded again. You can configure the **signoutCustomWebstoreOnExit** setting in the Global App Configuration service.

## Security and Authentication

January 19, 2024

This section describes about the security features and authentication details for Citrix Workspace app for Mac.

- [Authentication](#)
- [Security](#)
- [Secure communications](#)

## Authenticate

January 19, 2024

### Smart card

Citrix Workspace app for Mac supports smart card authentication in the following configurations:

- Smart card authentication to Workspace for Web or StoreFront 3.12 and later.
- Citrix Virtual Apps and Desktops 7 2203 and later.
- XenApp and XenDesktop 7.15 and later.
- Smart card-enabled applications, such as Microsoft Outlook and Microsoft Office that allow users to digitally sign or encrypt documents available in virtual desktop or application sessions.
- Citrix Workspace app for Mac supports using multiple certificates with a single smart card or with multiple smart cards. When your user inserts a smart card into a card reader, the certificates are available to all applications running on the device, including Citrix Workspace app for Mac.
- For double-hop sessions, a further connection is established between Citrix Workspace app for Mac and your user's virtual desktop.

### About smart card authentication to Citrix Gateway

There are multiple usable certificates when you use a smart card to authenticate a connection. Citrix Workspace app for Mac prompts you to select a certificate. After you select a certificate, Citrix Workspace app for Mac prompts you to enter the smart card password. Once authenticated, the session launches.

If there's only one suitable certificate on the smart card, Citrix Workspace app for Mac uses that certificate and does not prompt you to select it. However, you must still enter the password associated with the smart card to authenticate the connection and to start the session.

### Specifying a PKCS#11 module for smart card authentication

**Note:**

Installing the PKCS#11 module isn't mandatory. This section only applies to ICA sessions. It does not apply to Citrix Workspace access to Citrix Gateway or StoreFront where a smart card is required.

To specify the PKCS#11 module for smart card authentication:

1. In Citrix Workspace app for Mac, select **Preferences**.
2. Click **Security & Privacy**.
3. In the **Security & Privacy** section, click **Smart Card**.
4. In the **PKCS#11** field, select the appropriate module. Click **Other** to browse to the location of the PKCS#11 module if the module you wanted isn't listed.
5. After selecting the appropriate module, click **Add**.

### Supported readers, middleware, and smart card profiles

Citrix Workspace app for Mac supports most macOS-compatible smart card readers and cryptographic middleware. Citrix has validated the operation with the following.

Supported readers:

- Common USB connect smart card readers

Supported middleware:

- Clarify
- ActivIdentity client version
- Charismathics client version

Supported smart cards:

- PIV cards
- Common Access Card (CAC)
- Gemalto .NET cards

Follow the instructions provided by your vendor's macOS-compatible smart card reader and cryptographic middleware for configuring user devices.

## Restrictions

- Certificates must be stored on a smart card, not on the user device.
- Citrix Workspace app for Mac does not save the user certificate choice.
- Citrix Workspace app for Mac does not store or save the user’s smart card PIN. OS handles the PIN acquisitions, which might have its own caching mechanism.
- Citrix Workspace app for Mac does not reconnect sessions when a smart card is inserted.
- To use VPN tunnels with smart card authentication, you must install the Citrix Gateway Plug-in and log on through a webpage. Use your smart cards and PINs to authenticate at each step. Pass-through authentication to StoreFront with the Citrix Gateway Plug-in isn’t available for smart card users.

## Conditional Access with Azure Active Directory

This authentication method is currently not supported on Citrix Workspace app for Mac.

## User-Agent

Citrix Workspace app sends a user agent in network requests that can be used to configure authentication policies including redirection of authentication to other Identity Providers (IdPs).

### Note:

Don’t mention the version numbers while configuring the policies.

Scenario	Description	User-Agent
<b>Regular HTTP Requests</b>	In general, a network request made by Citrix Workspace app contains a general User-Agent.	<code>CitrixReceiver /23.05.0.36 MacOSX /13.4.0 com.citrix.receiver.nomas X1Class CWACapable</code>
<b>Cloud Store</b>	For example, the following network requests contain a general User-Agent When users add a cloud store to GET /Citrix/Roaming/Accounts Citrix Workspace app, the GET / AGServices/discover network requests made by	<code>Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7)</code>
<b>OnPrem Store with Gateway Advanced Auth</b>	Citrix Workspace app contains a specific User-Agent. When users add an on-premises store with Advanced Auth, the configured Gateway to Citrix Workspace app, the network requests made by Citrix Workspace app contains a specific User-Agent.	<code>AppleWebKit/605.1.15 (KHTML, like Gecko) Macintosh; Intel Mac OS X 10_15_7 AppleWebKit/605.1.15 (KHTML, like Gecko), X1Class CWACapable</code>

---

Scenario	Description	User-Agent
<b>Custom Web Store</b>	When a user adds a custom web store Citrix Workspace app, the network requests made by Citrix Workspace app contains a specific User-Agent.	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/605.1.15 (KHTML, like Gecko) Safari CWA/23.05.0.18 MacOSX/13.4.0

---

## FIDO2 for password-less authentication

Citrix Workspace app for Mac supports password-less authentication using FIDO2 security keys when connecting to a cloud store or within an HDX session. FIDO2 security keys provide a seamless way for enterprise employees to authenticate to apps or desktops that support FIDO2 without entering a user name or password. This feature currently supports roaming authenticators (USB only) with PIN code and touchID. This feature is supported on macOS 12 and later versions.

For more information about FIDO2 see [FIDO2 Authentication](#).

For information about the prerequisites and using this feature, see [Local authorization and virtual authentication using FIDO2](#).

## FIDO2-based authentication when connecting to cloud and on-premises store

Citrix Workspace app uses the user's default browser for FIDO2 authentication (Web Authentication), when connecting to the cloud and on-premises stores. Administrators can configure the type of browser to authenticate to Citrix Workspace app. For more information on the web browser settings, see [Global App Configuration service](#) documentation.

The following settings allow you to select the type of browser that is used for authenticating an end user into Citrix Workspace app:



Settings	Description
<b>System</b>	Allows you to use the user's default browser for authentication (for example, Safari or Chrome). Authentication occurs outside Citrix Workspace app. Use this setting to support passwordless authentication. This setting tries to use the existing user session from the user's browser.
<b>SystemWithPrivateSession</b>	This setting is similar to the <b>System</b> setting. Citrix Workspace app uses a private session in the browser for authentication. The browser doesn't save authentication cookies or data. Single sign-on isn't supported in this option.
<b>Embedded</b>	Allows you to authenticate within Citrix Workspace app. Citrix Workspace app saves the session data or cookies for single sign-on (for example, SaaS apps) when the <a href="#">enhanced single sign-on</a> feature is enabled. This authentication method does not support passwordless authentications such as FIDO2.
<b>EmbeddedWithPrivateSession</b>	This setting is similar to the <b>Embedded</b> setting. Single sign-on isn't supported as session data or cookies aren't present in Citrix Workspace app.

To push the configured settings, run the following commands using the Mobile Device Management (MDM), Global App Configuration service (GACS), or the command line interface methods:

- **Enable FIDO2 using MDM:** To enable authentication through MDM, administrators must use the following setting:

```
<key>WebBrowserForAuthentication</key><string>System</string>
```

For more information on how to use MDM, see [Mobile Device Management](#).

- **Enable FIDO2 using GACS:** To enable authentication through GACS, administrators must use the following setting:

```
1 {
2
3   "serviceURL": {
4
5     "url": "https://serviceURL:443"
6   }
}
```

```
7   ,
8   "settings": {
9
10      "name": "Web browser for Authenticating into Citrix Workspace",
11      "description": "Allows admin to select the type of browser used
12      for authenticating an end user into Citrix Workspace app",
13      "useForAppConfig": true,
14      "appSettings": {
15
16         "macos": [
17
18            {
19               "assignedTo": [
20                  "AllUsersNoAuthentication"
21               ],
22               "category": "authentication",
23               "settings": [
24
25                  {
26                     "name": "web browser for authentication",
27                     "value": "SystemWithPrivateSession"
28                  }
29               ],
30               "userOverride": false
31            }
32         ]
33      }
34   }
35 }
36 }
37 }
38 }
39 }
40 }
41 <!--NeedCopy-->
```

- **Enable FIDO2 using the command-line interface:** To enable authentication using the command-line interface, administrators must run the following command:

```
defaults write com.citrix.receiver.nomas WebBrowserForAuthentication
System
```

### FIDO2-based authentication within an HDX session

You can configure FIDO2 Security Keys to authenticate within an HDX session. This feature currently supports roaming authenticators (USB only) with PIN code.

When you access an app or a website that supports FIDO2, a prompt appears, requesting access to the security key. If you've previously registered your security key with a PIN (a minimum of 4 and a

maximum of 64 characters), then you must enter the PIN while signing in.

If you've registered your security key previously without a PIN, simply touch the security key to sign in.

This feature is enabled by default for Citrix Workspace app for 2307 and future releases. You can disable FIDO2 authentication using the Mobile Device Management (MDM) or command-line interface methods by running the following commands:

- **Disable FIDO2 based authentication using MDM:** To disable this feature through MDM, administrators must use the following setting:

```
<key>Fido2Enabled</key><false/>
```

For more information on how to use MDM, see [Mobile Device Management](#).

- **Disable FIDO2 based authentication using the command-line interface:** To disable this feature, run the following command in command-line interface methods:

```
defaults write com.citrix.receiver.nomas Fido2Enabled -bool NO
```

## Support for Certificate-based authentication

Starting with the 2305 version, Workspace administrators can configure and enforce Azure Active Directory conditional access policies for users authenticating to Citrix Workspace app.

The following methods can be used to enable the authentication using conditional access:

- Mobile Device Management (MDM)
- Global App Configuration service (GACS)

The flag values read by Citrix Workspace app take precedence in the following order:

- Mobile Device Management (MDM)
- Global App Configuration service (GACS)

## Enabling authentication using conditional access through MDM

To enable authentication using conditional access with Azure AD through MDM, admins must use the following setting:

```
<key>enableAAD</key>  
<true/>
```

This setting supports Boolean values. The value is set to false by default. The default value is considered if the key value isn't available.

For more information on how to use MDM, see [Mobile Device Management](#).

## Enabling authentication using conditional access through GACS

To enable authentication using conditional access with Azure AD through GACS, admins must use the following setting:

`enable conditional AAD`

For more information, see [Supported settings and their values per platform](#) for macOS in the GACS documentation.

## Security

March 28, 2024

### App Protection

App Protection feature is an add-on feature that provides enhanced security when using Citrix Virtual Apps and Desktops and Citrix DaaS (formerly Citrix Virtual Apps and Desktops service). The feature restricts the ability of clients to compromise with keylogging and screen capturing malware. App Protection prevents exfiltration of confidential information such as user credentials and sensitive information on the screen. For more information, see [App Protection](#) documentation.

#### Disclaimer

App Protection policies filter the access to required functions of the underlying operating system (specific API calls required to capture screens or keyboard presses). App Protection policies provide protection even against custom and purpose-built hacker tools. However, as operating systems evolve, new ways of capturing screens and logging keys might emerge. While we continue to identify and address them, we can't guarantee full protection in specific configurations and deployments.

To configure App Protection on Citrix Workspace app for Mac, see the Citrix Workspace app for Mac section in the [Configuration](#) article.

#### Note:

- App Protection is supported only from Citrix Workspace app 2001 for Mac or later.

### App Protection enhancement

Starting with the 2301 version, App Protection is enhanced to protect the Citrix Workspace app. This enhancement includes protecting the authentication screen and the screen that you see after signing

into the Workspace app.

### **Support for screen sharing when App Protection is enabled**

Starting with the 2402 version, you can share content through Microsoft Teams with HDX optimization, even when App Protection is enabled. With this feature, you can share a screen in the virtual desktop session to its full potential. For more information, see [Compatibility with HDX optimization for Microsoft Teams](#).

### **Force login prompt for Federated identity provider**

Citrix Workspace app now honors the Federated Identity Provider Sessions setting. For more information, see Citrix Knowledge Center article [CTX253779](#).

You no longer need to use the Store authentication tokens policy to force the login prompt.

### **Inactivity timeout for Citrix Workspace app**

The inactivity timeout feature logs you out of the Citrix Workspace app based on a value that the admin sets. Admins can specify the amount of idle time that is allowed before a user is automatically signed out of the Citrix Workspace app. You're automatically signed out when no activity from the mouse, keyboard, or touch occurs for the specified interval of time, within the Citrix Workspace app window. The inactivity timeout does not affect the already running Citrix Virtual Apps and Desktops and Citrix DaaS sessions or the Citrix StoreFront stores.

The inactivity timeout value can be set starting from 1 minute to 1440 minutes. By default, the inactivity timeout isn't configured. Admins can configure the `InactivityTimeoutInMinutes` property by using a PowerShell module. Click [here](#) to download the PowerShell modules for Citrix Workspace Configuration.

The end-user experience is as follows:

- A notification appears three minutes before you're signed out, with an option to stay signed in, or sign out. The notification appears if you've enabled Citrix Workspace app notifications in the system preferences of your Mac.
- The notification appears only if the configured inactivity timeout value is greater than 5 minutes. For example, if the configured value is 6 minutes, a notification appears when 3 minutes of inactivity is detected. If the configured inactivity timeout value is less than or equal to 5 minutes, the user is signed out without a notification.
- Users can click **Stay signed in** to dismiss the notification and continue using the app, in which case the inactivity timer is reset to its configured value. You can also click Sign-out to end the session for the current store.

## Secure communications

January 19, 2024

To secure the communication between your Site and Citrix Workspace app for Mac, you can integrate your connections with a range of security technologies, including Citrix Gateway. For information about configuring Citrix Gateway with Citrix StoreFront, see [StoreFront](#) documentation.

**Note:**

Citrix recommends using Citrix Gateway to secure communications between StoreFront servers and users' devices.

- A SOCKS proxy server or secure proxy server (also known as security proxy server, HTTPS proxy server). You can use proxy servers to limit access to and from your network and to handle connections between Citrix Workspace and servers. Citrix Workspace app for Mac supports SOCKS and secure proxy protocols.
- Citrix Secure Web Gateway. You can use Citrix Secure Web Gateway to provide a single, secure, encrypted point of access through the internet to servers on internal corporate networks.
- SSL Relay solutions with Transport Layer Security (TLS) protocols
- A firewall. Network firewalls can allow or block packets based on the destination address and port. If you use a firewall that maps the server's internal IP address to an external internet address such as network address translation (NAT), configure the external address.

**Note:**

Starting with macOS Catalina, Apple has enforced extra requirements for root CA certificates and intermediate certificates which administrators must configure. For more information, see Apple Support article [HT210176](#).

## Citrix Gateway

To enable remote users to connect to your XenMobile deployment through Citrix Gateway, you can configure Citrix Gateway to support StoreFront. The method for enabling access depends on the edition of XenMobile in your deployment.

If you deploy XenMobile in your network, allow connections from internal or remote users to StoreFront through Citrix Gateway, by integrating Citrix Gateway with StoreFront. This deployment allows users to connect to StoreFront to access published applications from XenApp and virtual desktops from XenDesktop. Users connect through Citrix Workspace app for Mac.

## Connecting with the Citrix Secure Web Gateway

If the Citrix Secure Web Gateway Proxy is installed on a server in the secure network, you can use the Citrix Secure Web Gateway Proxy in Relay mode. For more information about Relay mode, see [XenApp and Citrix Secure Web Gateway](#) documentation.

If you're using Relay mode, the Citrix Secure Web Gateway server functions as a proxy and you must configure Citrix Workspace app for Mac to use:

- The fully qualified domain name (FQDN) of the Citrix Secure Web Gateway server.
- The port number of the Citrix Secure Web Gateway server. Citrix Secure Web Gateway Version 2.0 does not support Relay mode.

The FQDN must list, in sequence, the following three components:

- Host name
- Intermediate domain
- Top-level domain

For example, `my_computer.example.com` is an FQDN, because it lists, in sequence, a host name (`my_computer`), an intermediate domain (`example`), and a top-level domain (`com`). The combination of intermediate and top-level domain (`example.com`) is referred to as the domain name.

## Connecting through a proxy server

Proxy servers are used to limit access to and from your network, and to handle connections between Citrix Workspace app for Mac and servers. Citrix Workspace app for Mac supports both SOCKS and secure proxy protocols.

When the Citrix Workspace app for Mac communicates with the Web server, it uses the proxy server settings configured for the default web browser on the user device. Configure the proxy server settings for the default Web browser on the user device accordingly.

## Connecting through a firewall

Network firewalls can allow or block packets based on the destination address and port. Citrix Workspace app for Mac must be able to communicate through the firewall with both the Web server and Citrix server. The firewall must permit HTTP traffic (often over the standard HTTP port 80 or 443 for a secure Web server) for user device to Web server communication. For Citrix Workspace to Citrix server communication, the firewall must permit inbound ICA traffic on ports 1494 and 2598.

## TLS

Transport Layer Security (TLS) is the latest, standardized version of the TLS protocol. The Internet Engineering Taskforce (IETF) renamed it TLS when it took over responsibility for the development of TLS as an open standard.

TLS secures data communications by providing server authentication, encryption of the data stream, and message integrity checks. Some organizations, including U.S. government organizations, require the use of TLS to secure data communications. These organizations might also require the use of validated cryptography, such as Federal Information Processing Standard (FIPS) 140. FIPS 140 is a standard for cryptography.

Citrix Workspace app for Mac supports RSA keys of 1024, 2048, and 3072-bit lengths. Root certificates with RSA keys of 4096-bit length are also supported.

### Note:

Citrix Workspace app for Mac uses platform (OS X) crypto for connections between Citrix Workspace app for Mac and StoreFront.

The following cipher suites are deprecated for enhanced security:

- Cipher suites with prefix “TLS\_RSA\_”
- Cipher suites RC4 and 3DES
- TLS\_RSA\_WITH\_AES\_256\_GCM\_SHA384 (0x009d)
- TLS\_RSA\_WITH\_AES\_128\_GCM\_SHA256 (0x009c)
- TLS\_RSA\_WITH\_AES\_256\_CBC\_SHA256 (0x003d)
- TLS\_RSA\_WITH\_AES\_256\_CBC\_SHA (0x0035)
- TLS\_RSA\_WITH\_AES\_128\_CBC\_SHA (0x002f)
- TLS\_RSA\_WITH\_RC4\_128\_SHA (0x0005)
- TLS\_RSA\_WITH\_3DES\_EDE\_CBC\_SHA (0x000a)

Citrix Workspace app for Mac supports only the following cipher suites:

- TLS\_ECDHE\_RSA\_WITH\_AES\_256\_GCM\_SHA384 (0xc030)
- TLS\_ECDHE\_RSA\_WITH\_AES\_256\_CBC\_SHA384 (0xc028)
- TLS\_ECDHE\_RSA\_WITH\_AES\_128\_CBC\_SHA (0xc013)

For DTLS 1.0 users, Citrix Workspace app for Mac 1910 and later supports only the following cipher suite:

- TLS\_ECDHE\_RSA\_WITH\_AES\_128\_CBC\_SHA (0xc013)

Upgrade your Citrix Gateway version to 12.1 or later if you want to use DTLS 1.0. Otherwise, it falls back to TLS based on the DDC policy.



The following matrices provide details of internal and external network connections:

Client cipher set	VDA cipher set	Direct connections								
		TLS			DTLS v1.0			DTLS v1.2		
		Open	FIPS	SP800-52	Open	FIPS	SP800-52	Open	FIPS	SP800-52
Any	ANY	Y	Y	Y	Y			Y		
	COM	Y	X	X	Y			Y		
	GOV	Y	Y	Y	Y			Y		
COM	ANY	Y	X	X	Y					
	COM	Y	X	X	Y					
	GOV	Y	X	X	Y					
GOV	ANY	Y	Y	Y	X			Y		
	COM	X	X	X	X			X		
	GOV	Y	Y	Y	X			Y		

Client cipher set	VDA cipher set	External connections with Citrix Gateway								
		TLS			DTLS v1.0			DTLS v1.2		
		Open	FIPS	SP800-52	Open	FIPS	SP800-52	Open	FIPS	SP800-52
Any	ANY	Y	Y	Y	Y			X		
	COM	Y	X	X	Y			X		
	GOV	Y	Y	Y	Y			X		
COM	ANY	Y	X	X	Y			X		
	COM	Y	X	X	Y			X		
	GOV	Y	X	X	Y			X		
GOV	ANY	Y	Y	Y	X			X		
	COM	X	X	X	X			X		
	GOV	Y	Y	Y	X			X		

**Note:**

- Use Citrix Gateway 12.1 or later for EDT to work properly. Older versions do not support ECDHE cipher suites in DTLS mode.
- Citrix Gateway doesn't support DTLS 1.2. So, `TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384` and `TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384` aren't supported. Citrix Gateway must be configured to use `TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA` to work properly in DTLS 1.0.

### Configuring and enabling Citrix Workspace app for TLS

There are two main steps involved in setting up TLS:

1. Set up SSL Relay on your Citrix Virtual Apps and Desktops and Citrix DaaS (formerly Citrix Virtual Apps and Desktops service) server. Then, obtain and install the necessary server certificate.
2. Install the equivalent root certificate on the user device.

### **Installing root certificates on user devices**

To use TLS to secure communications between TLS-enabled Citrix Workspace app for Mac and the server farm, you need a root certificate on the user device. This root certificate verifies the signature of the Certificate Authority on the server certificate.

macOS X comes with about 100 commercial root certificates already installed. However, if you want to use another certificate, you can obtain one from the Certificate Authority and install it on each user device.

Install the root certificate on each device, depending on your organization's policies and procedures, instead of prompting users to install it. The easiest and safest way is to add root certificates to the macOS X keychain.

### **To add a root certificate to the keychain**

1. Double-click the file containing the certificate. This action automatically starts the Keychain Access application.
2. In the Add Certificates dialog box, choose one of the following from the Keychain pop-up menu:
  - login (The certificate applies only to the current user.)
  - System (The certificate applies to all users of a device.)
3. Click OK.
4. Type your password in the Authenticate dialog box and then click OK.

The root certificate is installed and used by TLS-enabled clients and by any other application using TLS.

### **About TLS policies**

This section provides information for configuring security policies for ICA sessions over TLS. You can configure certain TLS settings used for ICA connections in Citrix Workspace app for Mac. These settings are not exposed in the user interface. Changing them requires running a command on the device running Citrix Workspace app for Mac.

**Note:**

TLS policies are managed in other ways - by devices controlled by an OS X server or another mobile device management solution.

TLS policies include the following settings:

**SecurityComplianceMode.** Sets the security compliance mode for the policy. If you don't configure SecurityComplianceMode, FIPS is used as the default value. Applicable values for this setting include:

- **None.** No compliance mode is enforced
- **FIPS.** FIPS cryptographic modules are used
- **SP800-52.** NIST SP800-52r1 compliance is enforced

```
defaults write com.citrix.receiver.nomas SecurityComplianceMode SP800-52
```

**SecurityAllowedTLSVersions.** Specifies the TLS protocol versions that are accepted during protocol negotiation. This information is represented as an array and any combination of the possible values is supported. When this setting isn't configured, the values TLS10, TLS11, and TLS12 are used as the default values. Applicable values for this setting include:

- **TLS10.** Specifies that the TLS 1.0 protocol is allowed.
- **TLS11.** Specifies that the TLS 1.1 protocol is allowed.
- **TLS12.** Specifies that the TLS 1.2 protocol is allowed.
- **TLS13.** Specifies that the TLS 1.3 protocol is allowed.

```
defaults write com.citrix.receiver.nomas SecurityAllowedTLSVersions -array TLS11 TLS12
```

**SSLCertificateRevocationCheckPolicy.** Improves the cryptographic authentication of the Citrix server and improves the overall security of the SSL/TLS connections between a client and a server. This setting governs the handling of a trusted root certificate authority (CA) while opening a remote session through SSL when using the client for OS X.

