



The bridge to possible

Webex VDI

Webex in Virtual Desktop Infrastructure

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Objectives & Purpose of This Training

- What does this cover?
 - An overview and troubleshooting of Webex VDI.
- Who will benefit from learning this?
 - Engineers Supporting the VDI Client.
- Are there any prerequisites to this content?
 - A fundamental understanding of the Webex App.





A Look at the Agenda

- Webex VDI Overview
- Architecture
- Requirements
- Install and Upgrades
- Troubleshooting
- Resources

Webex VDI Overview

Webex Application Installation - VDI

Webex App for VDI overview

- Without optimization, Webex App messaging works as-is in a [Virtual Desktop Infrastructure \(VDI\)](#) environment. However, the full Webex App experience also includes calling and meetings, which require video and audio media processing.
- Because of a limitation known as [the hairpin effect](#), calling, meeting, and accompanying video capability are not supported without optimization. The additional bandwidth required for calls and video creates a bottleneck at the data center because the media flows from one user to the data center back to another user. As a result of this unoptimized media path and the lack of easy access to peripherals such as device speakers, microphone, and camera, the user experience is not ideal.
- To fix the issue of the hairpin effect, the Webex App VDI plugin extends the Cisco collaboration experience to virtual deployments so that users can use the full messaging, meeting, and calling functionality that the Webex App provides.

Webex Application Installation - VDI

- To reduce latency and to enhance media quality, the VDI plugin optimizes the media workflows by streaming media directly between users on thin client endpoints and leverages the hardware of the thin client machines to handle media processing. This media path does not go through the hosted virtual desktops (HVDs). The result is a stable and full-featured calling and meeting experience for your VDI users.
- In this architecture, the Webex App is installed on the HVD in your VDI environment and required VDI plugins are installed on the user's thin client (typically a lightweight system, like a repurposed laptop or desktop).



Webex Application Installation - VDI

- Using a supported Linux or Windows-based thin client, users access the Webex App on the HVD from a remote virtual desktop environment. With supported versions of Webex App, users can use all of the built-in messaging, meetings, and calling on Webex App functionality on their thin client.
- Additionally, you can integrate Webex App VDI with a Unified CM or Webex Calling environment, so that users can use supported call features. You can also deploy the full featured meetings experience by installing the Webex App Meetings VDI plugin.

Architecture

Architecture

- VDI Components

- **Hosted Virtual Desktop (HVD)** - The Virtual Machine (VM) that runs the Webex App remotely.
- **Thin Client** - The endpoint (for example, low profile or repurposed desktop or laptop) that the user uses to sign in remotely to the virtual desktop. The connection broker and VDI plugin are installed on the thin client device so it can access the HVD environment.
- **Plugin** - Software that is installed on the thin client used to offload media processing to the user device instead of HVD resources. The supported versions of the Webex App VDI plugin are available at <https://www.webex.com/downloads/teams-vdi.html>.

Architecture

- VDI Components

- **Connection Broker** - The resource and connection manager (Citrix, VMware) that connects the virtualization provider to the thin client.
 - A connection broker performs several tasks including the following:
 - Validating the username and providing a connection for the user.
 - Allowing the user to connect to a specific virtual desktop
- **Webex App** - The app that is installed and runs on the HVD.

Architecture

- Environment Types

- **Persistent Mode** - In a persistent environment, a user's local operating system changes are preserved after a user signs out.
- All user preferences are in the roaming database (spark_roaming_store.db). This database is much smaller than the main database (spark_persistent_store.db).