When you enable this setting, the client checks whether the server's certificate is revoked. There are several levels of certificate revocation list checking. For example, the client can be configured to check only its local certificate list, or to check the local and network certificate lists. In addition, certificate checking can be configured to allow users to log on only if all Certificate Revocation lists are verified.

Certificate Revocation List (CRL) checking is an advanced feature supported by some certificate issuers. It allows admins to revoke security certificates (invalidated before their expiry date) if there is cryptographic compromise of certificate private keys, or unexpected changes in the DNS name.

Applicable values for this setting include:

- **NoCheck.** No Certificate Revocation List check is performed.
- **CheckWithNoNetworkAccess.** Certificate revocation list check is performed. Only local certificate revocation list stores are used. All distribution points are ignored. Finding a Certificate Revocation List isn't critical for verification of the server certificate that presented by the target SSL Relay or Citrix Secure Web Gateway server.
- **FullAccessCheck.** Certificate Revocation List check is performed. Local Certificate Revocation List stores and all distribution points are used. Finding a Certificate Revocation List isn't critical for verification of the server certificate presented by the target SSL Relay or Citrix Secure Web Gateway server.
- **FullAccessCheckAndCRLRequired.** Certificate Revocation List check is performed, excluding the root Certificate Authority. Local Certificate Revocation List stores and all distribution points are used. Finding all required Certificate Revocation Lists is critical for verification.
- **FullAccessCheckAndCRLRequiredAll.** Certificate Revocation List check is performed, including the root certificate authority. Local Certificate Revocation List stores and all distribution points are used. Finding all required Certificate Revocation Lists is critical for verification.

**Note:**

If you don't set `SSLCertificateRevocationCheckPolicy`, `FullAccessCheck` is used as the default value.

```
defaults write com.citrix.receiver.nomas SSLCertificateRevocationCheckPolicy FullAccessCheckAndCRLRequired
```

## Configuring TLS policies

To configure TLS settings on an unmanaged computer, run the **defaults** command in Terminal.app.

**defaults** is a command line application that you can use to add, edit, and delete app settings in an OS X preferences list file.

To change settings:

1. Open **Applications > Utilities \> Terminal**.
2. In Terminal, run the command:

```
defaults write com.citrix.receiver.nomas <name> <type> <value>
```

Where:

**<name>**: The name of the setting as described earlier.

**<type>**: A switch identifying the type of the setting, either `-string` or `-array`. If the setting type is a string, this setting can be omitted.

**<value>**: The value for the setting. If the value is an array and multiple values need to be specified, separate the values with a space.

```
defaults write com.citrix.receiver.nomas SecurityAllowedTLSVersions -  
array TLS11 TLS12
```

### Reverting to the default configuration

To reset a setting back to its default:

1. Open **Applications > Utilities \ > Terminal**.
2. In Terminal, run the command:

```
defaults delete com.citrix.receiver.nomas <name>
```

Where:

**<name>**: The name of the setting as described earlier.

```
defaults delete com.citrix.receiver.nomas SecurityAllowedTLSVersions
```

### Security settings

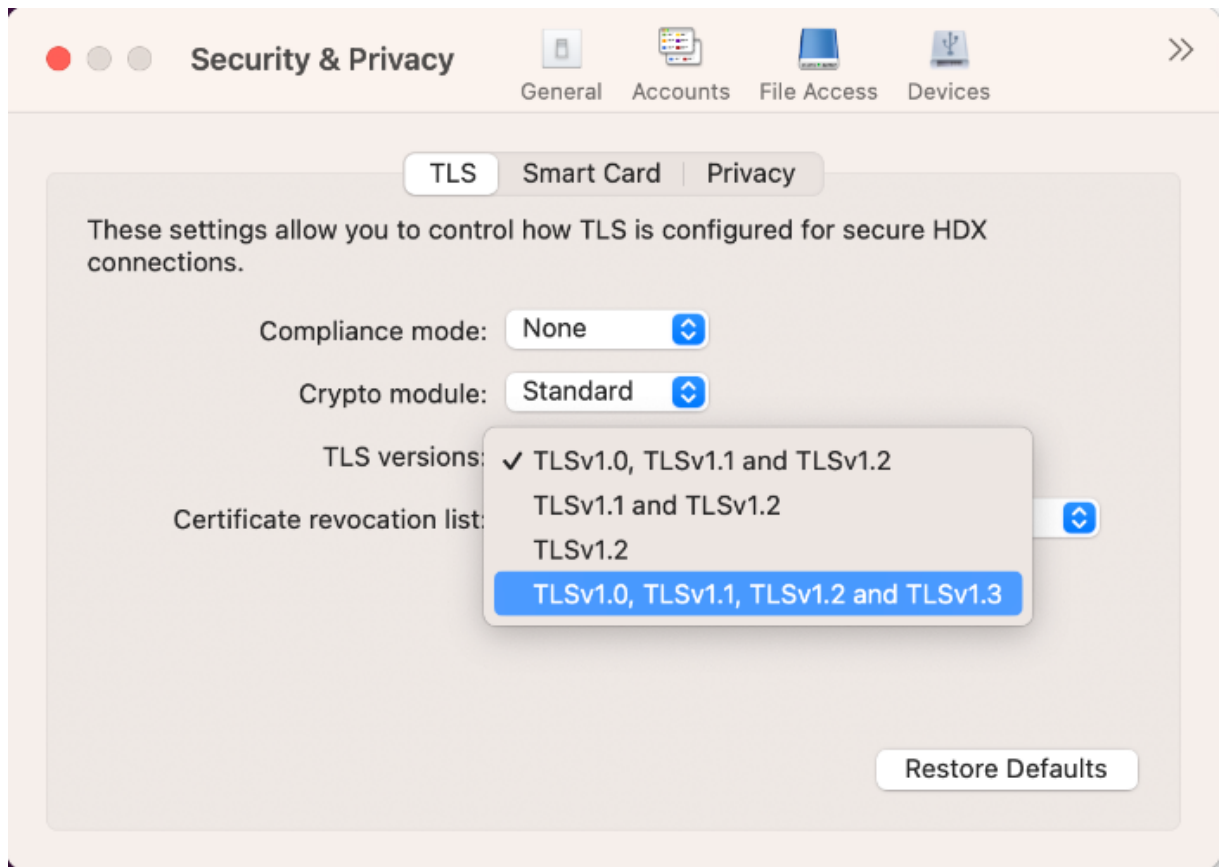
Security improvements and enhancements were introduced with Citrix Receiver for Mac version 12.3, including the following:

- improved security configuration user interface. In previous releases, the command line was the preferred method to make security-related changes. Configuration settings related to session security are now simple and accessible from the UI. This improvement improves the user experience while creating a seamless method for the adoption of security-related preferences.
- view TLS connections. You can verify connections that use a specific TLS version, encryption algorithms, mode, key size, and SecureICA status. In addition, you can view the server certificate for TLS connections.

The improved **Security and Privacy** screen includes the following new options in the **TLS** tab:

- set the compliance mode
- configure the crypto module
- select the appropriate TLS version
- select the certificate revocation list
- enable settings for all TLS connections

The following image illustrates the **Security and Privacy** settings accessible from the UI:



## App experience

January 19, 2024

This section describes the following:

- [Application delivery](#)
- [Enhanced virtual apps and desktops launch experience for Workspace \(Cloud users only\)](#)
- [App preferences](#)
- [Data collection and monitoring](#)

## Application delivery

April 4, 2024

When delivering applications with Citrix Virtual Apps and Desktops and Citrix DaaS, consider the following options to enhance the experience for your users when they access their applications:

### **Web access mode**

Without any configuration, Citrix Workspace app for Mac provides web access mode: browser-based access to applications and desktops. Users simply open a browser to a Workspace for Web and select and use the applications that they want. In web access mode, no app shortcuts are placed in the App Folder on your user's device.

### **Self-service mode**

Add a StoreFront account to Citrix Workspace app for Mac or configure Citrix Workspace app for Mac to point to a StoreFront site. Then, you can configure the self-service mode, which enables your users to subscribe to applications through Citrix Workspace app for Mac. This enhanced user experience is similar to that of a mobile app store. In self-service mode you can configure mandatory, auto-provisioned, and featured app keyword settings as needed. When one of your users selects an application, a shortcut to that application is placed in the App Folder on the user device.

When they access a StoreFront 3.0 site, your users see the Citrix Workspace app for Mac preview.

When publishing applications on your Citrix Virtual Apps farms, you can enhance the experience for users accessing those applications through StoreFront stores. Ensure that you include meaningful descriptions for the published apps. The descriptions are visible to your users through Citrix Workspace app for Mac.

### **Configure self-service mode**

As mentioned previously, you can add a StoreFront account to Citrix Workspace app for Mac or configure Citrix Workspace app for Mac to point to a StoreFront site. Thus, you can configure the self-service mode, which allows users to subscribe to applications from the Citrix Workspace app for Mac user interface. This enhanced user experience is similar to that of a mobile app store.

In self-service mode, you can configure mandatory, auto-provisioned, and featured app keyword settings as needed.

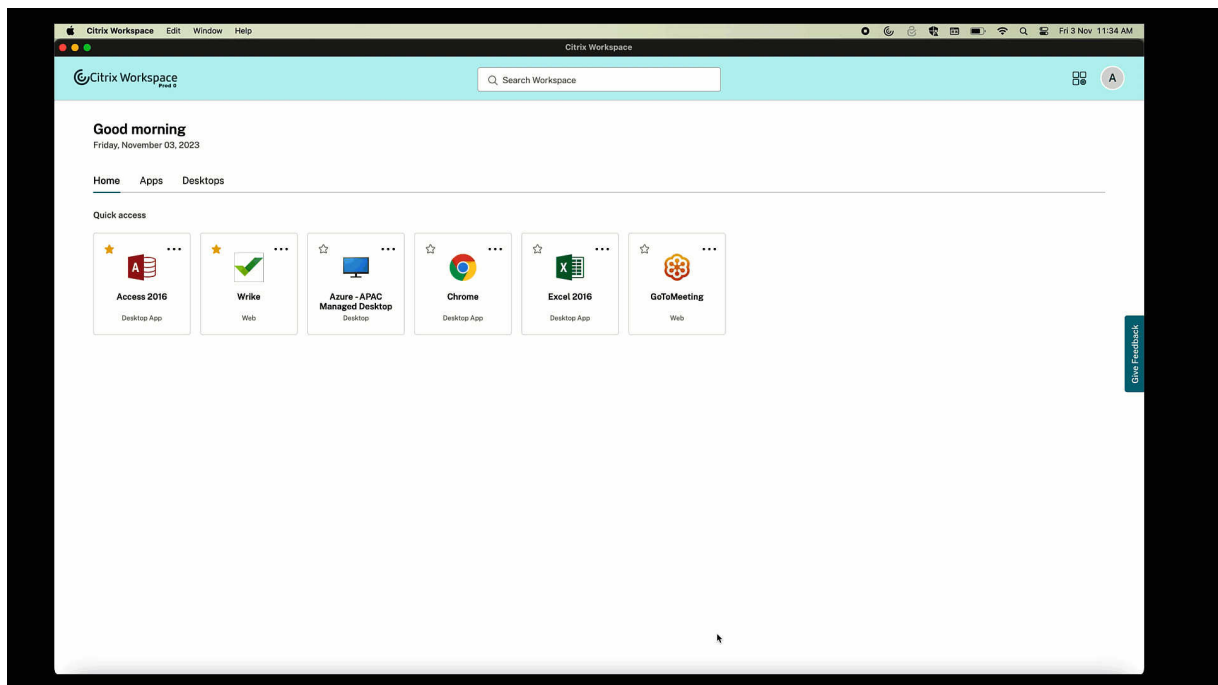
- Automatically subscribe all store users to an app by appending the string '**KEYWORDS:Auto**' to the app description when publishing it in Citrix Virtual Apps. The app is provisioned automatically without requiring a manual subscription when users log in to the store.
- Advertise applications to users or make commonly used applications easier to find by listing them in the Citrix Workspace app for Mac Featured list. To list apps in the Mac Featured list, append the string **\*\*KEYWORDS:Featured\*\*** to the app description.

For more information, see [StoreFront](#) documentation.

## Enhanced virtual apps and desktops launch experience for Workspace (Cloud users only)

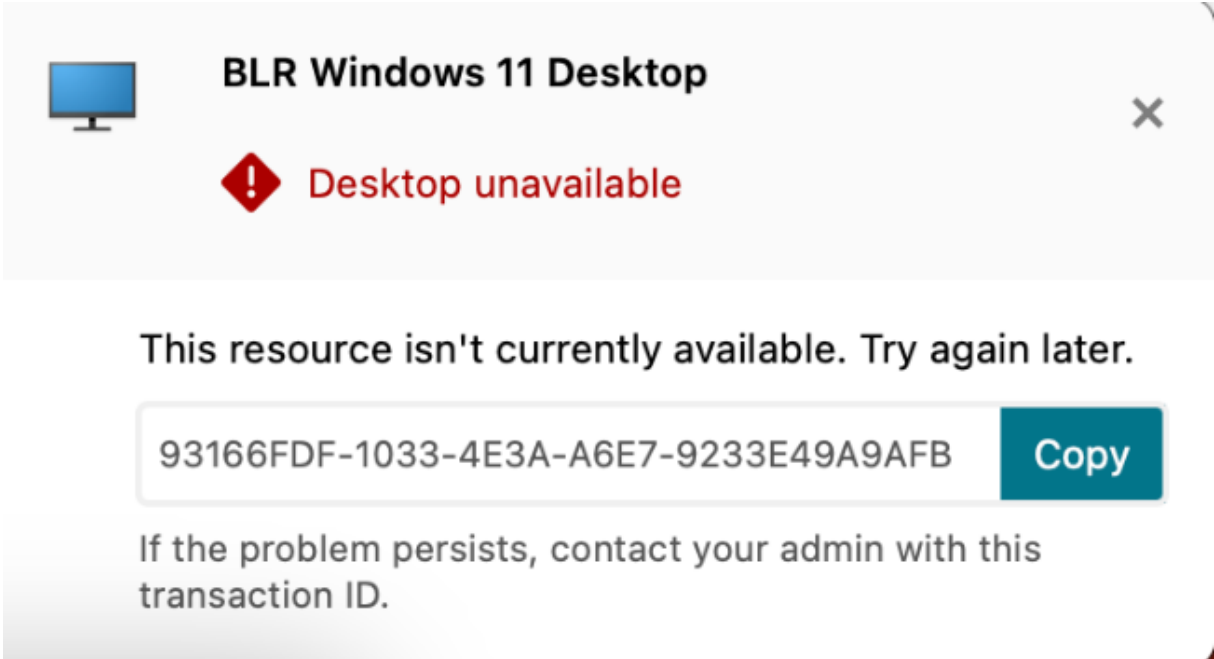
January 19, 2024

The opening experience of Citrix resources has been enhanced to be more intuitive, informative, and user-friendly. From the 2311 version, this feature is supported for custom web stores and hybrid launch.



The launch progress notification now appears at the lower-right corner of your screen. A progress status of the resources, which are in the process of being opened is shown. You cannot retrieve the notification once you dismiss it. The notification stays for a few seconds from the time you start the session. If the session fails to start, then the notification shows the failure message.





The screenshot shows a window titled "BLR Windows 11 Desktop" with a close button (X) in the top right corner. Below the title bar, there is a red diamond icon with a white exclamation mark and the text "Desktop unavailable". Below this, a message states: "This resource isn't currently available. Try again later." Underneath the message is a text input field containing the transaction ID "93166FDF-1033-4E3A-A6E7-9233E49A9AFB" and a teal "Copy" button. At the bottom of the window, it says: "If the problem persists, contact your admin with this transaction ID."

**Note:**

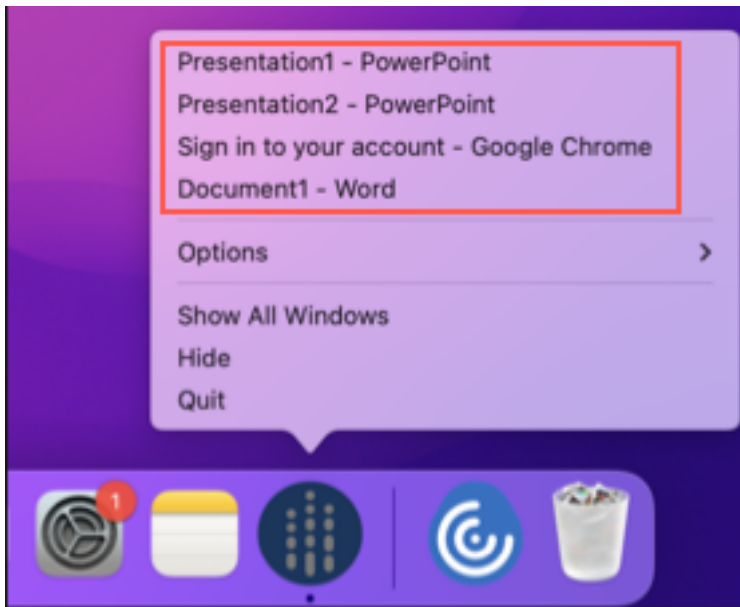
This feature is available for both Workspace (cloud) and StoreFront sessions.

## App preferences

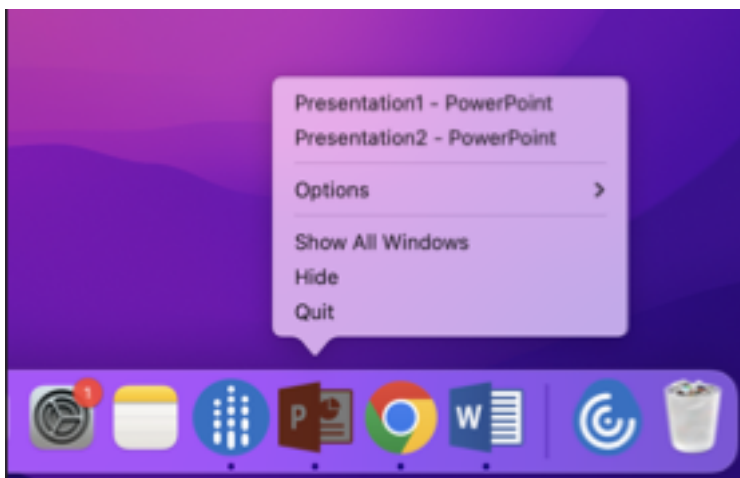
January 19, 2024

### Opened apps appear in the dock with native app icons

Previously, clicking virtual apps in the Citrix Workspace app triggered the **Citrix Viewer** where these apps would be available. If you open many apps, the apps or its instances are opened in the **Citrix Viewer**. You can view the open apps by right-clicking the **Citrix Viewer** icon.

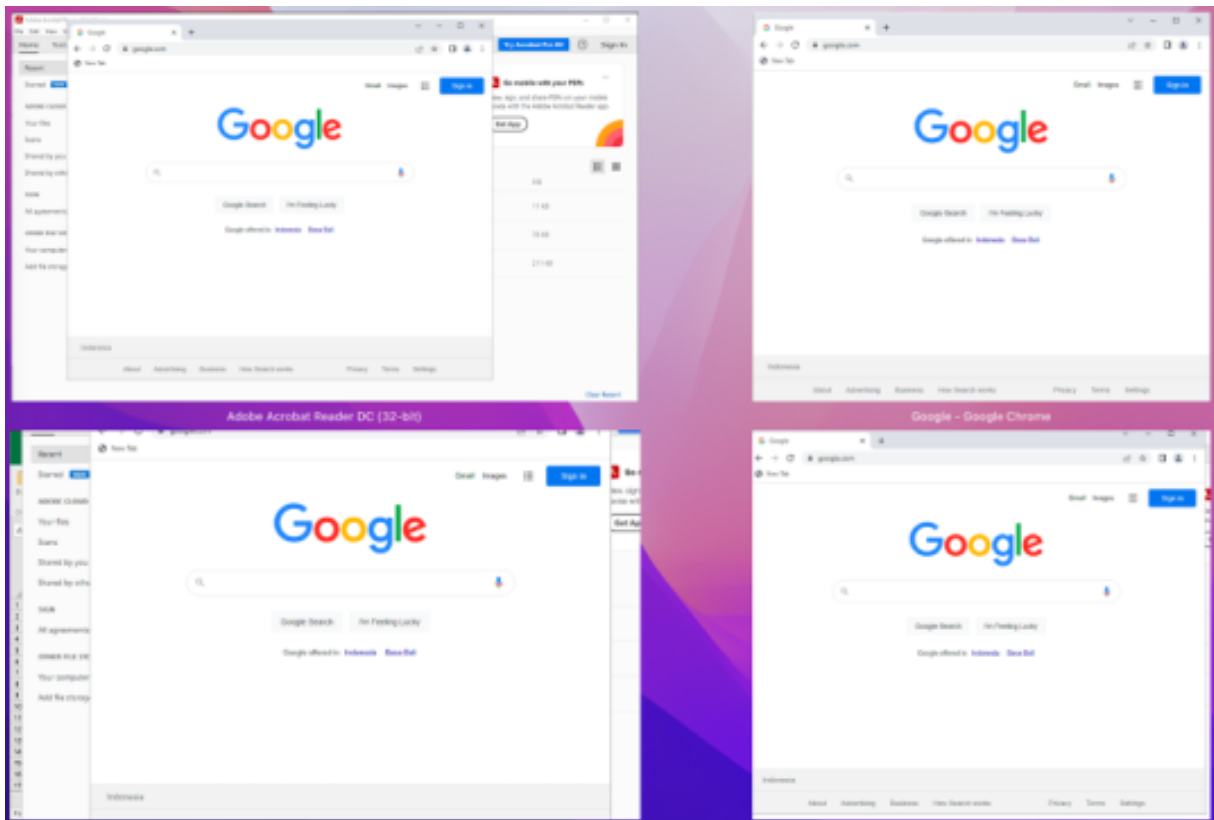


Starting with the 2305 version, when you open virtual apps, they appear in the Dock (bottom-right corner of the screen) with their respective icons and are easily identifiable. You can then access the virtual app from the dock itself. If you open multiple instances of an app, these instances aren't duplicates in the Dock but are grouped within one instance in the Dock.

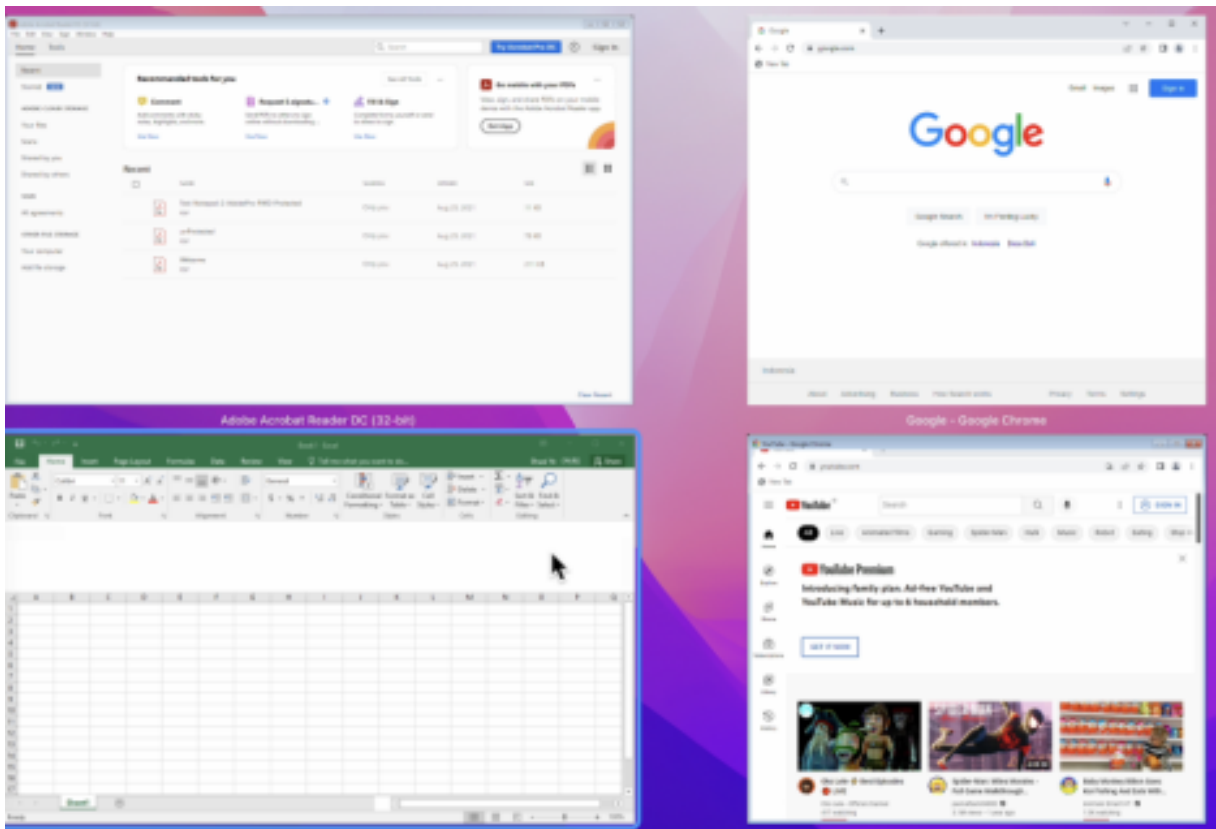


### Improved Mission Control and App Expose experience

Previously, using the **Mission Control** or **App Expose** feature in a virtual app session resulted in the overlapping of many windows that were opened.



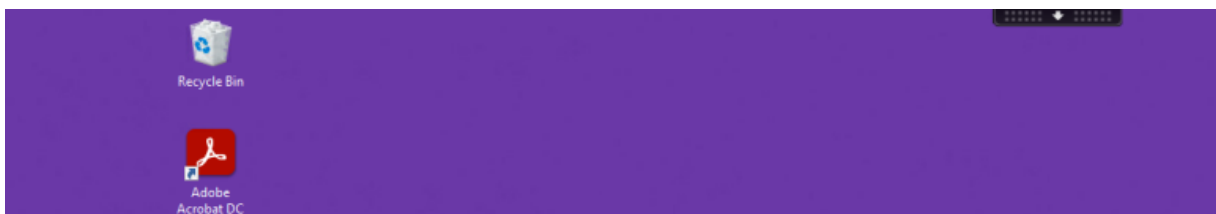
Starting with the 2210 version, when you use the **Mission Control** or **App Expose** feature in a virtual app session and open many windows, the windows do not overlap, and you can easily choose from among them.



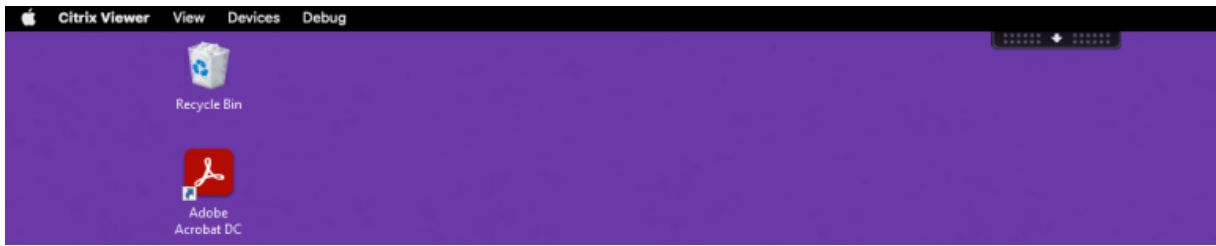
## Enhanced menu bar support

Starting with the 2301 version, the CWA fully supports the **Automatically hide and show the menu bar in full screen** option in macOS. For versions earlier than macOS 13, you must navigate to **System Preferences > Dock & Menu Bar** and clear the **Automatically hide and show the menu bar in full screen** option. For macOS 13 and later versions, you must navigate to **System Preferences > Desktop & Dock** and clear the **Automatically hide and show the menu bar in full screen** option. You have the provision to either enable or disable this option. This enhancement also supports high DPI scaling. The mouse position also appears accurate in all the external monitors connected.

The following figure illustrates a window where the menu bar is hidden:



The following figure illustrates a window where the menu bar appears:

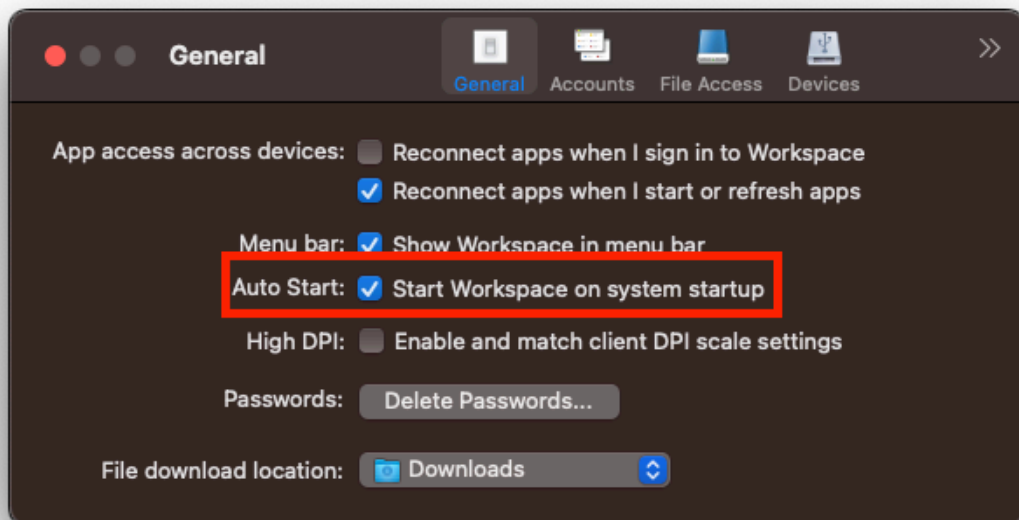


### Support for horizontal scroll

Previously, Citrix Workspace app for Mac supported only vertical scroll on a trackpad. Starting with the 2305 version, a horizontal scroll is also supported.

### Enhanced auto start experience

Previously, Citrix Workspace app for Mac used to start automatically whenever a computer was turned on. Starting with the 2304 version, you can choose to disable or enable the auto start feature on Citrix Workspace app for Mac by navigating to **Preferences > General > Start Workspace** on system startup. The auto start setting is enabled by default.




## Workspace Control

Workspace Control lets desktops and applications follow users as they move between devices. For example, clinicians in hospitals to move from workstation to workstation without having to restart their desktops and applications on each device.

Policies and client drive mappings change appropriately when you move to a new user device. Policies and mappings are applied according to the user device where you're currently logged on to the session. For example, a healthcare worker can sign out from a device in the emergency room and sign in to a workstation in the X-ray laboratory. The policies, printer mappings, and client drive mappings appropriate for the session in the X-ray laboratory go into effect for the session in the X-ray laboratory.

### To configure workspace Control settings

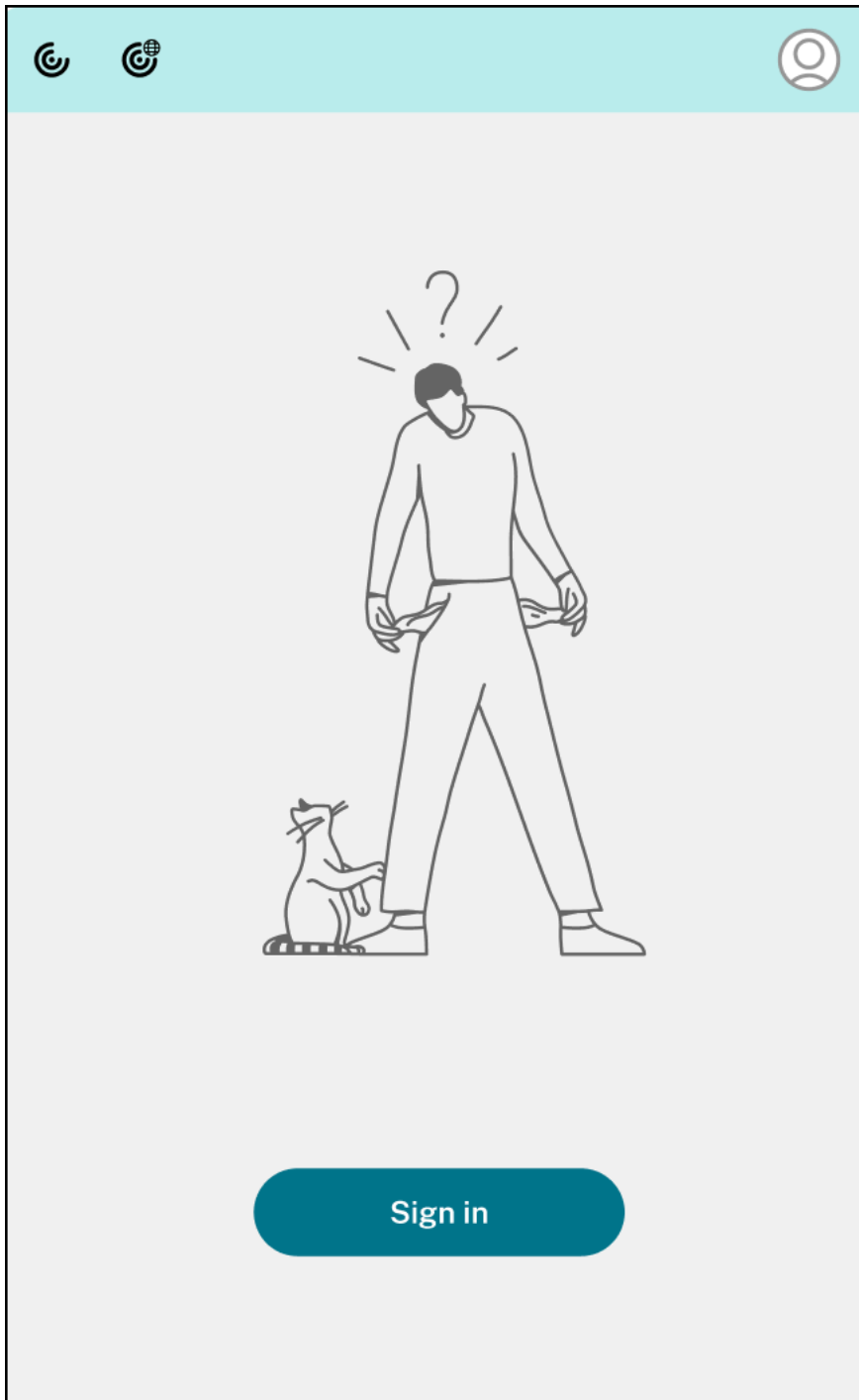
1. Click the down arrow icon  in the Citrix Workspace app for Mac window and choose **Preferences**.
2. Click the **General** tab.
3. Choose one of the following:
  - Reconnect apps when I start Citrix Workspace app. Allows users to reconnect to disconnected apps when they start Citrix Workspace app.
  - Reconnect apps when I start or refresh apps. Allows users to reconnect to disconnected apps either when they start apps or when they select Refresh Apps from the Citrix Workspace app for Mac menu.

### View apps, desktops, and Citrix Enterprise Browser from the menu bar through a quick access menu

You can now view your most recently used or favorite apps and desktops or open a Citrix Enterprise Browser window by clicking the Citrix Workspace icon in the menu bar. This feature provides easy access to some of your resources without having to open the Citrix Workspace app.

The screenshot displays the Citrix Workspace app interface for Mac. At the top, there are two circular icons on the left and a circular icon with the letter 'V' on the right. Below these is a navigation bar with two tabs: 'Recents' (which is selected and underlined) and 'Favorites'. The main content area is divided into two sections: 'Apps' and 'Desktops'. The 'Apps' section lists five applications with their respective icons: Access 2016 (red 'A' icon), Concur (blue 'C' icon), Excel 2016 (green 'X' icon), Bitbucket - code (blue circular icon with a white 'B'), and Chrome (multi-colored circular icon). A blue link 'View all applications' is positioned at the bottom right of the Apps list. The 'Desktops' section lists one desktop with a blue monitor icon: 'Managed Win10 SIN Desktop'. A blue link 'View all desktops' is positioned at the bottom right of the Desktops list. At the very bottom of the interface, a grey bar contains the text 'Version: 22.06.0.0 (2206)'.

If you've not configured any accounts, a sign-in prompt appears.

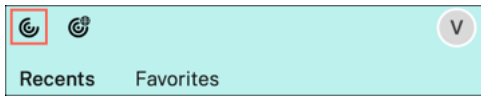


A maximum of 5 of your recently used or favorite apps or desktops appear in the options under the **Recent** and **Favorites** tabs respectively. To view the other apps in the Citrix Workspace app, click **View all applications**. To view the other desktops in the Citrix Workspace app, click **View all desktops**.

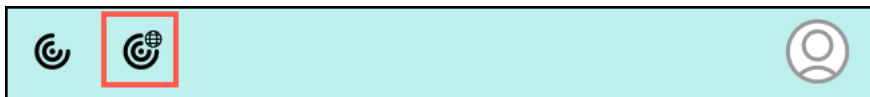


The screenshot displays the Citrix Workspace app interface for Mac. At the top, there is a teal header bar with two circular icons on the left and a circular profile icon with the letter 'V' on the right. Below the header, there are two tabs: 'Recents' (which is selected and underlined) and 'Favorites'. The main content area is divided into two sections: 'Apps' and 'Desktops'. The 'Apps' section lists five applications with their respective icons: Access 2016 (red 'A' icon), Concur (blue 'C' icon), Excel 2016 (green 'X' icon), Bitbucket - code (blue circular icon with a white 'B'), and Chrome (multi-colored circular icon). A blue link 'View all applications' is positioned at the bottom right of the Apps list. The 'Desktops' section lists one desktop: 'Managed Win10 SIN Desktop' with a blue monitor icon. A blue link 'View all desktops' is positioned at the bottom right of the Desktops list. At the very bottom of the interface, a grey bar contains the text 'Version: 22.06.0.0 (2206)'.

You can open the Citrix Workspace UI by clicking the Citrix Workspace app icon.

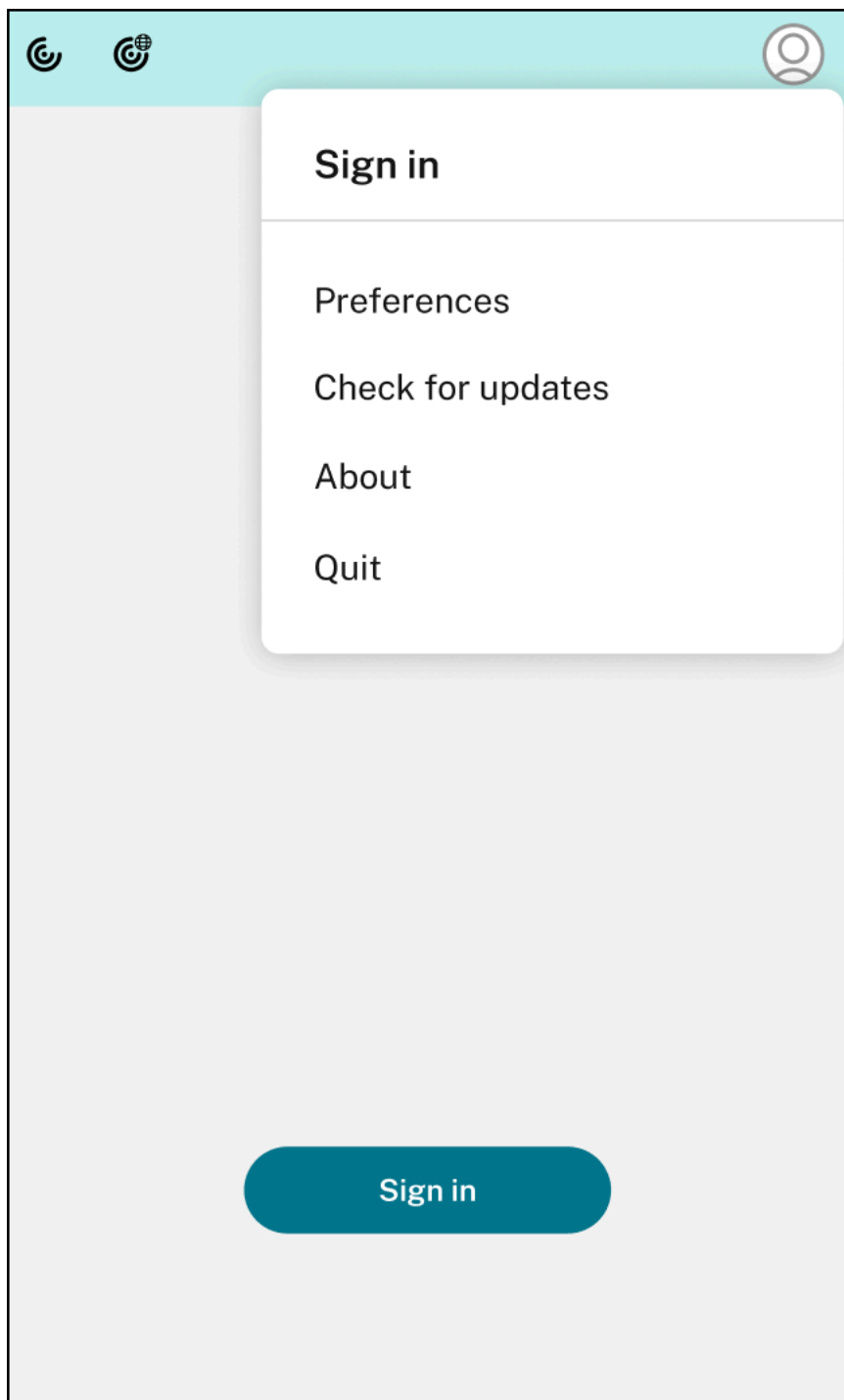


You can open the Citrix Enterprise Browser, without opening a web or SaaS app by clicking the Citrix Enterprise Browser icon.



**Note:**

The Citrix Enterprise Browser isn't available if the configured store doesn't have any web or SaaS apps. Further, it's available only if your admin has configured Citrix Secure Private Access.

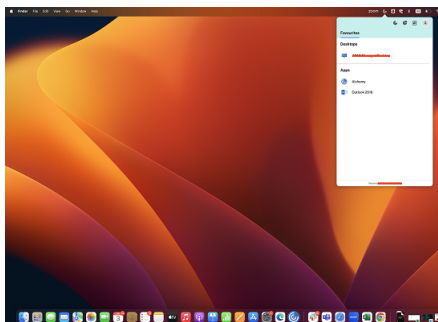


You can view the following options when you click the **Account** icon in the top-right corner:

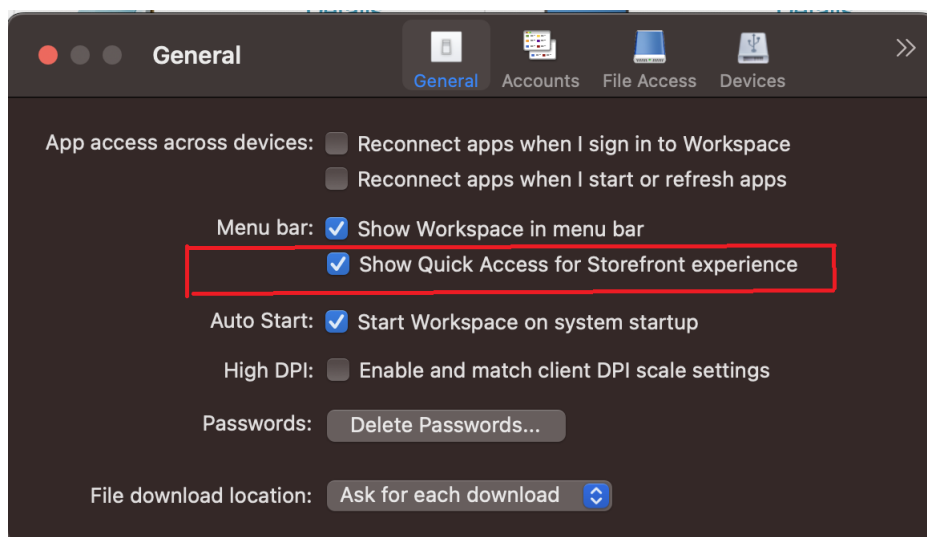
- Preferences
- Check for updates
- About
- Quit

## Quick access menu for StoreFront

Starting with the 2307 version, you can navigate to your favorite apps and desktops quickly and easily using the quick access feature for on-premises stores. To enable quick access, right-click **Citrix Workspace** in the toolbar, navigate to **Preferences > General**, and then select **Show Quick Access for Storefront experience**. This feature allows you to see your favorite data directly from the Mac menu bar.



You can enable the quick access feature by using **Preferences**.



Administrators can enable or disable the quick access feature by using the Mobile Device Management (MDM) or Global App Configuration service (GACS) methods.

## Enabling or disabling quick access using MDM

To enable quick access through MDM, administrators must use the following settings:

```
<key>ShowQuickAccessForStoreFront</key>  
<false/>
```

For more information on how to use MDM, see [Mobile Device Management](#).