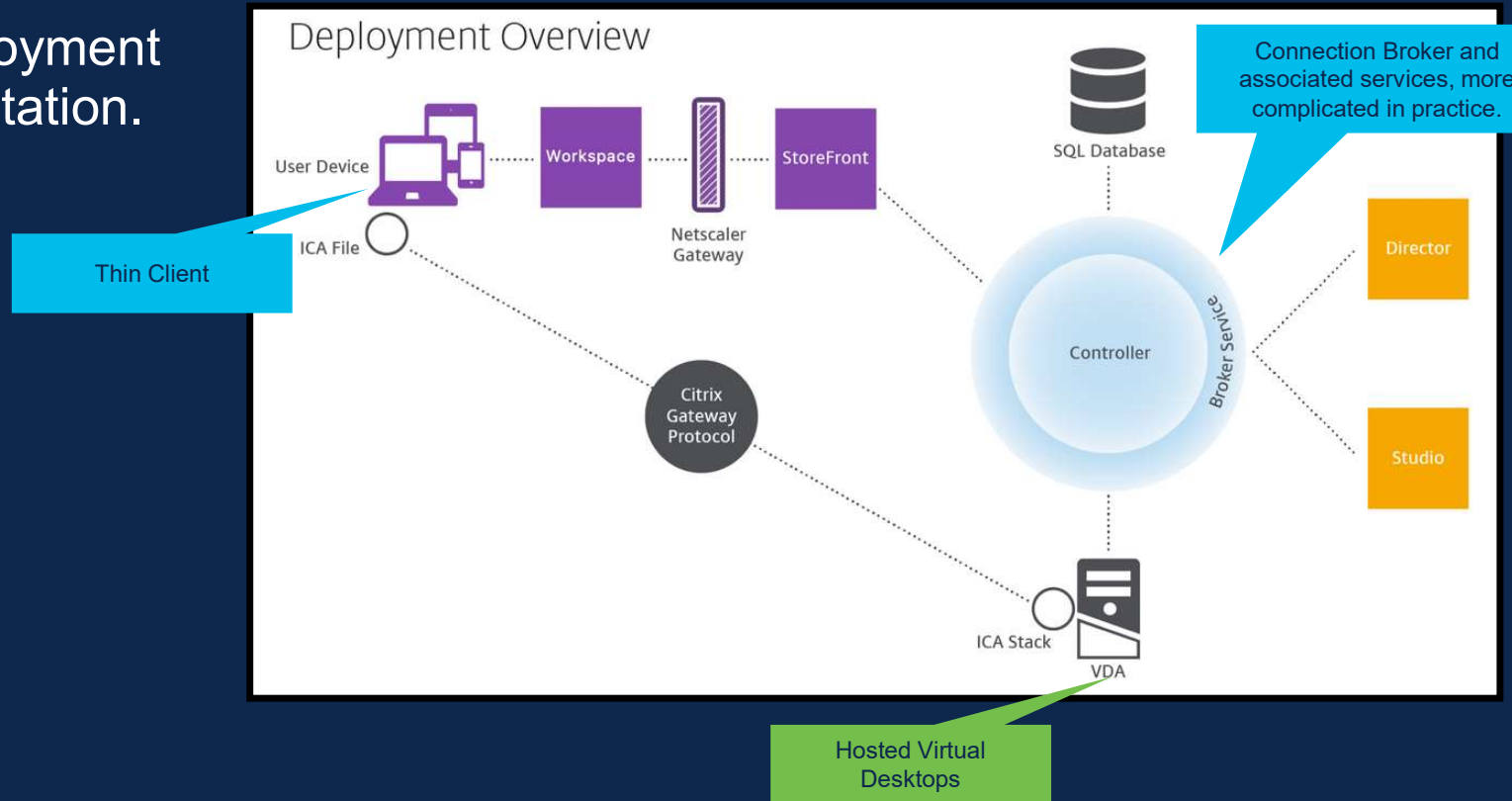
Architecture

- Environment Types

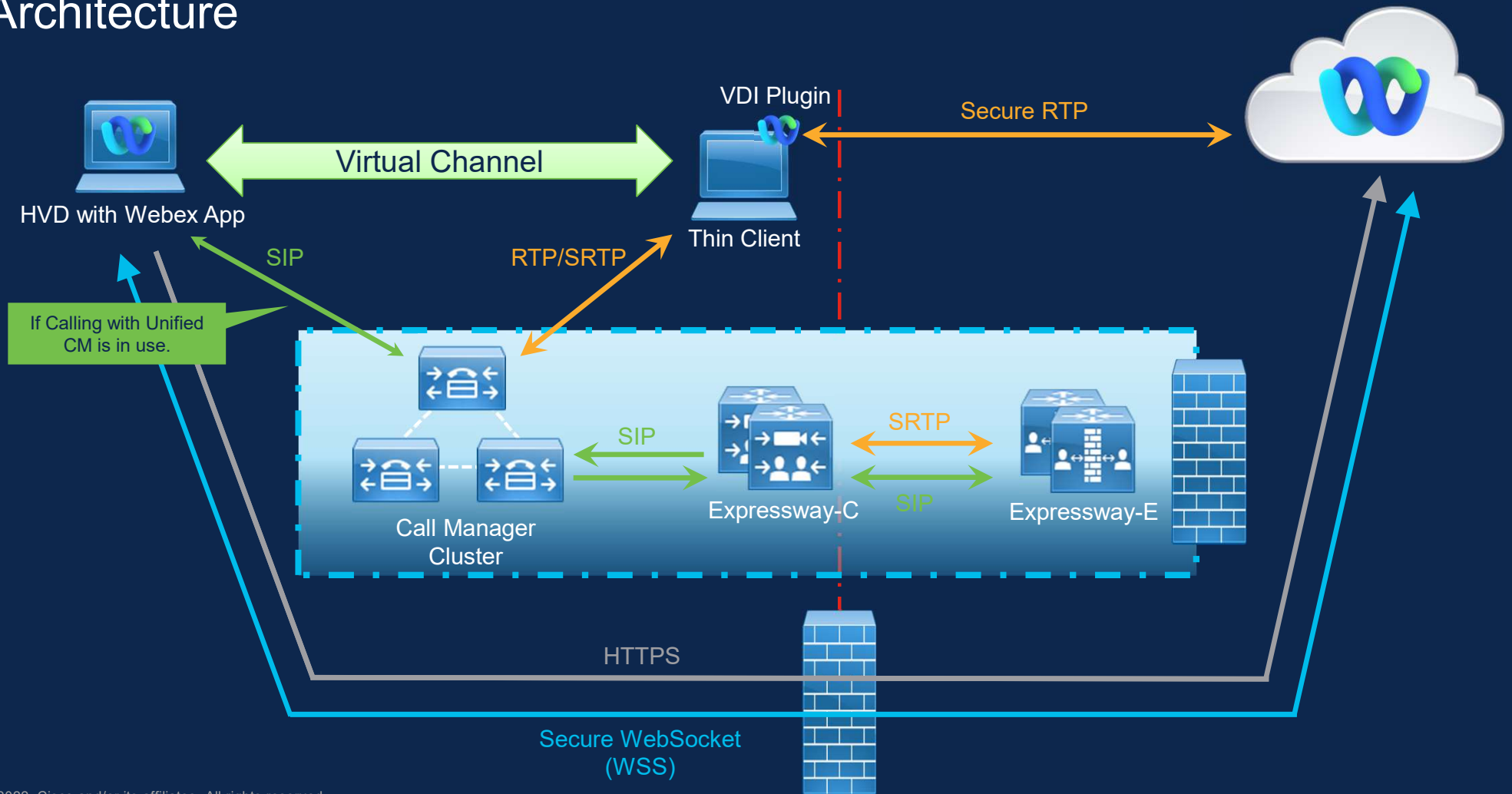
- **Non-persistent mode**—In a non-persistent environment, a user's local operating system changes are not preserved after a user signs out. The applicable user-specific information (user data, profile, and settings) is cached during the user session.
 - If you are a non-persistent VDI customer (a VDI environment that is deleted every time the user logs out), you can quickly back up and restore spark_roaming_store.db so that VDI users won't lose preferences between sessions.
 - The roaming database contains all user credentials and preferences, encrypted using AES256. As a VDI customer, you should always back up the roaming database, so that user credentials and preferences are maintained across VDI sessions.