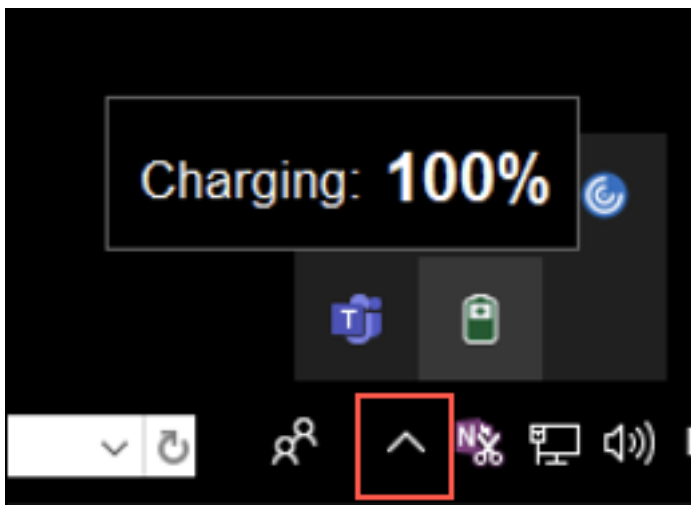
### Enabling or disabling quick access using GACS

To enable quick access through GACS, administrators must use the following settings:

`enableQuickAccessForStoreFront`

### Battery status indicator

The battery status of the device now appears in the notification area of a Citrix Desktop session. To view the battery status within the desktop session, click the **Show hidden icons** arrow in the taskbar.



**Note:**

The battery status indicator does not appear for server VDAs.

### Citrix Casting

Citrix Casting is used to cast your Mac screen to nearby Citrix Ready workspace hub devices. Citrix Workspace app for Mac supports Citrix Casting to mirror your Mac screen to workspace hub connected monitors.

For more information, see the [Citrix Ready workspace hub](#) documentation.

### Prerequisites

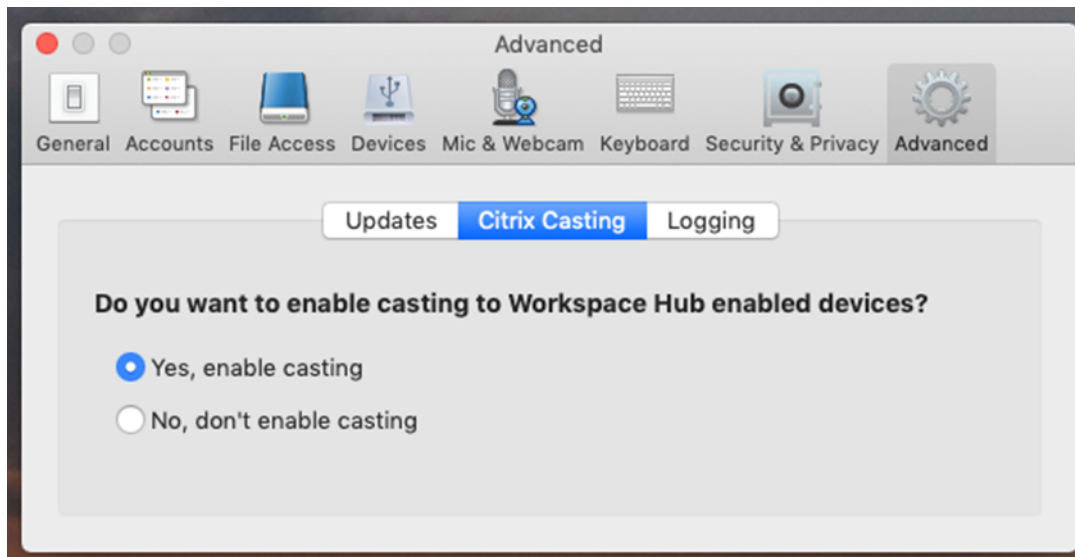
- Latest supported version of Citrix Workspace app.
- Bluetooth enabled on the device for hub discovery.
- Both Citrix Ready workspace hub and Citrix Workspace app must be on the same network.

- Ensure Port 55555 isn't blocked between the device running Citrix Workspace app and the Citrix Ready workspace hub.
- Port 55556 is the default port for SSL connections between mobile devices and the Citrix Ready workspace hub. You can configure a different SSL port on the Raspberry Pi's settings page. If the SSL port is blocked, users can't establish SSL connections to the workspace hub.
- For Citrix Casting, ensure port 1494 isn't blocked.

### Enable Citrix Casting

Citrix Casting is disabled by default. To enable Citrix Casting using Citrix Workspace app for Mac:

1. Go to **Preferences**.
2. Select **Advanced** in the panel and then choose **Citrix Casting**.
3. Select **Yes, enable casting**.



A notification appears when Citrix Casting is launched and a Citrix Casting icon appears in the menu bar.

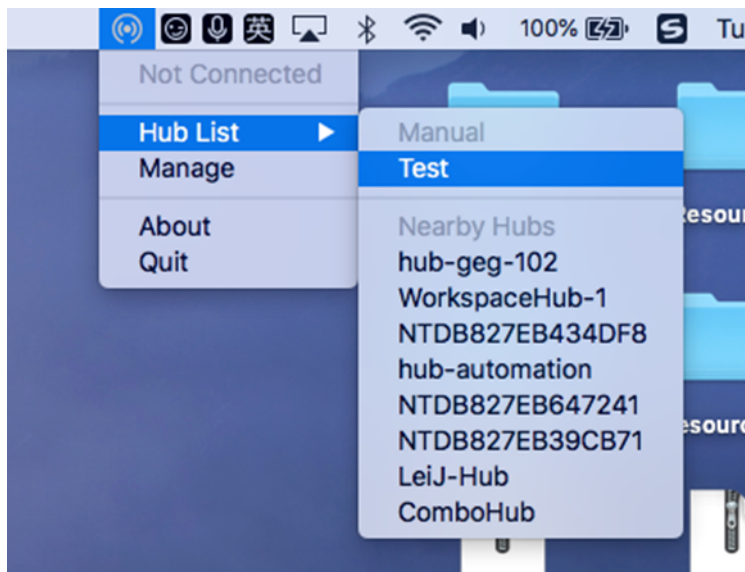
#### Note:

After enabling, Citrix Casting launches with Citrix Workspace app for Mac automatically every time until you disable it by selecting **No, don't enable casting** in **Preferences > Advanced > Citrix Casting**.

### Discover workspace hub devices automatically

To connect to workspace hubs automatically:

1. On your Mac, sign in to Citrix Workspace app and ensure that Bluetooth is turned on. Bluetooth is used to discover nearby workspace hubs.
2. Select the **Citrix Casting** icon in the menu bar. All Citrix Casting functions are operated through this menu.
3. The **Hub List** submenu shows all nearby workspace hubs on the same network. Hubs are listed in descending order by their proximity to your Mac and display their workspace hub configured names. All automatically discovered hubs display under **Nearby Hubs**.
4. Choose the hub that you want to connect to by selecting its name.



To cancel selection of a workspace hub during connection, select **Cancel**. You can also use **Cancel** if the network connection is poor and connecting is taking longer than usual.

**Note:**

Occasionally, your chosen hub might not appear in the menu. Check the **Hub List** menu again after a few moments or add your hub manually. Citrix Casting receives the workspace hub's broadcasting periodically.

### Discover workspace hub devices manually

If you can't find the Citrix Ready workspace hub device in the **Hub List** menu, add the workspace hub's IP address to access it manually. To add a workspace hub:

1. On your Mac, sign in to Citrix Workspace app and ensure that Bluetooth is turned on. Bluetooth is used to discover nearby workspace hubs.
2. Select the **Citrix Casting** icon in the menu bar.
3. Select **Manage** in the menu. The **Manage hubs** window appears.
4. Click **Add new** to enter the IP address of your hub.

5. After successfully adding the device, the **Hub name** column displays the hub's friendly name. Use this name to identify the hub in the **Manual** section of the **Hub List** submenu.

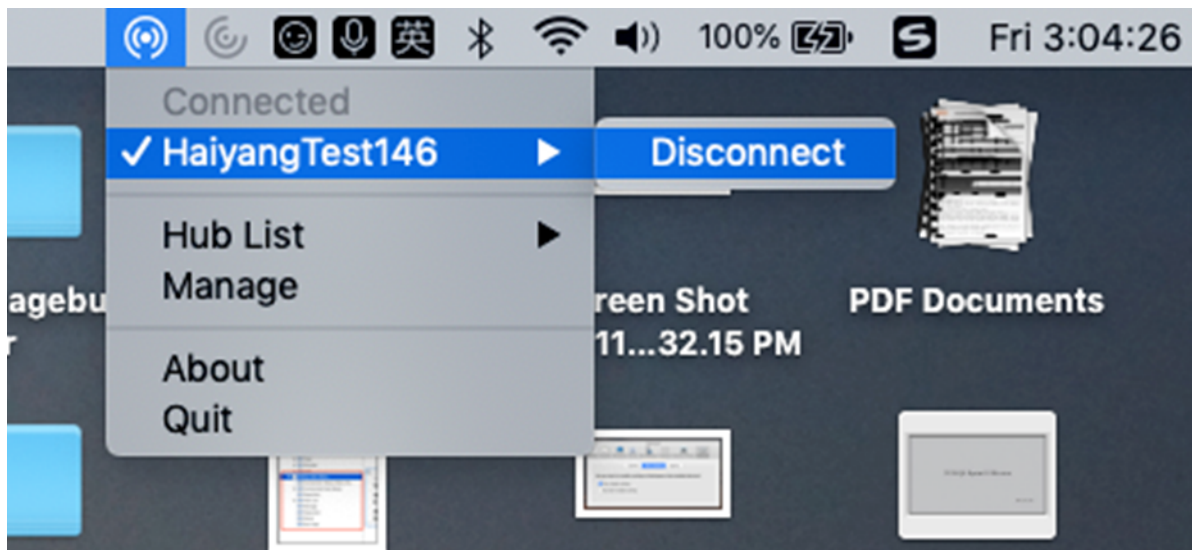
**Note:**

Currently, only **Mirror** mode is supported. **Mirror** is the only available choice in the **Display Mode** column.

### Disconnect the workspace hub device

You can disconnect your current session and exit the Citrix Ready workspace hub automatically or manually.

- To disconnect the screen casting session automatically, close your laptop.
- To disconnect the screen casting session manually:
  1. Select the **Citrix Casting** icon.
  2. In the list of hubs, select the name of your workspace hub. The **Disconnect** option appears to the right.
  3. Select **Disconnect** to exit the hub.



### Known issues

- There are small latency issues when viewing the mirrored screen. In poor network conditions, latency might be even longer.
- When SSL is enabled in a Citrix Ready workspace hub and the hub's certificate isn't trusted, an alert window appears. To solve the issue, add the certificate to your trusted certificate list with the Keychain tool.



## Data collection and monitoring

March 28, 2024

### Citrix Analytics

Citrix Workspace app is instrumented to securely transmit logs to Citrix Analytics. The logs are analyzed and stored on Citrix Analytics servers when enabled. For more information about Citrix Analytics, see [Citrix Analytics](#).

### Customer Experience Improvement Program (CEIP)

---

Data Collected	Description	What we Use it for
Configuration and usage data	The Citrix Customer Experience Improvement Program (CEIP) gathers configuration and usage data from Citrix Workspace app for Mac and automatically sends the data to Citrix and Google Analytics.	This data helps Citrix improve the quality, reliability, and performance of Citrix Workspace app.

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### Data collected

As noted above, Citrix collects Citrix Workspace app configuration and usage data to improve the quality, functionality, and performance of Citrix Workspace app, and to allow Citrix to appropriately allocate resources for product development purposes, as well as to maintain service levels and manage staffing and infrastructure investment. The data is used and analyzed in aggregated form only. No user or their machine is singled-out and no analysis is performed on specific end users based on the CEIP data.

The specific CEIP data elements collected by Google Analytics and Citrix Analytics are:

---

Operating System Version	Workspace app version	Generic USB Redirection Usage	Store configuration
--------------------------	-----------------------	-------------------------------	---------------------

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Citrix Enterprise Browser Usage	Citrix Virtual Apps and Desktops Session Launch Status	Auto-update preference	Auto-update Status
Session launch method	Uninstall information	Inactivity Timeout	Email Discovery
Custom Web Store Feature Usage	Reconnection preferences	Feature Usage	Feature Usage
Delete Password Feature Usage	Auto-update channel	Global App Configuration service Usage	Restore Keyboard Usage
		Connection Lease Details	USER GUID

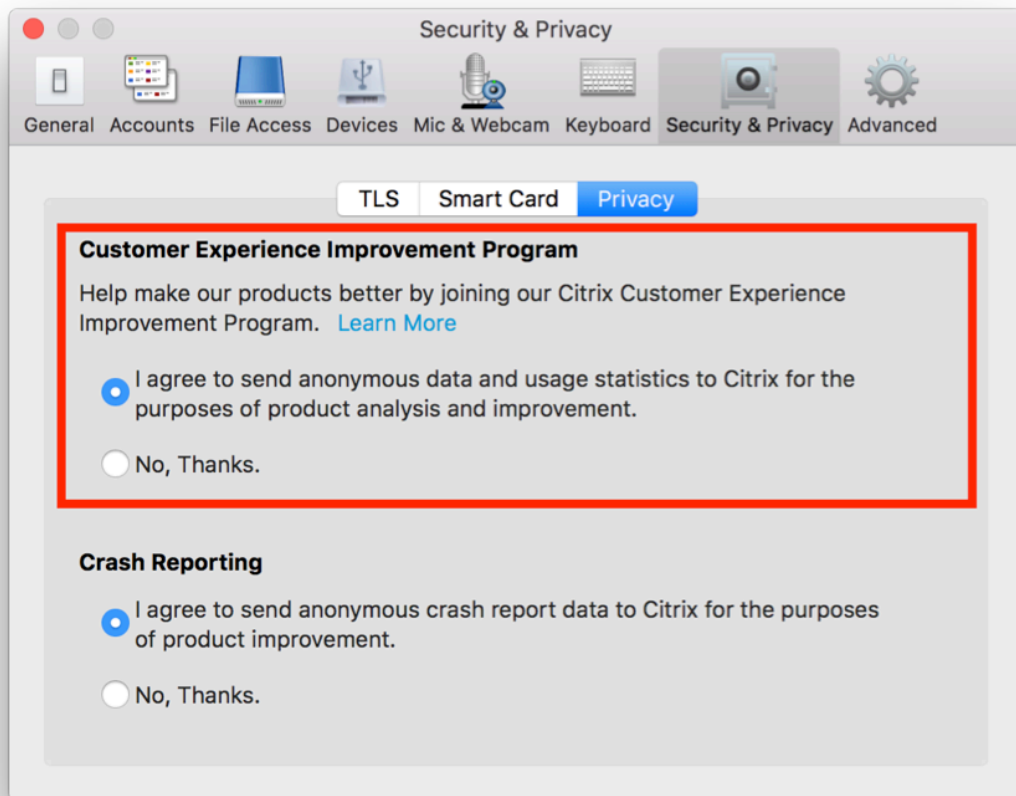
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**Note:**

- No data is collected and sent to Google Analytics from users located in the European Union (EU), European Economic Area (EEA), Switzerland, and the United Kingdom (UK).
- Citrix Enterprise Browser was formerly known as Citrix Workspace Browser.

To disable sending CEIP data to Citrix and Google Analytics, perform the following steps:

1. On the **Preferences** window, select **Security and Privacy**.
2. Click the **Privacy** tab.
3. Select **No, Thanks** to disable CEIP or to forego participation.
4. Click **OK**.



Alternatively, you can disable CEIP by running the terminal command:

```
defaults write com.citrix.receiver.nomas "CEIPEnabled"-bool NO
```

### Additional Information

Citrix handles your data in accordance with the terms of your contract with Citrix. Your data is protected, according to the [Citrix Services Security Exhibit](#) available at the [Citrix Trust Center](#).

Citrix uses Google Analytics to collect certain data from Citrix Workspace app as part of CEIP. Review how Google [handles data collected for Google Analytics](#).

## HDX and multimedia

January 25, 2024

This section describes about the HDX and multimedia features for the following components:

- [Graphics and Display](#)
- [Optimized Microsoft Teams](#)
- [HDX transport](#)

## Graphics and display

April 11, 2024

### Multiple monitors

You can set Citrix Workspace app for Mac to work in full-screen mode across multiple monitors.

1. Open the Citrix Viewer.
2. From the menu bar, click **View** and select one of the following options, based on your requirement:
  - **Enter Full Screen** - Full screen on the primary monitor only.
  - **Use All Displays In Full Screen** - Full screen on all connected monitors.
3. Drag the Citrix Virtual Desktops screen between the monitors.

The screen is now extended to all monitors.

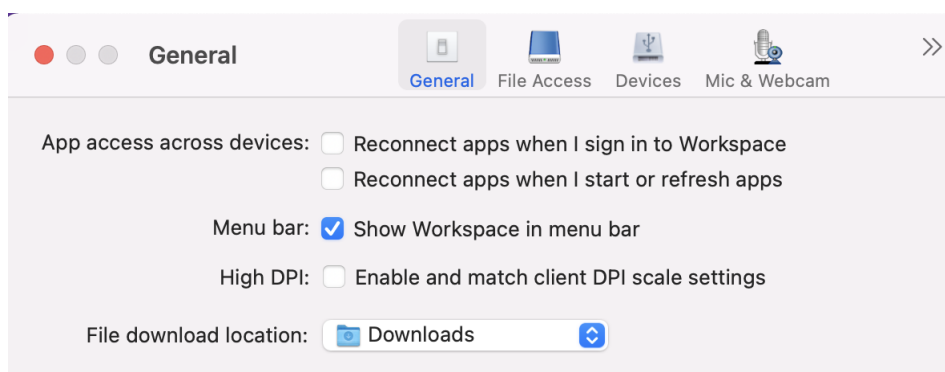
### Limitations

- Full-screen mode is only supported on one monitor or all monitors, which are configurable through a menu item.
- Citrix recommends using a maximum of 2 monitors. Using more than 2 monitors might degrade session performance or cause usability issues.
- Full screen mode isn't available on Macs with a notch.

### Support for high DPI

Citrix Workspace app for Mac is now compatible with one high DPI monitor with 4K or 5K resolution. With this feature, the text, images, and other graphical elements on virtual desktop or app sessions appear in a size that can be viewed comfortably on these high-resolution monitors.

To enable this feature, navigate to **Preferences > General > High DPI**.



Administrators can edit the **Display memory limit** policy, which specifies the maximum video buffer size in kilobytes for a desktop session, to suit the display resolution. The default value for the **Display memory Limit** policy is 65536 KB and is sufficient for one high DPI monitor with 4K resolution.

For virtual app sessions, the default value of **Display memory Limit** is sufficient as the app session doesn't support more than one display.

For virtual desktop sessions, administrators must navigate to **Citrix Studio > Policies > Display memory limit** and use a higher value, for example 393216 KB to use High DPI features for more than one external monitor or 5K resolution monitor.

For more information about the Display memory limit policy, see [Display memory limit](#).

### Note:

This feature works with a maximum of two connected monitors.

The number of external monitors you can use with your mac is always limited by the Mac model, as well as the resolution and refresh rate of each display. Refer to the technical specifications of your Mac to find out the supported number of external monitors. For more information, see [Connect one or more external displays with your Mac](#) in the Apple support article.

## Enhanced notch screen support

Starting with the 2301 version, Citrix Workspace app for Mac supports Macs with a notch display. Macs support a native notch screen in full screen mode for retina and multi-monitor displays. The area of the session in notch screen is now much bigger and provides the customers with more screen space. This enhancement also supports high DPI scaling. The mouse position also appears accurate in all the external monitors connected.

### Note:

Ensure not to select the **Scale to fit below built-in camera** option in the Citrix Viewer. This option isn't selected by default and can be found only on Macs with notch display.

## Desktop toolbar

Users can now access the **Desktop** Toolbar in both windowed and full-screen mode. Previously, the toolbar was only visible in full-screen mode. Other toolbar changes include:

- The **Home** button has been removed from the toolbar. This function can be run by using the following commands:
  - Cmd-Tab to switch to the previous active application.
  - Ctrl-Left Arrow to switch to the previous Space.
  - Using the built-in trackpad or Magic Mouse gestures to switch to a different Space.
  - Moving the cursor to the edge of the screen while in full-screen mode displays a Dock where you can choose which applications to make active.
- The **Windowed** button has been removed from the toolbar. Follow one of these methods to switch from full-screen mode to windowed mode:
  - On OS X 10.10, click the green window button on the drop-down menu bar.
  - On OS X 10.9, click the blue menu button on the drop-down menu bar.
  - On all versions of OS X, select **Exit Full Screen** from the **View** menu of the drop-down menu bar.
- Support to drag between windows in full screen with multiple monitors.

## Hide or show the desktop tool bar in the virtual desktop session

You can customize to hide or show the desktop tool bar completely in the virtual desktop session.

For more information about hiding the desktop tool bar completely, see the [CTX202450](#) support article in the knowledge center.

## Extend multiple monitors in full-screen mode

Starting with the 2203.1 version, you can enter full-screen mode on two or more monitors simultaneously. To use this feature, perform the following steps:

1. Open the Citrix Viewer.
2. To use full-screen mode on the other connected monitors, drag the window from your primary monitor to span into the connected monitors. From the menu bar, select **View > Enter Full Screen**. The window goes into full screen mode on those monitors.

**Note:**

If you have previously selected the **Use All Displays In Full Screen** option, ensure to unselect it as this selection extends full screen on all connected monitors.

Citrix recommends using a maximum of 3 monitors, including the primary monitor.

### **Support to open Citrix Workspace app in maximized mode**

Starting with the 2204 version, admins can configure the `maximise workspace window` property in the Global App Configuration service to enable the Citrix Workspace app to open in the maximized mode by default. For more information about the Global App Configuration service, see [Getting Started](#).

### **Support for extending multiple monitors in full-screen mode on up to five monitors**

Previously, Citrix supported a maximum of three monitors in full-screen mode, including the primary monitor.

Starting with the 2311 version, you can now use full-screen mode on up to five monitors, including the primary monitor, at the same time.

**Note**

The number of external monitors you can use with your mac is always limited by the Mac model, as well as the resolution and refresh rate of each display. Refer to the technical specifications of your Mac to find out the supported number of external monitors. For more information, see [Connect one or more external displays with your Mac](#) in the Apple support article.

You can extend multiple monitors in full-screen mode in the following two ways:

- **Using the menu bar**

1. Open the **Citrix Viewer**.
2. From the menu bar, click **View** and select **Enter Full Screen** to extend full screen.

**Note:**

You can extend the screen to full-screen mode in all connected displays at once by enabling **Use All Displays In Full Screen** and then selecting **Enter Full Screen** from the **View** menu.

- **Using the green button in the app window**

1. Open the **Citrix Viewer**.

2. Drag or resize the Citrix Viewer window to make it spread on the monitors that you want to use in full-screen mode.
3. Move the pointer to the green button in the upper-left corner of the window, then select **Enter Full Screen** from the menu that appears or click the green button. The screen is now extended to monitors that have an intersection with the window.

Admins can edit the **Display memory limit** policy, which specifies the maximum video buffer size in kilobytes for a desktop session, to suit the display resolution. The default value for the **Display memory Limit** policy is 65536 KB and is sufficient only for up to 2x4K monitors (2x32400KB). Admins must increase this value to use five monitors based on the display resolution. You can edit the **Display memory Limit** by navigating to **Citrix Studio > Policies > Display memory limit**. For more information about the Display memory limit policy, see the [Display memory limit](#) section in the XenApp and XenDesktop documentation.

## Improved graphics performance

Starting with the 2308 version, the performance of graphics is improved for seamless app sessions. This feature also optimizes the load on CPU usage.