Architecture

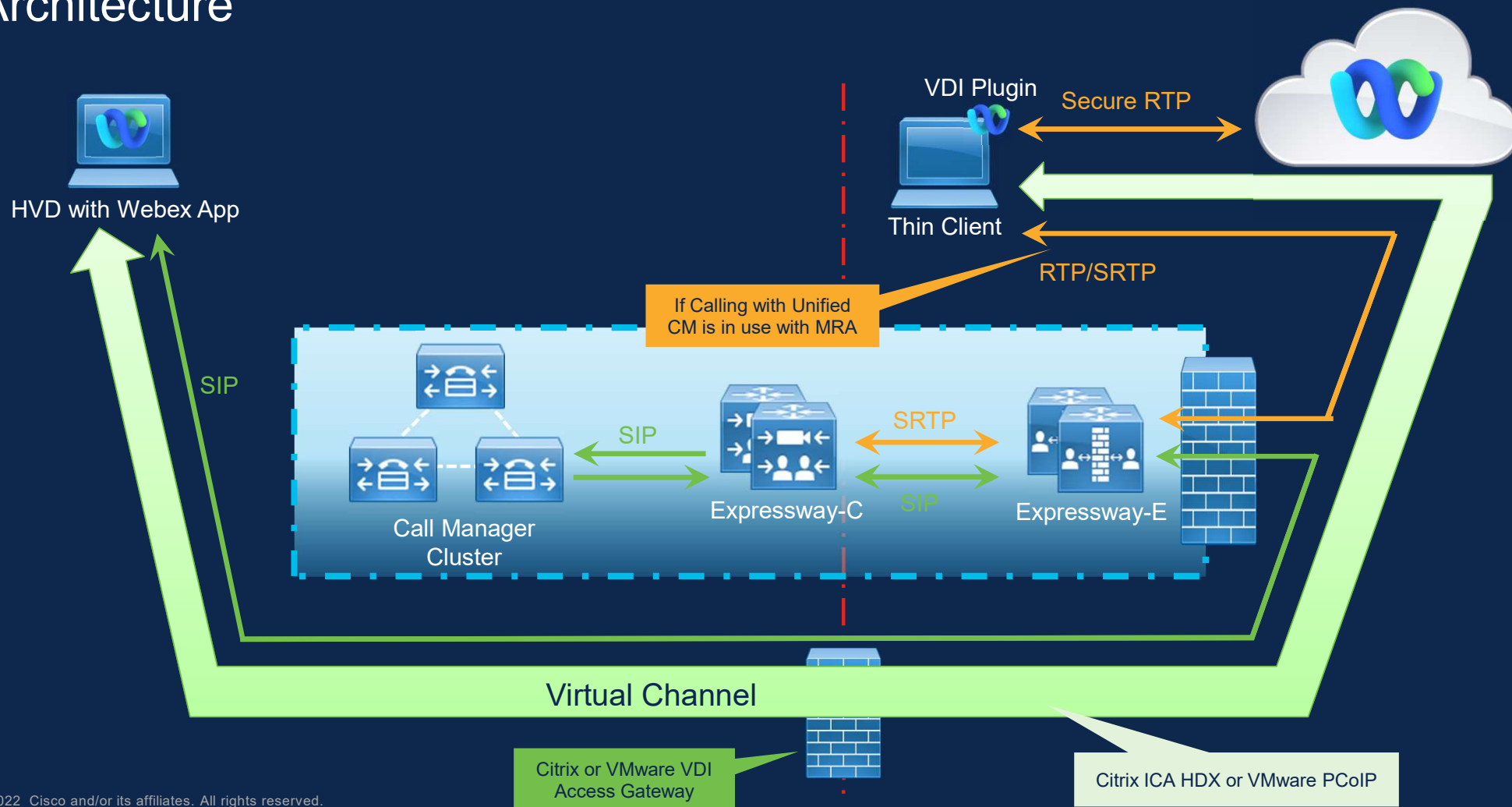
- Typical Citrix deployment per their documentation.