## Support for H.265 video decoding

Starting with the 2402 version, Citrix Workspace app for Mac supports the use of the H.265 video codec (HEVC) for hardware acceleration of remote graphics and videos. The h.265 video codec (HEVC) supports YUV 4:2:0 color space by default. H.265 video codec must be supported and enabled on both the VDA and Citrix Workspace app. If your Mac device doesn't support H.265 decoding using the VideoToolbox interface, then the H.265 decoding for graphics policy setting is ignored and the session falls back to the H.264 video codec.

## Prerequisites

- VDA 7.16 or later using the following GPUs:
  - NVIDIA Maxwell generation GPU or later
  - Intel 6th generation GPU or later
  - AMD Raven generation GPU or later
- Enable the **Optimize for 3D graphics workload policy** on the VDA.
- Enable the **Use hardware encoding for video codec policy** on the VDA.

On Citrix Workspace app for Mac, this feature is set to be enabled by default.



To disable this feature through Mobile Device Management (MDM), administrators must use the following settings:

```
<key>EnableXdecoderForH265</key><false/>
```

Restart the session for the changes to take effect.

**Note:**

Run the HDX Monitor 3.x tool to identify if the H.265 video encoder is enabled within the session. For more information about the HDX Monitor 3.x tool, see the Knowledge Center article [CTX135817](#).

## Optimized Microsoft Teams

January 19, 2024

### Configuring a preferred network interface

Starting with the 2304 version, you can configure a preferred network interface for media traffic. Run the following command in the terminal:

```
defaults write com.citrix.HdxRtcEngine NetworkPreference -int <value>
```

Select one of the following values as required:

- 1: Ethernet
- 2: Wi-Fi
- 3: Cellular
- 4: VPN
- 5: Loopback
- 6: Any

By default and if no value is set, the WebRTC media engine chooses the best available route.

### Encoder performance estimator

The `HdxRtcEngine.exe` is the WebRTC media engine embedded in Citrix Workspace app that handles Microsoft Teams redirection. The `HdxRtcEngine.exe` can estimate the best encoding resolution that the endpoint's CPU can sustain without overloading. Possible values are 240p, 360p, 480p, 720p, and 1080p.

The performance estimation process uses macroblock code to determine the best resolution that can be achieved with the particular endpoint. The Codec negotiation includes the highest possible resolution. The Codec negotiation can be between the peers, or between the peer and the conference server.

There are four performance categories for endpoints that have its own **maximum** available resolution:

Endpoint performance	Maximum resolution	Registry key value
Fast	1080p (1920x1080 16:9 @ 30 fps)	3
Medium	720p (1280x720 16:9 @ 30 fps)	2
Slow	360p (640x360 16:9 @ 30 fps or 640x480 4:3 @ 30 fps)	1
Very slow	240p (320x180 16:9 @ 30 fps or 320x240 4:3 @ 30 fps)	0

To set the video encoding resolution value to 360p, run the following command from the terminal:

```
defaults write com.citrix.HdxRtcEngine OverridePerformance -int 1
```

For more information about Microsoft Teams optimization, see [Optimization for Microsoft Teams](#).

### Improved experience for optimized Microsoft Teams video conference calls

Starting with the 2304 version, by default simulcast support is enabled for optimized Microsoft Teams video conference calls. With this support, every call is adjusted to the proper resolution for the optimal call experience. This feature enhances the quality and experience of video conference calls across various endpoints.

With this improved experience, each user might deliver multiple video streams in different resolutions (for example, 720p, 360p, and so on). The video resolution depends on several factors including endpoint capability, network conditions, and so on. The receiving endpoint then requests the maximum quality resolution that it can handle and giving all users the optimum video experience.

**Note:**

This feature is available only after the roll-out of an update from Microsoft Teams. For information on ETA, go to <https://www.microsoft.com/> and search for the Microsoft 365 roadmap. When the update is rolled-out by Microsoft, you can check [CTX253754](#) for the documentation update and the announcement.

## Limiting video resolutions

Administrators who have users on lower-performance client endpoints can choose to limit incoming or outgoing video resolutions to decrease the impact of encoding and decoding video on those endpoints. Starting from Citrix Workspace app 2304 for Mac, you can limit these resolutions using client configuration options.

### Note:

Users running with restricted resolutions impact the overall video quality of the conference because the Microsoft Teams server is forced to use the lowest-common-denominator resolution for all conference participants.

Call constraints are disabled by default on the client with Citrix Workspace app 2304. To enable, administrators must set the following client-side configurations with the defaults command:

```
defaults write com.citrix.HdxRtcEngine <Name> -<Type> <Value>
```

Name	Type	Mandatory	Accepted values
EnableSimulcast	int	YES	1–3 (set it to 1)
MaxOutgoingResolution	int	YES	180, 240, 360, 540, 720, 1080 (Microsoft Teams supported Resolutions)
MaxIncomingResolution	int	YES	180, 240, 360, 540, 720, 1080 (Microsoft Teams supported Resolutions)
MaxIncomingStreams	int	YES	1–8
MaxSimulcastLayers	int	YES	1–3 (set it to 1)
MaxVideoFrameRate	int	NO	1–30
MaxScreenShareFrameRate	int	NO	1–15

## Background blurring and replacement for Citrix Optimized Microsoft Teams

Starting with the 2301 version, Citrix Optimized Microsoft Teams in Citrix Workspace app for Mac now supports background blurring and background replacement. You can use this feature by selecting **More > Apply Background Effects** when you are in a meeting or a P2P call.

## Enhancement to sleep mode for optimized Microsoft Teams call

Previously, when you are in an optimized Microsoft Teams meeting, if there's no mouse or keyboard interaction, Citrix Workspace app or the optimized Microsoft Teams screen might go to sleep mode.

Starting with the 2305 version, Citrix Workspace app or the optimized Microsoft Teams screen doesn't go to sleep mode even if there's no mouse or keyboard interaction during an optimized Microsoft Teams meeting.

## Screen sharing optimization with Microsoft Teams

Starting with the 2012 version, Citrix Workspace app for Mac supports screen sharing optimization with Microsoft Teams. For more information, see the following:

- [Optimization for Microsoft Teams](#)
- [Microsoft Teams redirection](#)

## Microsoft Teams optimization support for seamless app sessions

Starting with the 2101 version, Citrix Workspace app for Mac now supports Microsoft Teams optimization for seamless app sessions. As a result, you can launch Microsoft Teams as an application from within the Citrix Workspace app. For more information, see the following:

- [Optimization for Microsoft Teams](#)
- [Microsoft Teams redirection](#)

## Support for Dual Tone Multi Frequency (DTMF) with Microsoft Teams

Starting with the 2101 version, Citrix Workspace app for Mac supports Dual Tone Multi Frequency (DTMF) signaling interaction with telephony systems (for example, PSTN) and conference calls in Microsoft Teams. This feature is enabled by default.

## Enhancements in Desktop Viewer

When the **Desktop Viewer** is in full screen mode, the user can select one from all the screens covered by the **Desktop Viewer** to share. In the window mode, the user can share the **Desktop Viewer** window. In the seamless mode, the user can select one screen from the screens connected to the endpoint device.

When the Desktop Viewer changes the window mode (maximize, restore, or minimize), the screen sharing stops.

When the user wants to share the screen, previews for all available screens appear in the screen sharing panel. Making it intuitive for users to select the right one from the previews.

### **Support for H.264 Advanced Video Coding (MPEG-4 AVC) with Microsoft Teams**

Starting with the 2109 version, Citrix Workspace app for Mac supports hardware accelerated H.264 video encoding or decoding. It reduces the load on CPU usage and improves your video conferencing experience. The multimedia engine of Citrix HDX optimized Microsoft Teams (HdxRtcEngine.exe) now uses Apple's Video Toolbox framework for encoding and decoding. This framework compresses and decompresses video faster and in real time. Also, the offloading of encoding and decoding to the GPU is optimized. Hardware-accelerated video decoding and encoding are enabled by default if a device supports it. This enhancement reduces the load on the CPU during multimedia usage when Microsoft Teams is optimized with HDX.

### **Dynamic e911**

Starting With the 2112 version, Citrix Workspace app supports dynamic emergency calling. When used in Microsoft Calling Plans, Operator Connect, and Direct Routing, it allows you to do the following:

- Configure and route emergency calls.
- Notify security personnel.

Notification is provided based on the current location of the Citrix Workspace app running on the endpoint. It is not sent based on the Microsoft Teams client that runs on the VDA. Ray Baum's law requires the 911 caller's dispatchable location to be transmitted to the appropriate Public Safety Answering Point (PSAP). Starting from Citrix Workspace app 2112.1 for Windows, Microsoft Teams Optimization with HDX is compliant with Ray Baum's law. For more information about this feature, see [Support for dynamic e911](#) in the section **Microsoft Phone System**.

### **Request control in Microsoft Teams**

Starting with the 2112 version, you can request control during a Microsoft Teams call when a participant is sharing the screen. Once you have control, you can make selections, edits, or other modifications to the shared screen.

To take control when a screen is being shared, click **Request control** at the top of the Microsoft Teams screen. The meeting participant who's sharing the screen can either allow or deny your request. When you're done, click **Release control**.

#### **Limitation:**

The **Request Control** option isn't available during peer-to-peer calls between an optimized user and a user on the native Microsoft Teams desktop client that is running on the endpoint. As a workaround, users can join a meeting to get the **Request Control** option.

### **Give or take control in Microsoft Teams**

Starting with the 2203.1 version, you can use the **Give control** button to give control of your shared screen to other users participating in the meeting. The other participants can make selections and modify the shared screen through keyboard, mouse, and clipboard input. You both now have the control of the shared screen and you can take back the control anytime.

To take control during screen sharing sessions, any participant can request control access through the **Request control** button. The person sharing the screen can then approve or deny the request. When you have the control, you can control the keyboard and mouse input on the screen shared and release the control to stop sharing control.

**Note:**

This feature is available only after the roll-out of a future update from Microsoft Teams.

### **Multi-window chat and meetings for Microsoft Teams**

Starting with the 2203.1 version, you can use multiple windows for chat and meetings in Microsoft Teams (1.5.00.5967 or higher) when optimized by HDX in Citrix Virtual Apps and Desktops and Citrix DaaS. Users can pop out their conversations or meetings in various ways. For details on the pop-out window feature, see [Microsoft Teams Pop-Out Windows for Chats and Meetings](#) on the Microsoft Office 365 site.

If you're running an older version of Citrix Workspace App or VDA, Microsoft can deprecate the single-window code in the future. However, you have a minimum of nine months to upgrade to a version of the VDA/CWA that supports multiple windows (2203 or later).

**Note:**

This feature is available only after the roll-out of a future update from Microsoft Teams. Got more details, see the [Microsoft 365 roadmap](#).

### **Share apps using the 'Share content' feature in Microsoft Teams**

Starting with the 2203.1 version, you can share individual applications, windows, or full screen using the screen sharing feature in Microsoft Teams. Citrix Virtual Delivery Agent 2109 is a prerequisite for this feature.

To show a specific application, click **Share content** in your meeting controls and select the application of interest. After a red border appears around the app you select, peers on the call can see your app. If you minimize the app, Microsoft Teams displays the last image from the shared app. Maximize the window to resume sharing.

## Enhancements to Optimized Microsoft Teams

In optimized Microsoft Teams, you can now use the video function when more than one virtual desktop or app session is in use.

## App Protection compatibility with HDX optimization for Microsoft Teams

Starting with the 2204 version, full monitor or desktop sharing is disabled when App Protection is enabled for the delivery group. When you click **Share content** in Microsoft Teams, the screen picker removes the **Desktop** option. You can only select the Window option to share any open app, if the VDA is 2109 or higher. If you're connected to VDA older than 2019, no content is selectable.

## Deprecation announcement of the SDP format (Plan B) from WebRTC

Citrix is planning to deprecate the current SDP format (Plan B) support from WebRTC in future releases. You must use a version of Citrix Workspace app that supports the Unified Plan to continue using certain optimized Microsoft Teams functionalities.

## HDX transport

March 28, 2024

### Enlightened Data Transport (EDT)

By default, EDT is enabled in Citrix Workspace app for Mac.

Citrix Workspace app for Mac reads the **EDT** settings as set in the default.ica file and applies it.

To disable EDT, run the following command in a terminal:

```
defaults write com.citrix.receiver.nomas HDXOverUDPAllowed -bool NO
```

### **Maximum Transmission Unit (MTU) discovery in Enlightened Data Transport (EDT)**

Starting with the 2108 version, Citrix Workspace app for Mac supports Maximum Transmission Unit (MTU) discovery in Enlightened Data Transport (EDT). It increases the reliability and compatibility of the EDT protocol and provides an improved user experience.

**Note:**

EDT MTU discovery is supported on macOS Big Sur and later.

### **Improved network congestion control**

Starting with the 2308 version, the Citrix-proprietary transport protocol called Enlightened Data Transport (EDT) is improved to efficiently control network congestion. This feature improves data throughput and reduces latency.

### **Upgraded HDX Reducer to Version 4**

Previously, Citrix Workspace app for Mac supported HDX Reducer V3. Starting with the 2402 version, Citrix Workspace app for Mac supports HDX Reducer V4. This feature reduces the network bandwidth required for a typical session and improves response time.

## **Devices**

January 19, 2024

This section describes about the features supports for the following devices:

- [Audio and Microphone](#)
- [Client drive-mapping](#)
- [Keyboard](#)
- [Printing](#)
- [USB](#)
- [Webcam](#)

## **Audio and Microphone**

April 11, 2024



## **Adaptive audio**

You don't need to configure the audio quality policies on the VDA with the Adaptive audio feature. Adaptive audio optimizes settings for your environment and replaces legacy audio compression formats to provide an excellent user experience. For more information, see [Adaptive Audio](#).

## **Improved audio echo cancellation support**

Citrix Workspace app supports echo cancellation in adaptive audio and legacy audio codecs. This feature is designed for real-time audio use cases, and it improves the user experience. Citrix recommends using adaptive audio.

## **Client-side microphone input**

Citrix Workspace app for Mac supports multiple client-side microphone inputs. You can use locally installed microphones for:

- Live events, such as softphone calls and Web conferences.
- Hosted recording applications, such as dictation programs.
- Video and audio recordings.

Digital dictation support is available with Citrix Workspace app for Mac.

You can choose how to use your microphone and webcam with the virtual app and desktop sessions. To apply access type to your microphone and webcam, select any of the following access types as per your requirement on the **Mic & Webcam** tab in the **Preferences** settings:

- **Use my microphone and webcam** - Provides access to microphone and webcam when it's connected.
- **Dont use my microphone and webcam** - No access to microphone and webcam.
- **Ask me each time** - Request permission each time when microphone and webcam access is required.

To apply a background blur effect when using the webcam, select **Turn on background blur effect when using webcam**.

## **Support for multiple audio devices**

Starting with the 2311 release, Citrix Workspace app for Mac displays all available local audio devices in a session with their names. In addition, plug-and-play is also supported.

## Store-based configuration of microphone and webcam access

Starting with the 2307 version, the microphone and webcam access per store are included as part of the client-selective trust feature. This enhancement allows you to provide access to a microphone and webcam on a per store basis.

To enable microphone and webcam access for a store, you must select **Preferences > Mic & Webcam**. In the **Mic & Webcam** tab, select the store and the type of access required for that store.

## Support for audio volume synchronization

Previously, audio volume control is independent between the Virtual Delivery Agent (VDA) and your device. You've to adjust the volume on both sides to maintain the desired volume. Also, if you've muted the volume in your device, then it restricts to unmute the volume in the VDA.

Starting with the 2402 version, Citrix Workspace app for Mac supports synchronization of audio volume between the VDA and your audio devices. You can now tune the volume using the VDA audio volume slider and have the same volume on your device and the other way around. By default, this feature is enabled.

To enable this feature, you need to use VDA version 2308 or later. For more information, see [audio volume synchronization](#) in the Citrix Virtual Apps and Desktops documentation.

To disable this feature through Mobile Device Management (MDM), administrators must use the following settings:

```
<key>EnableVolumeSync</key><false/>
```

Restart the session for the changes to take effect.

## Loss tolerant mode for audio

Starting with the 2402 version, Citrix Workspace app supports loss tolerant mode (EDT lossy) for audio redirection. This feature improves the user experience for real-time streaming when users are connecting through networks with high latency and packet loss. By default, this feature is enabled.

To enable this feature, you need to use VDA version 2311 or later. For more information, see [Support for audio over loss-tolerant mode \(Preview\)](#) in the Citrix Virtual Apps and Desktops documentation.

To disable this feature through Mobile Device Management (MDM), administrators must use the following settings:

```
<key>EdtUnreliableAllowed</key><false/>
```

Restart the session for the changes to take effect.

## Client drive mapping


January 19, 2024

During the session, Client drive mapping allows you to access local drives on the user hardware device. The user hardware devices can be CD-ROM drives, DVDs, and USB memory sticks. When a server configuration allows client drive mapping, you can access locally stored files and work on them during sessions. You can also save them either on a local drive or on a drive on the server.

Citrix Workspace app for Mac monitors the directories in which user hardware devices are typically mounted on the user device. It can automatically map any new ones that appear during a session to the next available drive letter on the server.

You can configure the level of read and write access for mapped drives using the Citrix Workspace app for Mac preferences.

### To configure read and write access for mapped drives

1. On the Citrix Workspace app for Mac home page, click the down arrow icon , and then click **Preferences**.
2. Click **File Access**.
3. Select the level of read and write access for mapped drives from the following options:
  - Read and Write
  - Read only
  - No access
  - Ask me each time
4. Log off from any open sessions and reconnect to apply the changes.

## Keyboard

March 28, 2024

### Keyboard layout synchronization

Keyboard layout synchronization enables you to switch between the preferred keyboard layouts on the client device. This feature is disabled by default. After you enable this feature, the client keyboard layout automatically synchronizes to the virtual apps and desktops.

To enable keyboard layout synchronization, go to **Preferences > Keyboard** and select “Use local keyboard layout, rather than the remote server keyboard layout.”

**Note:**

1. Using the local keyboard layout option activates the client IME (Input Method Editor). Users working in Japanese, Chinese, or Korean can use the server IME. They must disable the local keyboard layout option by clearing the option in **Preferences > Keyboard**. The session will revert to the keyboard layout provided by the remote server when they connect to the next session.
2. The feature works in the session only when the toggle in the client is turned on and the corresponding feature enabled on the VDA. A menu item, “**Use Client Keyboard Layout,**” in **Devices > Keyboard > International** is added to show the enabled state.

Starting with version 2210, Citrix Workspace app for Mac supports three different keyboard layout synchronization modes:

- **Sync only once - when session starts** –Based on the CTXIME value in the [Config](#) file, the client keyboard layout is synchronized to the server when the session launches. Any changes you make to the client keyboard layout during the session do not take effect immediately. To apply the changes, sign out and sign in to the app. The Sync only once - when session starts mode is the default keyboard layout for the Citrix Workspace app on Mac.
- **Allow dynamic sync** - This option synchronizes the client keyboard layout to the server when you change the client keyboard layout.
- **Don't sync** - Indicates that the client uses the keyboard layout present on the server.

### Prerequisites

- Enable the Unicode Keyboard Layout Mapping feature on the Windows VDA. For more information, see Knowledge Center article [CTX226335](#).
- Enable the Dynamic Keyboard layout sync feature on the Linux VDA. For more information, see [Dynamic keyboard layout synchronization](#).
- When using Windows Server 2016 or Windows Server 2019, navigate to the **HKEY\_LOCAL\_MACHINE\Software** registry path and add a **DWORD** value with the key name **DisableKeyboardSync** and set the value to **0**.

### Configure keyboard layout

Citrix Workspace app for Mac provides the UI to configure the three different keyboard layout synchronization modes.

To configure keyboard layout synchronization using the GUI:

1. From the Citrix Workspace app icon in the menu bar, click the account icon in the top-right corner and navigate to **Preferences > Keyboard**.

The Keyboard layout synchronization settings appear.

2. Select from one of the following options:
  - **Sync only once** - when session starts - Indicates that the keyboard layout is synced to the VDA only once at the session launch. Unicode keyboard input mode is the recommended option for the Sync only once –when the session starts
  - **Allow dynamic sync** - Indicates that the keyboard layout is synced dynamically to the VDA when the client keyboard is changed in a session. Unicode keyboard input mode is the recommended option for the Allow dynamic sync mode.
  - **Don't sync** - Indicates that the client uses the keyboard layout present on the server, irrespective of the keyboard layout that is selected in the client. Scancode keyboard input mode is the recommended option for **Don't sync**. You must make sure that the client keyboard layout is the same as the keyboard layout on the VDA if you select Unicode for the **Don't Sync** option.

## Limitations

- Using the keyboard layouts listed in “**Supported Keyboard Layouts in Mac**” works while using this feature. When you change the client keyboard layout to a non-compatible layout, the layout might be synced on the VDA side, but functionality can't be confirmed.
- Remote apps that run with elevated privileges can't be synchronized with the client keyboard layout. To work around this issue, manually change the keyboard layout on the VDA or disable UAC.
- When a user is working within an RDP session, it's not possible to change the keyboard layout using the **Alt + Shift** shortcuts when RDP is deployed as an app. As a workaround, you can use the language bar in the RDP session to switch the keyboard layout.

## Keyboard layout support for Windows VDA

---

Language on Mac	Input Source on Mac	Applicable Mac OS version
English	ABC	All
English	ABC - India	All

<b>Language on Mac</b>	<b>Input Source on Mac</b>	<b>Applicable Mac OS version</b>
English	U.S.	All
English	U.S. International - PC	All
English	Dvorak	All
English	Dvorak - Left-Handed	All
English	Dvorak - Right-Handed	All
English	British	All
English	British - PC	All
English	Canadian English	All
English	Australian	All
English	Irish	All
French	French	All
French	French - Numerical	All
French	Canadian French - CSA	11, 12
French	Canadian –CSA	13
French	Swiss French	All
French	French - PC	All
German	German	All
German	Austrian	All
German	Swiss German	All
Spanish	Spanish	All
Spanish	Spanish - ISO	10,11
Spanish	Spanish –Legacy	12,13
Spanish	Latin American	All
Swedish	Swedish	All
Swedish	Swedish –Legacy	12,13
Swedish	Swedish - Pro	10, 11
Czech	Czech	All
Danish	Danish	All
Finnish	Finnish	All

<b>Language on Mac</b>	<b>Input Source on Mac</b>	<b>Applicable Mac OS version</b>
Hungarian	Hungarian	All
Italian	Italian	All
Italian	Italian - Typewriter	10,11
Italian	Italian –QZERTY	12,13
Greek	Greek	All
Dutch	Belgian	All
Dutch	Dutch	All
Russian	Russian	All
Russian	Russian - PC	All
Croatian	Croatian - PC	All
Slovak	Slovak	All
Slovak	Slovak - QWERTY	All
Turkish	Turkish F	All
Turkish	Turkish Q	All
Portuguese	Brazilian	All
Portuguese	Brazilian - ABNT2	All
Portuguese	Brazilian –Legacy	12,13
Portuguese	Brazilian - Pro	10,11
Portuguese	Portuguese	All
Ukrainian	Ukrainian - PC	10,11
Ukrainian	Ukrainian	12,13
Belarusian	Belarusian	All
Slovenian	Slovenian	All
Estonian	Estonian	All
Latvian	Latvian	All
Polish	Polish - Pro	10,11
Polish	Polish	12,13
Icelandic	Icelandic	All
Norwegian	Norwegian	All

<b>Language on Mac</b>	<b>Input Source on Mac</b>	<b>Applicable Mac OS version</b>
Japanese	Katakana	All
Japanese	Half-width Katakana	All
Japanese	Romaji	All
Japanese	Full-width Romaji	All
Japanese	Hiragana	All
Japanese	Alphanumeric (Google)	All
Japanese	Hiragana (Google)	All
Japanese	Katakana (Google)	All
Japanese	Half-width Katakana (Google)	All
Japanese	Full-width Alphanumeric (Google)	All
Korean	2-Set Korean	All
Chinese, Simplified	Pinyin - Simplified	All
Chinese, Simplified	Sogou pinyin	All
Chinese, Traditional	Pinyin - Traditional	All
Chinese, Traditional	Cangjie - Traditional	All
Chinese, Traditional	Zhuyin - Traditional	All
Chinese, Traditional	Sucheng - Traditional	All

#### **Keyboard layout support for Linux VDA, Swiss French**

<b>Language on Mac</b>	<b>Input Source on Mac</b>	<b>Applicable Mac OS version</b>
English	ABC	All
English	ABC - India	All
English	U.S.	All
English	U.S. International - PC	All
English	Dvorak	All
English	Dvorak - Left-Handed	All
English	Dvorak - Right-Handed	All



<b>Language on Mac</b>	<b>Input Source on Mac</b>	<b>Applicable Mac OS version</b>
English	British	All
English	British - PC	All
English	Canadian English	All
English	Australian	All
English	Irish	All
French	French	All
French	French - Numerical	All
French	Canadian French - CSA	11, 12
French	Canadian –CSA	13
French	Swiss French	All
French	French - PC	All
German	German	All
German	Austrian	All
German	Swiss German	All
Spanish	Spanish	All
Spanish	Spanish - ISO	10,11
Spanish	Spanish –Legacy	12,13
Spanish	Latin American	All
Bulgarian	Bulgarian	10,11,12
Bulgarian	Bulgarian –Standard	13
Swedish	Swedish	All
Swedish	Swedish –Legacy	12,13
Swedish	Swedish - Pro	10, 11
Czech	Czech	All
Danish	Danish	All
Finnish	Finnish	All
Hungarian	Hungarian	All
Italian	Italian	All
Italian	Italian - Typewriter	10,11

<b>Language on Mac</b>	<b>Input Source on Mac</b>	<b>Applicable Mac OS version</b>
Italian	Italian –QZERTY	12,13
Greek	Greek	All
Belgian	Belgian	All
Dutch	Dutch	All
Romanian	Romanian - Standard	All
Russian	Russian	All
Russian	Russian - PC	All
Croatian	Croatian - PC	All
Slovak	Slovak	All
Slovak	Slovak - QWERTY	All
Turkish	Turkish F	All
Turkish	Turkish Q	All
Portuguese	Brazilian	All
Portuguese	Brazilian - ABNT2	All
Portuguese	Brazilian –Legacy	12,13
Portuguese	Brazilian - Pro	10,11
Portuguese	Portuguese	All
Ukrainian	Ukrainian - PC	10,11
Ukrainian	Ukrainian	12,13
Belarusian	Belarusian	All
Slovenian	Slovenian	All
Estonian	Estonian	All
Polish	Polish - Pro	10,11
Polish	Polish	12,13
Icelandic	Icelandic	All
Norwegian	Norwegian	All
Japanese	Katakana	All
Japanese	Half-width Katakana	All
Japanese	Romaji	All

Language on Mac	Input Source on Mac	Applicable Mac OS version
Japanese	Full-width Romaji	All
Japanese	Hiragana	All
Japanese	Alphanumeric (Google)	All
Japanese	Hiragana (Google)	All
Japanese	Katakana (Google)	All
Japanese	Half-width Katakana (Google)	All
Japanese	Full-width Alphanumeric (Google)	All
Korean	2-Set Korean	All
Chinese, Simplified	Pinyin - Simplified	All
Chinese, Simplified	Sogou pinyin	All
Chinese, Traditional	Pinyin - Traditional	All
Chinese, Traditional	Cangjie - Traditional	All
Chinese, Traditional	Zhuyin - Traditional	All
Chinese, Traditional	Sucheng - Traditional	All

By default, the keyboard layout synchronization feature is turned on. To control this feature alone, open the **Config** file in the `~/Library/Application Support/Citrix Receiver/` folder, locate the “**EnableIMEEnhancement**” setting and turn the feature on or off by setting the value to “true” or “false,” respectively.

**Note:**

The setting change takes effect after restarting the session.

## Keyboard input mode enhancements

Citrix Workspace app for Mac provides the UI to configure the keyboard input mode.

To configure keyboard input mode by using the GUI, do the following:

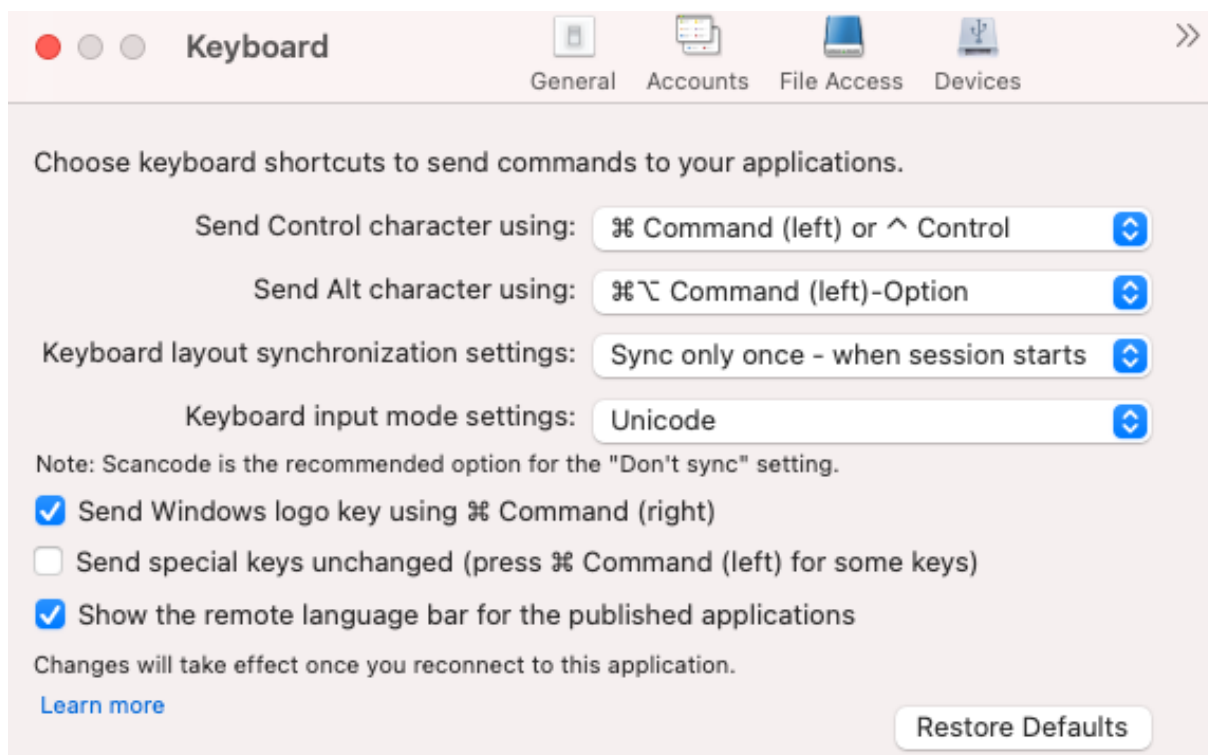
1. From the Citrix Workspace app icon in the menu bar, click the account icon in the top-right corner and navigate to **Preferences > Keyboard**.

The Keyboard input mode settings appear

2. Select from one of the following options:

- **Scancode** –Sends the key position from the client-side keyboard to VDA and VDA generates the corresponding character. Applies server-side keyboard layout.
- **Unicode** - Sends the key from the client-side keyboard to VDA and VDA generates the same character in VDA. Applies client-side keyboard layout.

This enhancement is enabled by default.



For example, consider a scenario where you’re using a US international keyboard layout and the VDA is using the Russian keyboard layout. When you choose **Scancode** and type the key next to **Caps Lock**, the scancode “1E” is sent to the VDA. The VDA then uses “1E” to display the character “ф”. If you choose **Unicode** and type the key next to **Caps Lock**, the character “a” is sent to the VDA. So, even if the VDA uses the Russian keyboard layout, the character “a” appears on the screen.

Citrix recommends the following keyboard input mode for the different keyboard layout sync options:

- Scancode mode for **Don’t Sync** option.
- Unicode mode for **Allow dynamic sync** and **Sync only once - when session starts**

**Note:**

The keyboard configuration changes take effect once you reconnect to the application.

You can change the configuration of Keyboard input mode in the Citrix Workspace app UI. However, for best performance, use the Citrix-recommended modes for different scenarios, physical keyboards,

and client devices.

## Language bar

You can choose to show or hide the remote language bar in an application session using the GUI. The language bar displays the preferred input language in a session. In earlier releases, you might change this setting using only the registry keys on the VDA. Starting with Citrix Workspace for Mac version 1808, you can change the settings using the **Preferences** dialog. The language bar appears in a session by default.

**Note:**

This feature is available in sessions running on VDA 7.17 and later.

## Configure showing or hiding the remote language bar

1. Open Preferences.
2. Click Keyboard.
3. Click or unclick Show the remote language bar for the published applications.

**Note:**

The setting changes take effect immediately. You can change the settings in an active session. The remote language bar does not appear in a session if there's only one input language.

## Support synchronization for more keyboard layouts

Starting with the 2304 version, Citrix Workspace app for Mac supports keyboard layout synchronization for the following layouts or Input Method Editors (IMEs):

- English ABC
- English ABC - India
- Chinese, Traditional: Zhuyin - Traditional
- Chinese, Traditional: Sucheng - Traditional
- Google Japanese IME
- Sougou Chinese IME

## Support for non-English-language Input Method Editors (IME) keyboard layouts

Support for non-English language IME keyboard layouts continues to work uninterrupted after the Carbon APIs are deprecated with the Cocoa APIs.

## Windows special keys

Citrix Workspace app for Mac provides several options and easier ways to substitute special keys such as function keys in Windows applications with Mac keys. Use the **Keyboard** tab to configure the options you want to use, as follows:

- **Send Control character using:** Lets you choose whether to send Command-character keystroke combinations as Ctrl+character key combinations in a session. Select “Command or Control” from the pop-up menu to send familiar Command-character or Ctrl-character keystroke combinations on the Mac as Ctrl+character key combinations to the PC. If you select Control, you must use Ctrl-character keystroke combinations.
- **Send Alt character using:** Lets you choose how to replicate the Alt key within a session. If you select Command-Option, you can send Command-Option and keystroke combinations as Alt+ key combinations within a session. Alternatively, if you select Command, you can use the Command key as the Alt key.
- **Send Windows logo key using Command (right):** Lets you send the Windows logo key to your remote desktops and applications when you press the Command key on the right side of the keyboard. If this option is disabled, the right Command key has the same behavior as the left Command key according to the above two settings in the preferences panel. However, you can still send the Windows logo key using the Keyboard menu; choose **Keyboard > Send Windows Shortcut > Start**.
- **Send special keys unchanged:** Lets you disable the conversion of special keys. For example, the combination Option-1 (on the numeric keypad) is equivalent to the special key F1. You can change this behavior and set this special key to represent 1 (the number one on the keypad) in the session. To do this, select the “Send special keys unchanged” checkbox. By default, this checkbox isn’t selected so Option-1 is sent to the session as F1.

You send the function and other special keys to a session using the **Keyboard** menu.

If your keyboard includes a numeric keypad, you can also use the following keystrokes:

PC key or action	Mac options
INSERT	0 (the number zero) on the numeric keypad. Num Lock must be off; you can turn this on and off using the <b>Clear</b> key; Option-Help
DELETE	Decimal point on the numeric keypad. Num Lock must be off; you can turn this on and off using the <b>Clear</b> key; Clear
F1 to F9	Option-1 to -9 (the numbers one to nine) on the numeric keypad

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PC key or action	Mac options
F10	Option-0 (the number zero) on the numeric keypad
F11	Option-Minus Sign on the numeric keypad
F12	Option-Plus Sign on the numeric keypad

---

## Windows shortcuts and key combinations

Remote sessions recognize most Mac keyboard combinations for text input, such as Option-G to input the copyright symbol ©. Some keystrokes you make during a session, however, do not appear on the remote application or desktop. The Mac operating system interprets them. This can result in keys triggering Mac responses instead.

You might also want to use certain Windows keys, such as Insert, that many Mac keyboards do not have. Similarly, some Windows 8 keyboard shortcuts display charms and app commands, and snap and switch apps. Mac keyboards do not mimic these shortcuts. However, these can be sent to the remote desktop or application using the **Keyboard** menu.

Keyboards and the ways keys are configured can differ widely between machines. Citrix Workspace app for Mac therefore offers several choices to ensure that keystrokes can be forwarded correctly to hosted applications and desktops. These keystrokes are listed in the table. The default behavior is described. If you adjust the defaults (using the Citrix Workspace app or other preferences), different keystroke combinations might be forwarded and other behavior might be observed on the Remote PC Access.

### Important

Certain key combinations listed in the table aren't available when using newer Mac keyboards. In most of these cases, keyboard input can be sent to the session using the Keyboard menu.

Conventions used in the table:

- Letter keys are capitalized and do not imply that the Shift key must be pressed simultaneously.
- Hyphens between keystrokes indicate that keys must be pressed together (for example, Control-C).
- Character keys create text input and include all letters, numbers, and punctuation marks. Special keys do not create input by themselves but act as modifiers or Controllers. Special keys include Control, Alt, Shift, Command, Option, arrow keys, and function keys.
- Menu instructions relate to the menus in the session.
- Depending on the configuration of the user device, some key combinations might not work as expected, and alternative combinations are listed.

- Fn refers to the Fn (Function) key on a Mac keyboard. The function key refers to F1 to F12 on either a PC or Mac keyboard.

Windows key or key combination	Mac equivalents
Alt+character key	Command–Option–character key (for example, to send Alt–C, use Command–Option–C)
Alt+special key	Option–special key (for example, Option–Tab); Command–Option–special key (for example, Command–Option–Tab)
Ctrl+character key	Command–character key (for example, Command–C); Control–character key (for example, Control–C)
Ctrl+special key	Control–special key (for example, Control–F4); Command–special key (for example, Command–F4)
Ctrl/Alt/Shift/Windows logo + function key	<b>Choose Keyboard &gt; Send Function key &gt; Control/Alt/Shift/Command–Function key</b>
Ctrl+Alt	Control–Option–Command
Ctrl+Alt+Delete	Control–Option–Fn–Command–Delete; Choose <b>Keyboard &gt; Send Ctrl-Alt-Del</b>
Delete	Delete; Choose <b>Keyboard &gt; Send Key &gt; Delete</b> ; Fn–Backspace (Fn–Delete on some US keyboards)
End	End; Fn–Right Arrow
Esc	Escape; Choose <b>Keyboard &gt; Send Key &gt; Escape</b>
F1 to F12	F1 to F12; Choose <b>Keyboard &gt; Send Function Key &gt; F1 to F12</b>
Home	Home; Fn–Left Arrow
Insert	Choose <b>Keyboard &gt; Send Key &gt; Insert</b>
Num Lock	Clear
Page Down	Page Down; Fn–Down Arrow



Windows key or key combination	Mac equivalents
Page Up	Page Up; Fn-Up Arrow
Spacebar	Choose <b>Keyboard &gt; Send Key &gt; Space</b>
Tab	Choose <b>Keyboard &gt; Send Key &gt; Tab</b>
Windows logo	Command (Right) key (a keyboard preference, enabled by default); Choose <b>Keyboard &gt; Send Windows Shortcut &gt; Start</b>
Key combination to display charms	Choose <b>Keyboard &gt; Send Windows Shortcut &gt; Charms</b>
Key combination to display app commands	Choose <b>Keyboard &gt; Send Windows Shortcut &gt; App Commands</b>
Key combination to snap apps	Choose <b>Keyboard &gt; Send Windows Shortcut &gt; Snap</b>
Key combination to switch apps	Choose <b>Keyboard &gt; Send Windows Shortcut &gt; Switch Apps</b>

---

## Use Input Method Editors (IME) and international keyboard layouts

Citrix Workspace app for Mac allows you to use an Input Method Editor (IME) on either the user device or on the server.

When client-side IME is enabled, users can compose text at the insertion point rather than in a separate window.

Citrix Workspace app for Mac also allows users to specify the keyboard layout they want to use.

### To enable client-side IME

1. From the Citrix Viewer menu bar, choose **Keyboard > International > Use Client IME**.
2. Ensure that the server-side IME is set to direct input or alphanumeric mode.
3. Use the Mac IME to compose text.

### To indicate explicitly the starting point when composing text

- From the Citrix Viewer menu bar, choose **Keyboard > International > Use Composing Mark**.

### To use server-side IME

- Ensure that the client-side IME is set to alphanumeric mode.

### Mapped server-side IME input mode keys

Citrix Workspace app for Mac provides keyboard mappings for server-side Windows IME input mode keys that aren't available on Mac keyboards. On Mac keyboards, the **Option** key is mapped to the following server-side IME input mode keys, depending on the server-side locale:

---

Server-side system locale	Server-side IME input mode key
Japanese	Kanji key (Alt + Hankaku/Zenkaku in Japanese keyboard)
Korean	Right-Alt key (Hangul/English toggle on Korean keyboard)

---

### To use international keyboard layouts

- Ensure both client-side and server-side keyboard layouts are set to the same locale as the default server-side input language.

### Restore default keyboard settings

If you had previously modified the keyboard preferences in the Citrix Workspace app, you can now restore the default keyboard settings. To restore the keyboard settings to its default values, open the Citrix Workspace app and navigate to **Preferences > Keyboard**. Then, click **Restore Defaults** and click **Yes** to confirm.

### Deprecation of International menu from the keyboard settings

Previously, you can enable or disable the **Use Client IME, Use Composing Mark and Use Client keyboard layout** features in the Citrix viewer by navigating to **Devices > Keyboard>International**.

From the 2311 version, the **International** menu for the keyboard settings in the Citrix Viewer is deprecated. From this version, the client-side IME is enabled by default.

## Support for system shortcuts on HDX desktop sessions

Previously, the system keyboard shortcuts such as **Option-Command-ESC**, **Command-Space bar**, **Command-Tab**, **Control-Command-Q**, **Shift-Command-Q**, **Control Up/Down/Left/Right** took effect only on macOS locally since they were consumed by macOS at first.

Starting with the 2402 version, Citrix Workspace app for Mac supports passing the macOS system keyboard shortcuts to the VDA (HDX session) in window mode and full-screen mode. This feature allows you to set preferences on how the system shortcut must take effect on macOS locally or the HDX desktop session in window or full-screen mode.

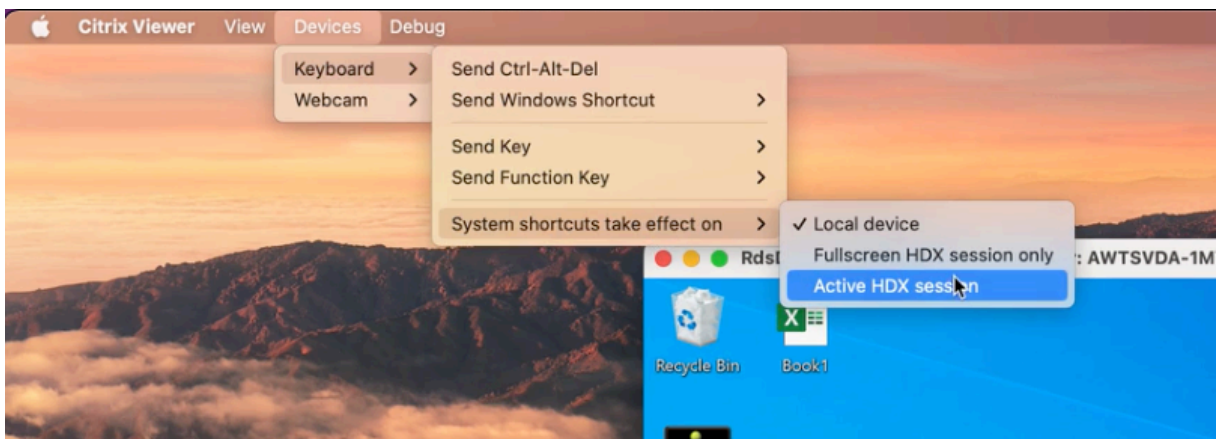
The following options in the keyboard settings allow you to control the system shortcuts:

- **Local device:** The system shortcuts can take effect only on macOS locally. It does not affect the HDX session. The **Local device** option is the default option.
- **Fullscreen HDX session only:** The system shortcuts take effect on HDX sessions when the session is in full-screen mode. If the session is in window mode or there are no active sessions, then the system shortcuts have no effect on HDX sessions.
- **Active HDX session:** The system shortcuts take effect on HDX sessions when the session is in window mode and full-screen mode. If there is no active HDX session or the active session window on the front, then the system shortcuts can take effect only on the macOS locally.

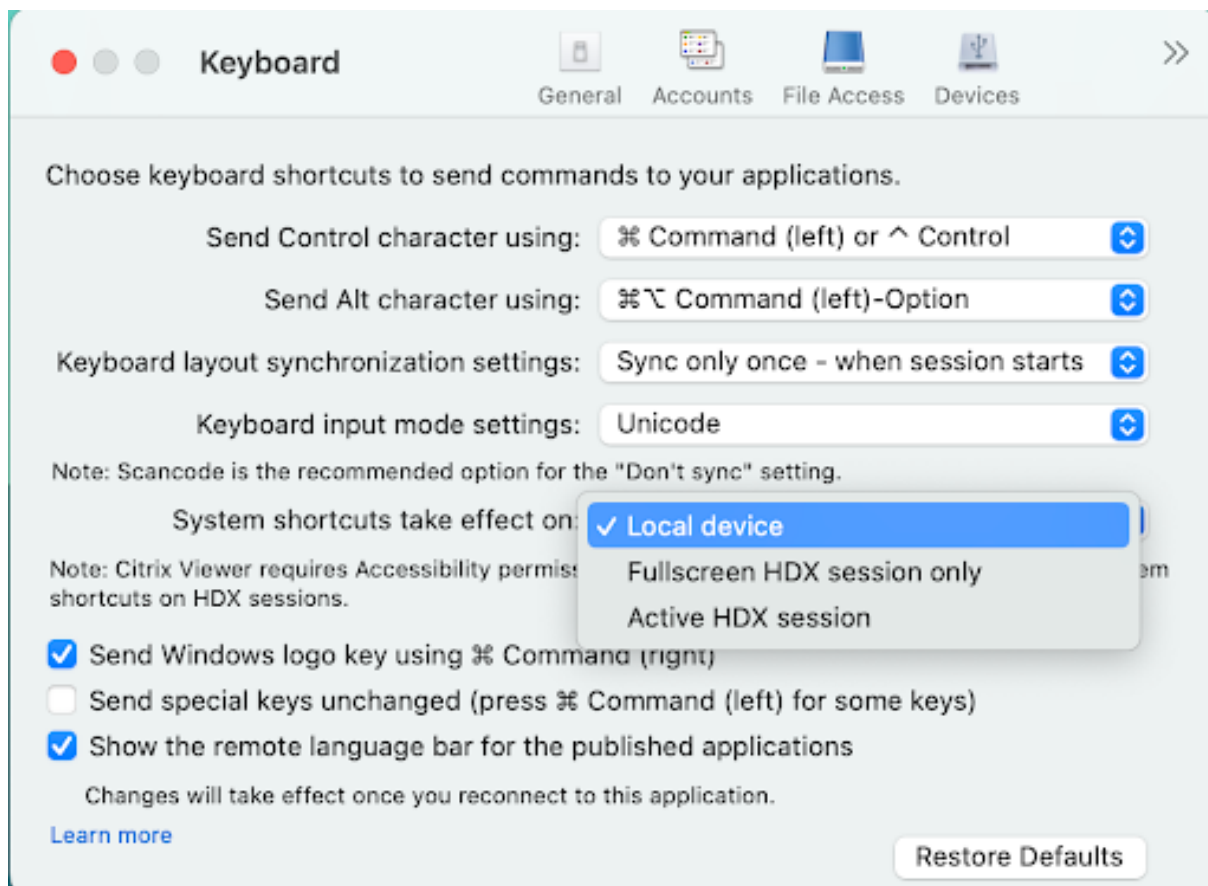
To enable the system shortcuts to take effect on the HDX session, open the HDX session. In the **Citrix Viewer** menu bar, navigate to **Devices > Keyboard > System shortcuts take effect on** and select **Fullscreen HDX session only** or **Active HDX session**.