Architecture



Architecture



Requirements

Requirements for Hosted Virtual Desktop

- Single-session operating system—Installed on the HVD
 - Microsoft Windows 10
 - Windows 365 Cloud PC
- Multi-session operating system—Installed on the HVD
 - Microsoft Windows Server 2016
 - Microsoft Windows Server 2019
 - Microsoft Windows Server 2022
- Multi-session cloud virtualization service
 - Azure Virtual Desktop (AVD, formerly Windows Virtual Desktop)—provides Windows 7 Enterprise and Windows 10 Enterprise virtualization
 - VMware Cloud (installed on AWS)

Requirements for Hosted Virtual Desktop

- Connection broker for the hosted virtual desktop
 - Citrix Virtual Apps and Desktops (CVAD) 7 (up to 1912 LTSR CU4 and CR version 7 2112), XenApp and XenDesktop (7.15 LTSR up to CU8)
 - Multi-session OS published desktop
 - Single-session OS for VDI desktop
 - Citrix Remote PC sessions
 - If you enabled virtual channel allow list policy in your deployment, then you must add the Webex app virtual channel (CSCOTM) to the allow list with the virtual channel name and process path: "CSCOTM,C:\Program Files\Cisco Spark\dependencies\teamshvdagent.exe"
 - Since Citrix Virtual Apps and Desktops 7 2109, "virtual channel allow list policy" is enabled by default. You must configure this policy for Webex App VDI first (add Cisco Virtual Channel) for optimized mode to function properly or disable this policy.
 - For MacOS, currently only Webex App VDI plugin 41.12 works with Citrix Workspace App 2111 for Mac.

Requirements for Hosted Virtual Desktop

- Connection broker for the hosted virtual desktop continued
 - VMware Horizon Agent:
 - 7.10, 7.11, 7.12, and 7.13
 - 8 2006, 8 2012, 8 2103, 8 2106, 8 2111, and 8 2203 (8.5)
 - The following are supported:
 - Shared Desktop
 - Published Desktop
 - Published Application
 - Remote Desktop App for AVD
 - You must use the version of this app from the [direct download page](#). The app on the Microsoft Store is not supported.

Requirements for Windows Thin Clients

- Microsoft Windows-based thin client hardware
 - Supported Hardware
 - 2 GB installed RAM, 128 MB physical memory, 256 MB disk space
 - Minimum CPU Mobile AMD Sempron Processor 3600+, 2-GHz Intel Core 2 CPU, or T7400 2.16 GHz
 - DirectX 11-compatible GPU, USB 2.0 ports for camera and audio devices
 - Supported Software
 - We support 32-bit and 64-bit architectures for the following Windows versions:
 - Microsoft Windows 10
 - Microsoft Windows 11 (for VDI plugin 41.12 and later)

Requirements for Linux Thin Clients

- Supported Linux Thin Clients:
 - Ubuntu (64-bit) – 16.04, 18.04, 20.04
 - Unicon eLux (64-bit) – 6.5.2000, 6.9, RP6 2104 LTSR (Webex VDI plugin 41.8 or later)
 - HP Thinpro 7.1 and 7.2 (64-bit) – SP 13.5 and later for Webex App plugin release 41.1 and later
 - IGEL OS – 11.04.100 and later
 - Dell Wyse ThinOS – 9.1
 - 10ZiG Zero Client Thin Clients
 - Stratodesk NoTouch OS
- Supported Ubuntu/Thinpro Thin Client Hardware
 - Any 64-bit X86 CPU, At least 2GB of Memory with 1GB free for OS use.
 - 2GB of internal storage for installation
 - Intel, ATI/AMD, or Nvidia Graphics cards.