### Note:

When enabling system shortcuts for HDX sessions, you are prompted to provide accessibility access to Citrix Viewer to use this feature. To provide accessibility access to **Citrix Viewer**, click **Open System Settings** in the dialog box and enable accessibility access to **Citrix Viewer**. For more information, see [Allow accessibility apps to access your Mac](#) in the Apple support article.



Alternatively, you can enable the system shortcuts to take effect on HDX sessions in full-screen or window mode by navigating to **Preferences > Keyboard**. Select **Fullscreen HDX session only** or **Active HDX session** options from the **System shortcuts take effect on** drop-down menu.



## Printing

January 19, 2024

Starting with the 2203.1 release, you can use PDF universal printing when printing from a Mac device. If you choose to use PDF Universal Printing, you no longer need to install the HP Color LaserJet 2800 Series PS driver when auto-creating printers with Universal Print Driver.

### PostScript Printing

By default, the auto-redirected client printers are created with the Citrix UPD with PostScript support. For more information, see support article [CTX296662](#).

Verify the settings for the Universal Print Driver Priority, Universal Print Driver Usage, and Client Printer Redirection are all set to default. Also ensure that you've installed the HP Color LaserJet 2800 Series PS driver on the VDA.

For more information about installing the driver, see support article [CTX140208](#).

## PDF Universal Printing

### Prerequisites:

- Citrix Workspace app for Mac version 2112 or later - Enables consumption of PDF print streams for Citrix Workspace app for Mac.
- Citrix Virtual Apps and Desktops version 2112 or later - Enables PDF universal printing for auto-created client printers.
- Enable the Client printer redirection policy in the Citrix Studio or web console.

✓	> Auto-create PDF Universal Printer User setting -ICA\Printing\Client Printers Enabled (Default: Disabled)	Edit	Unselect
✓	> Auto-create client printers User setting -ICA\Printing\Client Printers Auto-create all client printers (Default: Auto-create all client printers)	Edit	Unselect
✓	> Client printer redirection User setting -ICA\Printing Allowed (Default: Allowed)	Edit	Unselect
✓	> Universal driver preference **** User setting -ICA\Printing\Drivers EMF,XPS,PCL5c,PCL4,PDF,PS (Default: EMF;XPS;PCL5c;PCL4;PS)	Edit	Unselect
✓	> Universal print driver usage User setting -ICA\Printing\Drivers Use universal printing only if requested driver is unavailable (Default: Use u...	Edit	Unselect

\*\*\*\* "PDF" needs to be added manually if absent from the Universal Driver Preference policy

You can print via PDF once you configure either or both of the following options:

1. Provide a single PDF Universal Printer created in each session.
2. Use the UPD for regular auto-created printers.

### Provide a single PDF Universal Printer created in each session

To enable creation of the **PDF Universal Printer** in sessions from a Mac client or any other PDF enabled client endpoint, go to Citrix Studio or the web console and enable the **Auto-Create PDF uni-**

**versal printer** policy.

Once the policy is enabled, the PDF universal printer is created in the session. The printer is called **Citrix PDF Printer**.

Use this printer in a session to generate a PDF output that delivers to the client. Also, send the pdf output to the default PDF handling application on the endpoint. For the macOS client, this PDF handling application is typically the built-in **Preview** application, but it could be any registered PDF handling application such as Adobe Acrobat Reader.

### **Use the UPD for regular auto-created printers**

To enable PDF universal printing for all redirected client printers in a session, visit Citrix Studio or a web console from a Mac client. Then, configure the Universal print driver priority policy to place the [PDF](#) metafile format in before [PS](#) within the priority list.

After this configuration, the Citrix PDF Universal Driver replaces the HP Color LaserJet 2800 Series PS driver on the host for automatically created printers. The automatically created printers use a universal driver with a Mac client that can print PDFs.

When using one of the auto-created printers in a session, PDF is used as the intermediate format of the print job. But the print output flows directly to the selected client-attached printer.

## **USB**

January 19, 2024

### **USB redirection**

HDX USB device redirection enables redirection of USB devices to and from a user device. A user can connect a flash drive to a local computer and access it remotely from a virtual desktop or a desktop hosted application.

During a session, users can plug and play devices, including Picture Transfer Protocol (PTP) devices. For example:

- Digital cameras, Media Transfer Protocol (MTP) devices such as digital audio players or portable media players
- Point-of-sale (POS) devices, and other devices such as 3D Space Mice, Scanners, Signature Pads and so on.

**Note:**

Double-hop USB is not supported for desktop-hosted application sessions.

USB redirection is available for the following:

- Windows
- Linux
- Mac

By default, USB redirection is allowed for certain classes of USB devices, and denied for others. To restrict the types of USB devices made available to a virtual desktop, update the list of USB devices supported for redirection. More information is provided later in this section.

**Tip**

Where security separation between the user device and server is needed, ensure that you inform users about the types of USB devices to avoid.

Optimized virtual channels are available to redirect most popular USB devices, and provide superior performance and bandwidth efficiency over a WAN. Optimized virtual channels are usually the best option, especially in high latency environments.

**Note:**

For USB redirection purposes, Citrix Workspace app for Mac handles a SMART board the same as a mouse.

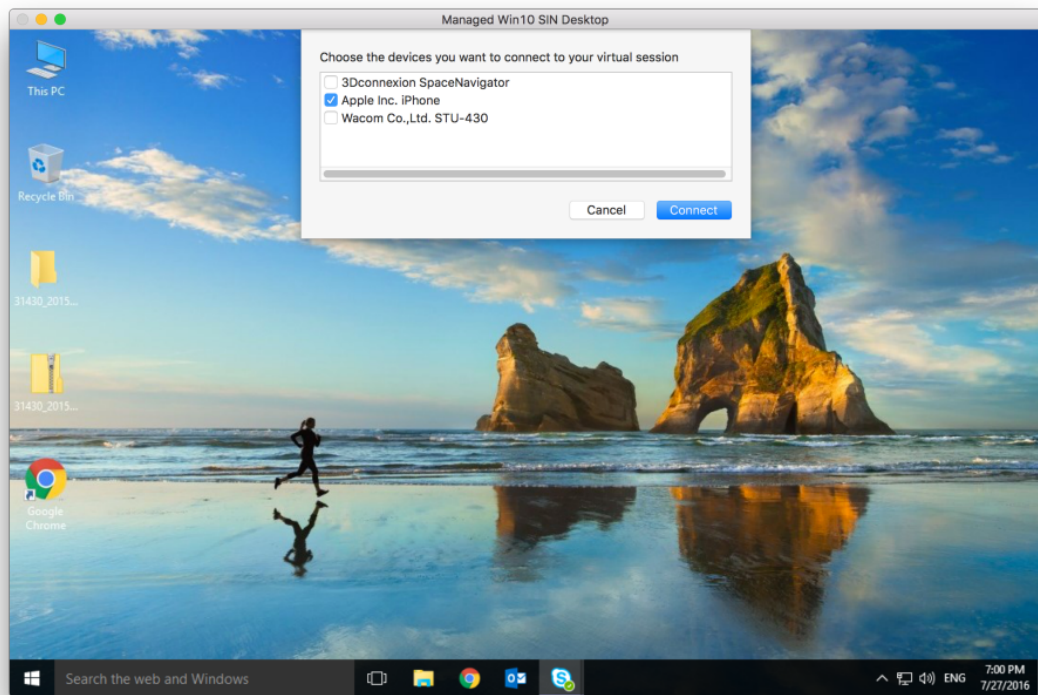
The product supports optimized virtual channels with USB 3.0 devices and USB 3.0 ports. For example, a CDM virtual channel is used to view files on a camera or to provide audio to a headset. The product also supports Generic USB Redirection of USB 3.0 devices connected to a USB 2.0 port.

Some advanced device-specific features, such as Human Interface Device (HID) buttons on a webcam, might not work as expected with the optimized virtual channel. Use the Generic USB virtual channel as an alternative.

Certain devices are not redirected by default, and are only available to the local session. For example, it would not be appropriate to redirect a NIC that is directly attached via internal USB.

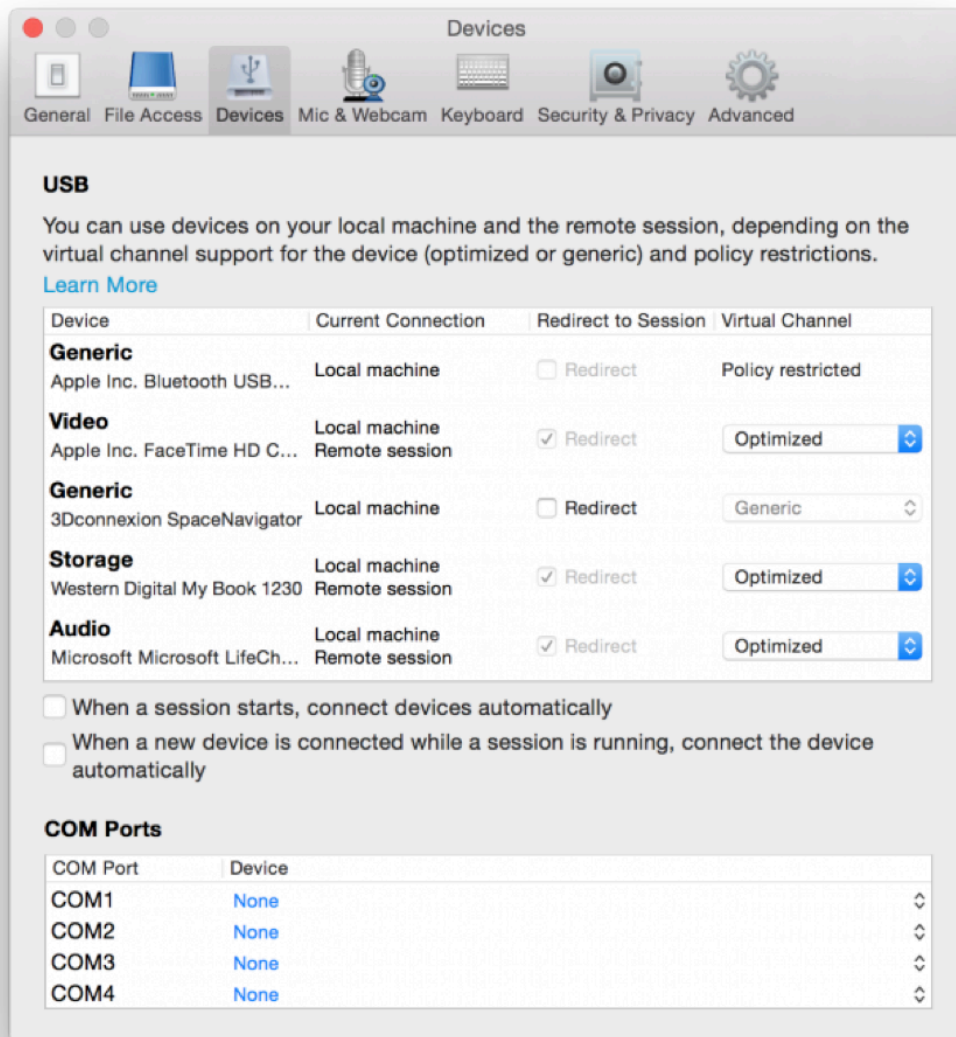
To use USB redirection:

1. Connect the USB device to the device where Citrix Workspace app for Mac is installed.
2. You are prompted to select the available USB devices on your local system.

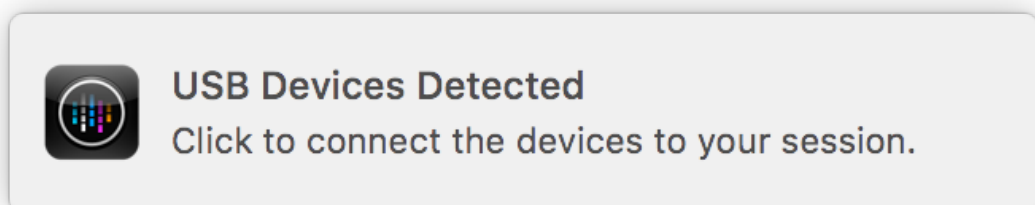


3. Select the device you want to connect and click **Connect**. If the connection fails, an error message appears.
4. In the **Preferences** window **Devices** tab, the connected USB device is listed in the USB panel:





5. Select the type of virtual channel (Generic or Optimized) for the USB device.
6. A message is displayed. Click to connect the USB device to your session:



## Use and remove USB devices

Users can connect a USB device before or after starting a virtual session. When using Citrix Workspace app for Mac, the following apply:

- Devices connected after a session starts immediately appear in the USB menu of the Desktop Viewer.
- If a USB device is not redirecting properly, sometimes you can resolve the problem by waiting to connect the device until after the virtual session has started.
- To avoid data loss, use the **Windows Safe** removal menu before removing the USB device.

## Supported USB devices

With Apple announcing the deprecation of Kernel Extensions (KEXT), Citrix Workspace app for Mac migrated to the new user mode USB framework `IOUSBHost` provided by Apple. This article lists the supported USB devices.

**USB devices that are compatible with USB redirection** The following USB devices work seamlessly with USB redirection:

- 3DConnexion SpaceMouse
- Mass Storage Devices
- Kingston DataTraveler USB Flash Drive
- Seagate external HDD
- Kingston/Transcend Flash drive 32 GB/64 GB
- NIST PIV smartcard /reader
- YubiKey

**USB devices that fail with USB redirection** The **Transcend SSD external Hard disk** device is not compatible with USB redirection:

**Unverified USB Devices** There are plenty of devices, unverified by Citrix, for successful USB redirection with Citrix Workspace app for Mac. Here are some of these devices:

- Other Hard Disks
- Special Keys on the keyboard and headsets that use a custom HID protocol

### **Support for Mass Storage devices**

We have seen that not all types of Mass Storage devices can be redirected successfully. For the devices which fail to redirect, there is an optimized virtual channel called Client Drive mapping. Using the Client Drive mapping, access to the mass storage devices can be controlled through the policies on the delivery controller.

**Support for Isochronous devices** Generic USB redirection doesn't support the Isochronous class of USB devices in Citrix Workspace app for Mac. The isochronous mode of data transfer in a USB specification indicates devices that stream the timestamped data at a constant rate. For example: WebCams, USB Headphones, and so on

**Support for Composite devices** A USB composite device is a single gadget that can perform more than one function. For example: multi-function printers, iPhone, and so on. Currently, Citrix Workspace app for Mac does not support redirection of composite devices to the Citrix Virtual Apps and Desktops and Citrix DaaS session.

**Alternatives for unsupported USB devices** There are optimized virtual channels that can handle devices that are not supported with generic USB redirection. These virtual channels are optimized for speed when compared to generic USB redirection. Some examples are as follows:

- **Webcam redirection:** Optimized for raw webcam traffic. Microsoft Teams Optimization Pack has its own method of webcam redirection. Hence, it does not fall under the Webcam redirection virtual channel.
- **Audio redirection:** Optimized to transfer Audio streams.
- **Client Drive Mapping:** Optimized for redirecting mass storage devices to the Citrix Virtual Apps and Desktops and Citrix DaaS (formerly Citrix Virtual Apps and Desktops service) session. For example: Flash Drives, Hard Disks, DVD ROM/RW, and so on.

## **Webcam**

March 28, 2024

### **Support for continuity camera**

Starting with the 2305 version, you can use the iPhone as your webcam with the continuity camera. For a seamless connection, mount your iPhone such that its camera is available to the Mac device.

You must select **Webcam > Automatic Camera Selection** for the iPhone to appear automatically on the Mac device as an external camera. You can switch to any other camera manually, for example by selecting **Webcam > FaceTime HD Camera**. The Continuity Camera works wired or wirelessly and provides a high-quality image.

### Prerequisites

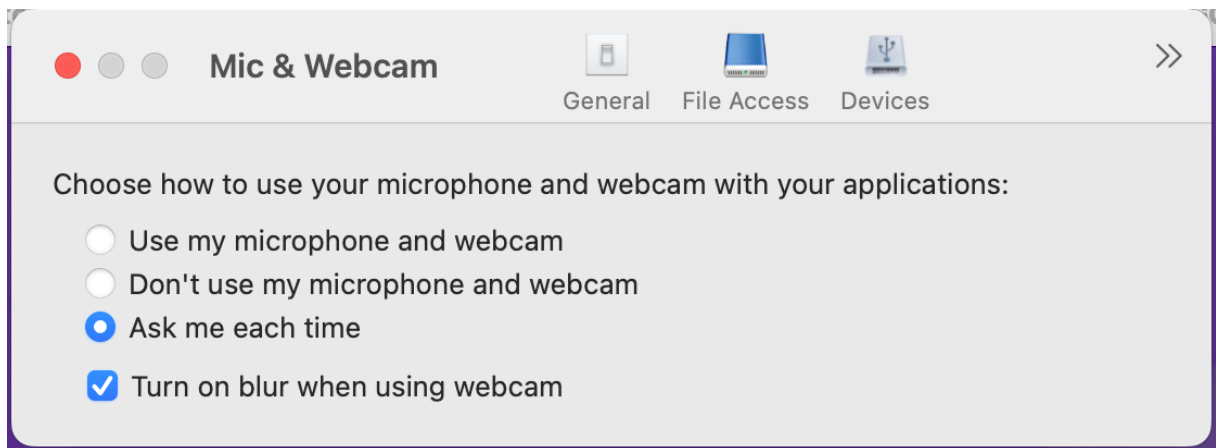
- This feature is supported on a Mac device running on macOS version 13.
- This feature is supported on an iOS device running on iOS version 16.
- You must be signed into the same Apple account in the Citrix Workspace app on both your iOS device and Mac device.
- For a wired connection, the iPhone must be connected to the Mac device through a USB.
- For a wireless connection, the iPhone and Mac devices must be in proximity and have Bluetooth and Wi-Fi turned on.

Some of the advantages are:

- **Center Stage** - Keeps the image within the frame as you move around.
- **Portrait** mode - Blurs the background of the image.
- **Studio Light** - Provides a bright effect on the image. It dims the background and illuminates the image.
- **Desk View** –The iPhone splits the Ultra Wide camera feed into two. It shows the desk and faces both at the same time.
- **Share Windows** - The iPhone splits the Ultra Wide camera feed into two. It shows the desk and faces both at the same time. The share windows function available in the video conferencing apps can be used to share the Desk View feed.

### Support for background blur for webcam

Starting with the 2402 version, Citrix Workspace app for Mac supports background blur when using a webcam. You can enable the background blurring feature by navigating to **Preferences > Mic & Webcam** and select **Turn on blur when using webcam**.



## Session experience

January 19, 2024

### Session reliability and auto client reconnect

Session reliability keeps sessions active and on the user's screen when network connectivity is interrupted. Users continue to see the application that they're using until network connectivity resumes.

With session reliability, the session remains active on the server. To indicate that connectivity is lost, the user's display freezes until connectivity resumes on the other side of the tunnel. Session reliability reconnects users without reauthentication prompts.

#### Important

- Citrix Workspace app for Mac users can't override the server setting.
- With Session reliability enabled, the default port used for session communication switches from 1494 to 2598.

You can use session reliability with Transport Layer Security (TLS).

#### Note:

TLS encrypts only the data sent between the user device and Citrix Gateway.

### Using session reliability policies

The **session reliability connections** policy setting allows or prevents session reliability.

The **session reliability timeout** policy setting has a default of 180 seconds, or three minutes. Though you can extend the time the session reliability keeps a session open, this feature is convenient to the user. Therefore, it does not prompt the user for reauthentication.

**Tip**

Extending session reliability timeouts might cause a user to get distracted and walk away from the device, leaving the session accessible to unauthorized users.

By default, incoming session reliability connections use port 2598, unless you change the port number in the session reliability port number policy setting.

You can configure the **Auto client reconnect authentication policy** setting to prompt users to reauthenticate when reconnecting to interrupted sessions.

If you use both session reliability and auto client reconnect, the two features work in sequence. Session reliability closes, or disconnects, the user session after the amount of time you specify in the **Session reliability timeout policy** setting. After that, the auto client reconnect policy settings take effect, attempting to reconnect the user to the disconnected session.

**Note:**

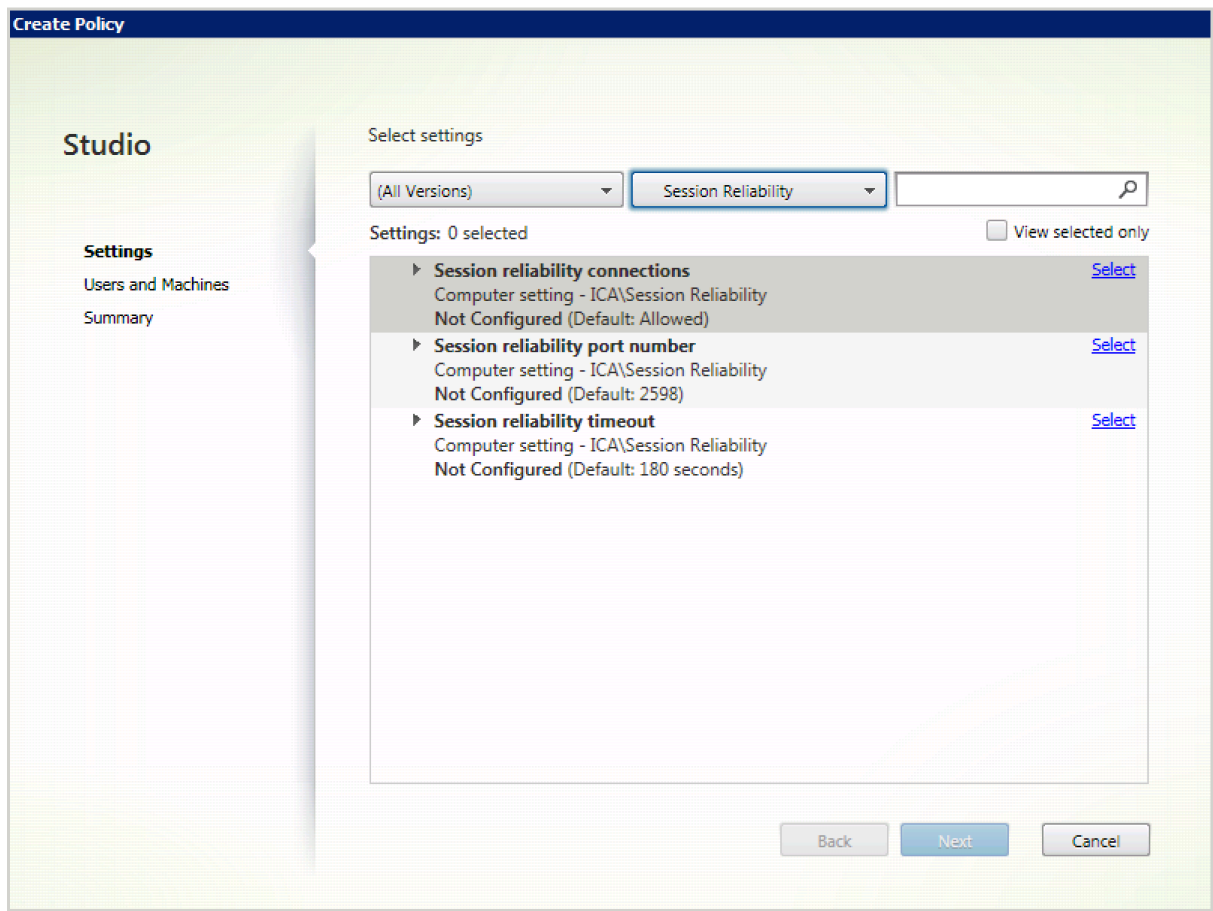
Session reliability is enabled by default at the server. To disable this feature, configure the policy managed by the server.

### **Configuring session reliability from Citrix Studio**

By default, session reliability is enabled.

To disable session reliability:

1. Launch Citrix Studio.
2. Open the **Session Reliability connections** policy.
3. Set the policy to **Prohibited**.



## Configuring session reliability timeout

By default, the session reliability timeout is set to 180 seconds.

### Note:

Session reliability timeout policy can be configured only with XenApp and XenDesktop 7.11 and later.

### To modify session reliability timeout:

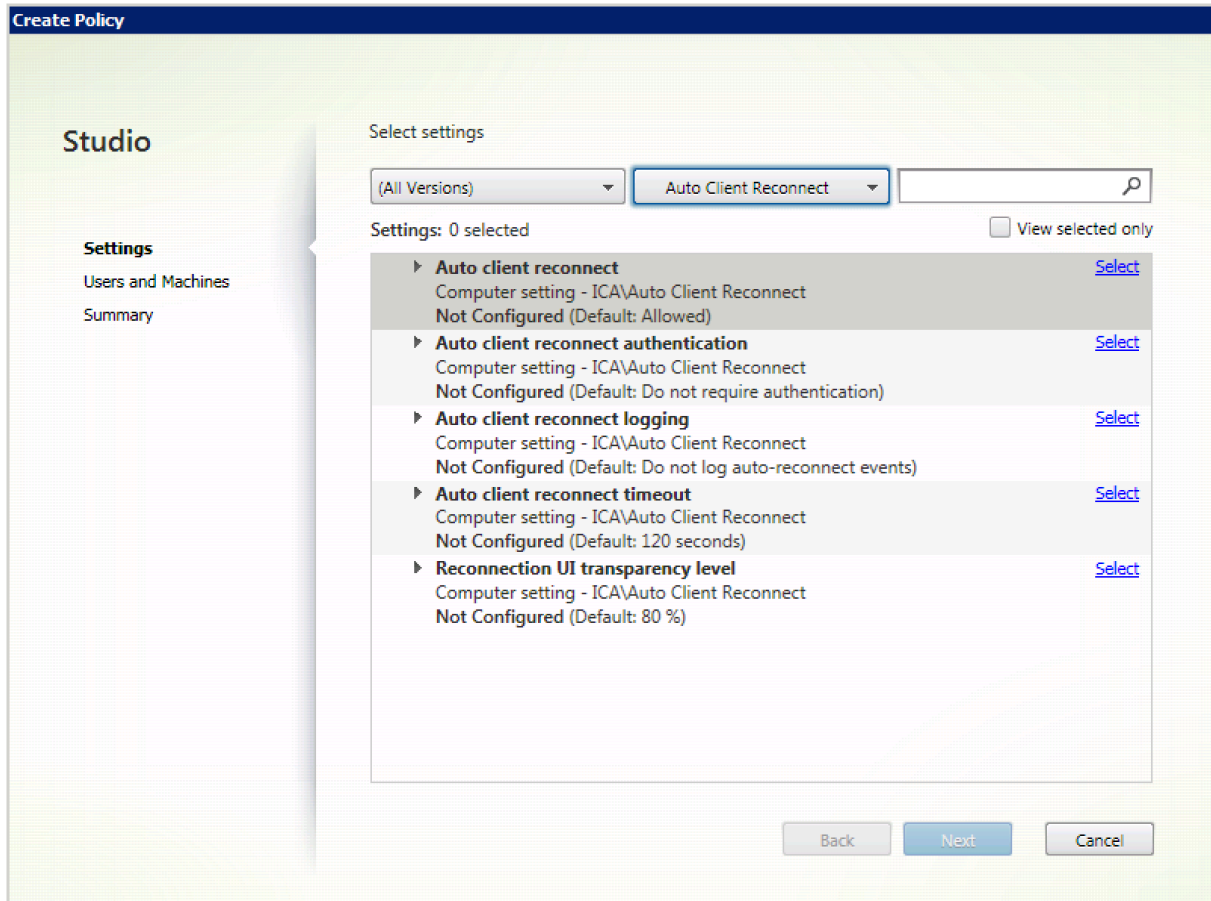
1. Launch Citrix Studio.
2. Open the **Session reliability timeout** policy.
3. Edit the timeout value.
4. Click **OK**.

## Configuring auto client reconnection using Citrix Studio

By default, auto client reconnection is enabled.

To disable auto client reconnection:

1. Launch Citrix Studio.
2. Open the **Auto client reconnect policy**.
3. Set the policy to **Prohibited**.



### Configuring Auto client reconnection timeout

By default, the Auto client reconnection timeout is set to 120 seconds.

**Note:**

Auto client reconnect timeout policy can be configured only with XenApp and XenDesktop 7.11 and later.

To modify auto client, reconnect timeout:

1. Launch Citrix Studio.
2. Open the **Auto client reconnect** policy.
3. Edit the timeout value.



4. Click **OK**.

**Limitations:**

On a Terminal Server VDA, Citrix Workspace app for Mac uses 120 seconds as the timeout value irrespective of the user settings.

### **Configuring the Reconnect user interface Transparency**

The Session User Interface is displayed during a session reliability and auto client reconnect attempts. The Transparency level of the user interface can be modified using Studio policy.

By default, Reconnect UI Transparency is set to 80%.

To modify Reconnect user interface Transparency level:

1. Launch Citrix Studio.
2. Open the **Reconnect UI Transparency level** policy.
3. Edit the value.
4. Click **OK**.

### **Auto client reconnect and session reliability interaction**

There are mobility challenges associated with switching between various access points, network disruptions, and display timeouts related to latency. These create challenging environments when trying to maintain link integrity for active Citrix Workspace app for Mac sessions. Citrix enhanced session reliability and auto reconnection technologies resolve this issue.

This feature allows users to reconnect to sessions automatically after recovery from network disruptions. These features, enabled by policies in Citrix Studio, can be used to improve the user experience.

**Note:**

Auto client reconnection and session reliability timeout values can be modified using the **default.ica** file in StoreFront.

### **Auto client reconnection**

Auto client reconnection can be enabled or disabled using Citrix Studio policies. By default, this feature is enabled. For information about modifying this policy, see the auto client reconnection section earlier in this article.

Use the default.ica file in StoreFront to modify the connection timeout for AutoClientreconnect. By default, this timeout is set to 120 seconds (or two minutes).

Setting	Example	Default
TransportReconnectRetryMaxSeconds	TransportReconnectRetryMaxSeconds=60	60

### Session reliability

Session reliability can be enabled or disabled using Citrix Studio policies. By default this feature is enabled.

Use the **default.ica** file in StoreFront to modify the connection timeout for session reliability. By default this timeout is set to 180 seconds (or three minutes).

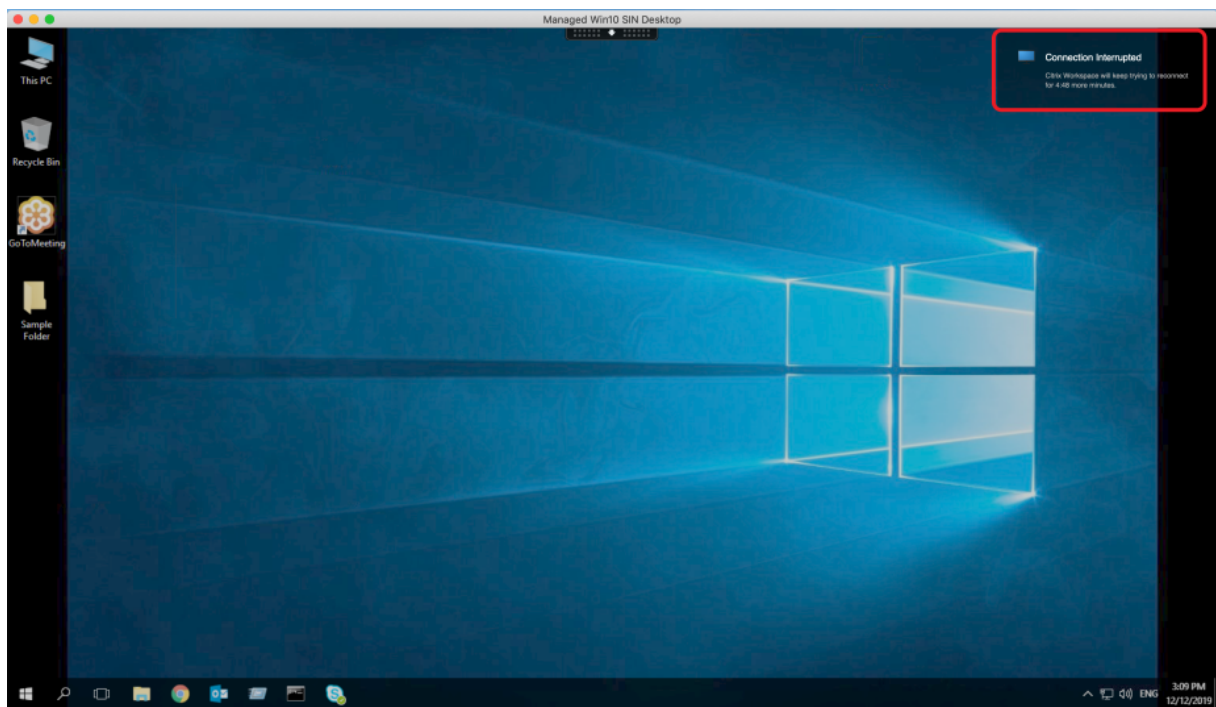
Setting	Example	Default
SessionReliabilityTTL	SessionReliabilityTTL=120	180

### How auto client reconnection and session reliability work

When auto client reconnection and session reliability are enabled for a Citrix Workspace app for Mac, consider the following:

- A session window is grayed out when a reconnection is in progress. A countdown timer displays the amount of time remaining before the session is reconnected. Once a session is timed out, it's disconnected.

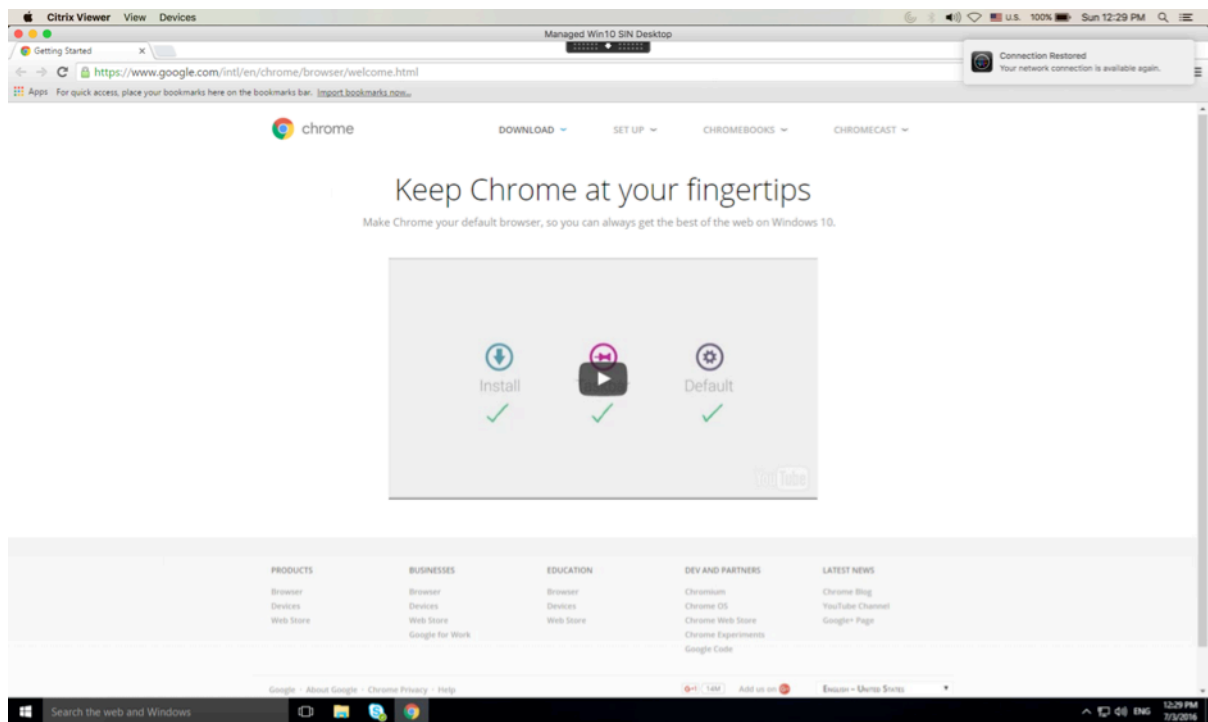
By default, the reconnect countdown notification starts at 5 minutes. This timer value represents the combined default values for each of the timers (auto client reconnection and session reliability), 2 and 3 minutes respectively. The following image illustrates the countdown notification which appears in the upper right portion of the session interface:



### Tip

You can alter the grayscale brightness used for an inactive session using a command prompt. For example, defaults write com.citrix.receiver.nomas NetDisruptBrightness 80. By default, this value is set to 80. The maximum value can't exceed 100 (indicates a transparent window) and the minimum value can be set to 0 (a fully blacked out screen).

- Users are notified when a session successfully reconnects (or when a session is disconnected). This notification appears in the upper right portion of the session interface:



- A session window which is under auto client reconnect and session reliability control provides an informational message indicating the state of the session connection. Click **Cancel Reconnection** to move back to an active session.

### Service continuity

Service continuity removes or minimizes the dependency on the availability of components that are involved in the connection process. Users can launch their virtual apps and desktops regardless of the health status of the cloud services.

For more information, see the [Service continuity](#) section in the Citrix Workspace documentation.

### Support for service continuity in the Safari browser

Starting with the 2206.1 version, the Citrix Workspace service continuity feature is supported for the Safari browser. Users must install Citrix Workspace app for Mac and the Citrix Workspace web extension. Service continuity removes (or minimizes) the dependency on the availability of the components involved in the connection process. It allows you to connect to your virtual apps and desktops regardless of the cloud services' health status. For more information about the service continuity feature, see section [Service continuity](#).

## Enhancement to Permanent Client Access License (CAL) for Remote Desktop Sessions

Starting with the 2204 version, if you're running CAL in your environment to access remote desktops, when the client ID is greater than 15 characters, you can launch the remote desktop session with a permanent license.

To enable this feature, admins must configure the **default.ica** file by doing the following:

1. In the StoreFront server, navigate to `C:\inetpub\wwwroot\Citrix<StoreName>\App_Data` and open the **default.ica** file with any editor.
2. Add the following lines in the **[WFClient]** section:

```
isRDSLicensingEnabled=On
```

## Troubleshooting

May 23, 2024

### Send feedback on Citrix Workspace app

Starting with the 2307 version, Citrix Workspace app for Mac supports the **Send feedback** feature. The Send feedback option allows you to inform Citrix about any issues you might encounter while using the Citrix Workspace app. You can also send suggestions to help us improve your Citrix Workspace app experience.

You must select **Help > Send feedback** to view and fill the issue details in the Send feedback form. You can add details like the examples provided in the form.

Log collection'. Below this is a button labeled 'Record my issue' and a file attachment 'WorkspaceLogs\_2023\_07\_18-14\_23\_43.zip' with a trash icon. Below the logs section is an 'Attachments' section with the text 'Screenshots or screen recordings of the problem.' and a button labeled 'Choose files' with '(Max 4 files)' next to it. At the bottom of the dialog are two buttons: 'Send' (dark teal) and 'Cancel' (light teal)."/>

You can attach the existing log files or generate new log files. To generate log files, click **Record my issue > Start Recording** and then reproduce the issue. After the issue is reproduced, click **Stop Recording**. The log file is saved automatically and replaces the existing logs with the reproduced logs.

**Note:**

Citrix does not collect any Personally Identifiable Information (PII) from the logs.

You can attach screenshots or screen recordings describing the issue to help us understand what you're experiencing. Click **Choose files** and add the attachments describing your issues, such as screenshots or screen recordings. You can attach a maximum of four files.

Once you've entered the necessary information, click **Send** to have a new email automatically created in your Mail app with the information you added. From there, click the **Send button** to share the

feedback with Citrix.

**Note:**

If you aren't using the default Mail app, then send feedback to [cwa-mac-feedback@cloud.com](mailto:cwa-mac-feedback@cloud.com) from your mail client. Add the issue details, log files, screenshots, or screen recordings to the email manually.

## Log collection

Starting with the 2304 version, Citrix Workspace app for Mac supports the **Log collection** feature. Log collection simplifies the process of collecting logs for Citrix Workspace app. The logs help Citrix to troubleshoot, and, in cases of complicated issues, provide support.

Starting with the 2402 version, the log collection feature is enhanced to collect and email additional log data. With this feature, you can easily collect all the required log information at once.

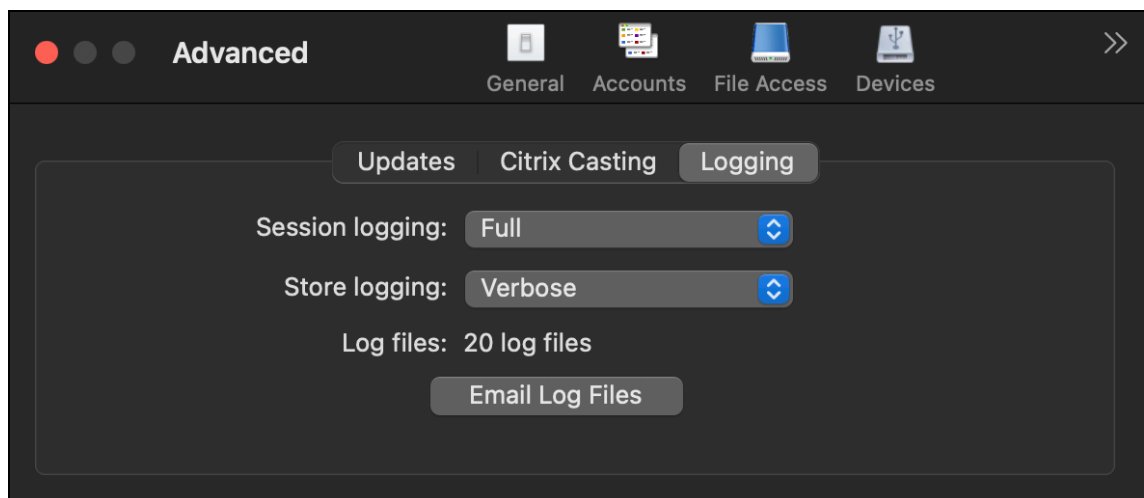
The following additional log data are collected using this feature:

- Crash report for Citrix Process
- Citrix related files under preferences
- Citrix related files `launchagents` and `launchdaemons`
- Citrix related files under application or Citrix receiver

You can collect logs using the GUI.

### Collecting logs:

1. Open Citrix Workspace app.
2. Right-click on Citrix Workspace in the toolbar and click **Preferences > Advanced**.
3. Select **Logging**.



4. Select one of the following session log levels:

- **Disabled (Default):** Minimum logs are collected for basic troubleshooting.
- **Connection Diagnostics:** Identifies errors while connecting. All logging is enabled up until the point when the session is deemed successful.
- **Full:** Captures everything including the connection diagnostics. Once enabled, the Citrix Workspace app will store up to 10 session logs after which they're deleted starting with the oldest to maintain 10 logs.

**Note:**

Selecting the **Full** logging option can impact performance and must be used only while troubleshooting an issue because of the amount of data. Do not enable full logging during normal use. Enabling this level of logging triggers a warning dialog that must be acknowledged for you to continue.

5. Select one of the following store log levels:

- **Disabled (Default):** Minimum logs are collected for basic troubleshooting.
- **Normal:** Only store communication logs are collected.
- **Verbose:** Detailed authentication and store communication logs are collected.

6. Click **Email Log Files** to collect and share logs as a .zip file.

## Sentry

Sentry is used to collect app logs to analyze issues and crashes to improve product quality. Citrix does not collect or store any other personal user information or use Sentry for feature analytics data. For more information about Sentry, go to [<https://sentry.io/welcome/>].

## Deprecation

March 22, 2024

This article gives you advance notice of the phase-out of platforms, Citrix products, and features so that you can make timely business decisions. Citrix monitors customer use and feedback to determine when they are withdrawn. Announcements can change in subsequent releases and might not include every deprecated feature or functionality.

Deprecated items are not removed immediately. Citrix continues to support them in this release but they will be removed in the future.



Item	Removed/To be removed in	Deprecation announced in	Alternative
Support for WebRTC SDP format (Plan B)	To be removed in February 2024	2311	Upgrade Citrix Workspace app to a supported version.
macOS version Big Sur (11)	To be removed in May 2024	September 2023 (2308)	Use the supported operating system as given in the <a href="#">Supported operating systems</a> section.
Citrix Workspace apps for macOS (Intel (x86 build))	To be removed in April 2024	April 2022 (2204)	Citrix Workspace app for macOS that uses Universal Architecture.
macOS version Catalina (10.15)	Removed in July 2023 (2307)	April 2023 (2304)	Use the supported operating system as given in the <a href="#">Supported operating systems</a> section.
macOS versions High Sierra (10.13) and Mojave (10.14)	Removed in September 2020 (2009)	August 2020 (2008)	Upgrade to Big Sur 11 or later.



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