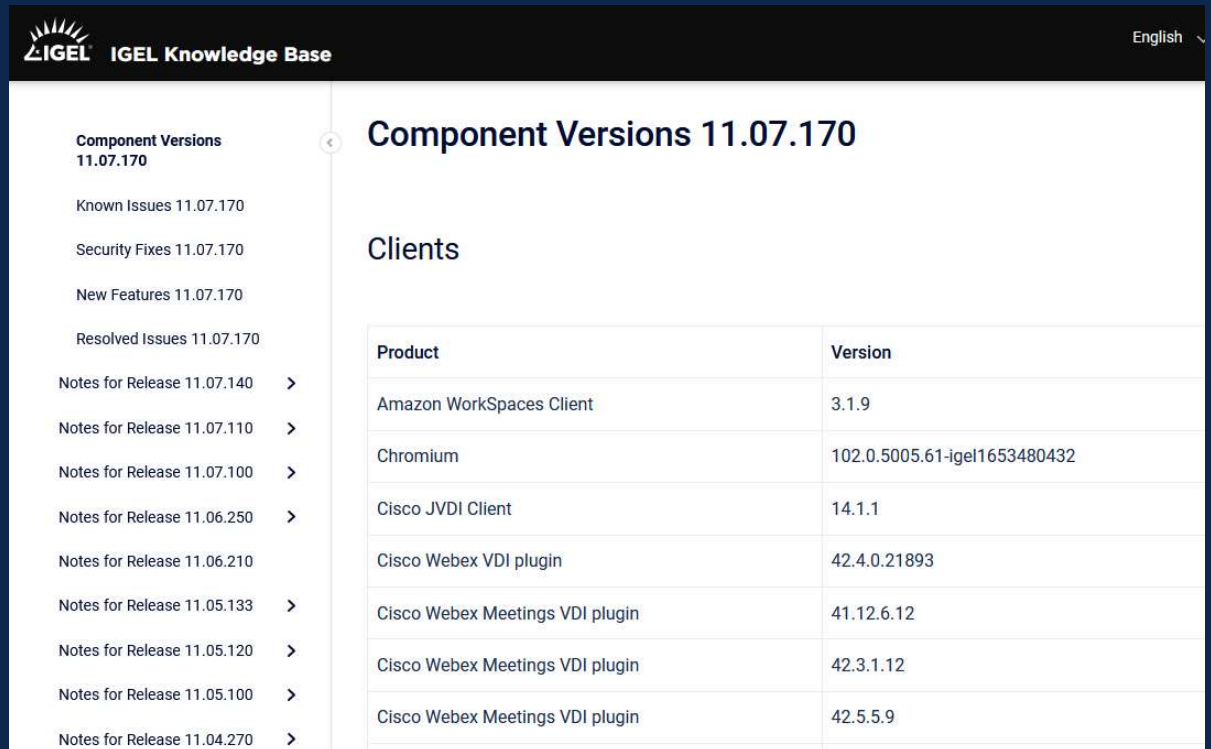


Upgrade Requirements

- The Webex App for VDI environments follows a bi-monthly release schedule, whereas the standalone Webex App for Windows is released monthly.
 - Because of this difference in release schedule, the VDI version of the app does not include features that are released for the standalone version in the odd month.
 - When the VDI version is released in the even month, it catches up on any missed features from the previous month.
- Due to a mandatory update to our services, you won't be able to sign in using the following versions of Webex App (installed on the Windows-based HVD) from the following date:
 - July 31, 2021, for all versions up to (but not including) 41.1.0.17740

IGEL and Dell ThinOS Notes

- For IGEL and ThinOS, the Plugin is available directly from the OS Vendor.



The screenshot displays the IGEL Knowledge Base interface. The header includes the IGEL logo and the text 'IGEL Knowledge Base' on the left, and a language dropdown set to 'English' on the right. The main content area is titled 'Component Versions 11.07.170'. On the left side of this area is a sidebar menu with the following items: 'Component Versions 11.07.170', 'Known Issues 11.07.170', 'Security Fixes 11.07.170', 'New Features 11.07.170', 'Resolved Issues 11.07.170', and a series of 'Notes for Release' entries with version numbers ranging from 11.07.140 down to 11.04.270, each followed by a right-pointing chevron. The main content area under the title 'Component Versions 11.07.170' has a sub-header 'Clients' and a table with two columns: 'Product' and 'Version'.

Product	Version
Amazon WorkSpaces Client	3.1.9
Chromium	102.0.5005.61-igel1653480432
Cisco JVDI Client	14.1.1
Cisco Webex VDI plugin	42.4.0.21893
Cisco Webex Meetings VDI plugin	41.12.6.12
Cisco Webex Meetings VDI plugin	42.3.1.12
Cisco Webex Meetings VDI plugin	42.5.5.9

Install and Upgrade

Install and Upgrade

- Configure one of the following types of Hosted Virtual Desktop
 - Hosted Virtual desktop for Webex App
 - Azure Virtual Desktop for Webex App
- Configure VDI optimization for Webex App in Control Hub
 - Enabled by default
- Install the Webex App VDI plugin on thin client machines for the following platforms:
 - Windows
 - Linux
 - MacOS
- Install Webex Meetings VDI plugin on thin client systems (Optional)

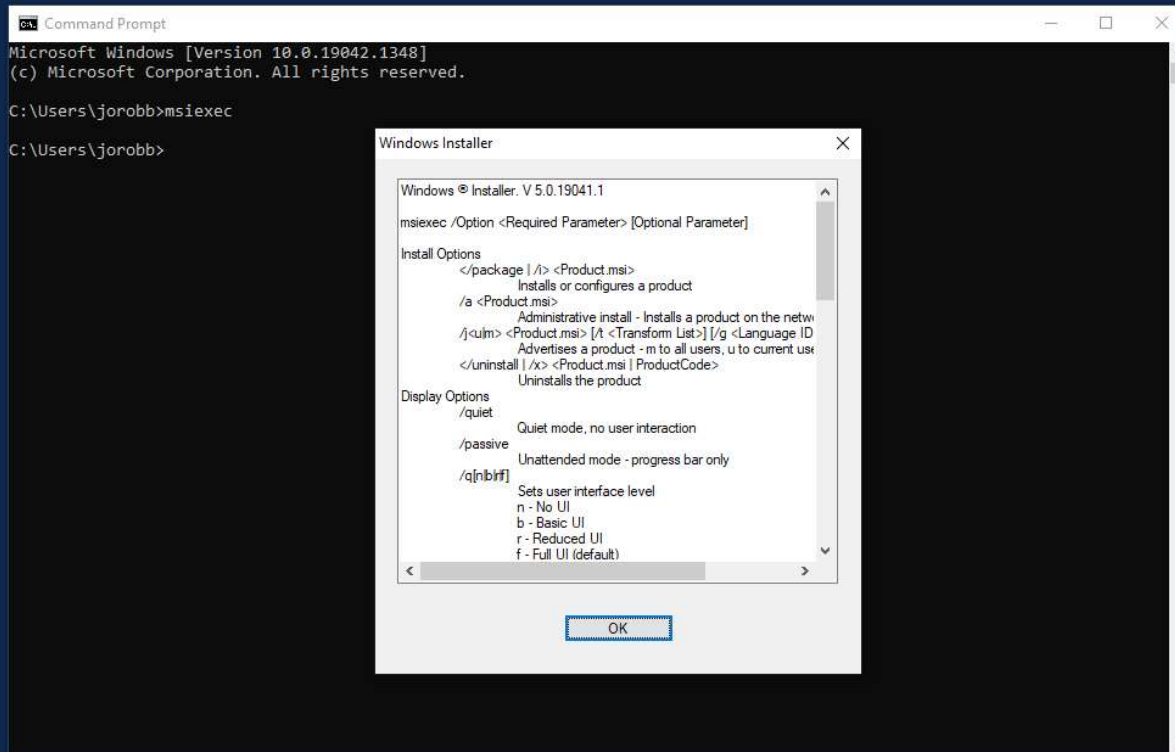
Install and Upgrade

- Initial Steps

- Sign into Microsoft Windows HVD as a new user with domain administration rights.
- Join the HVD to the corporate domain.
- Set up Citrix or VMware access to the HVDs.
- Go to <https://www.webex.com/downloads/teams-vdi.html>, and under HVD Installer, download the Webex App build for your HVD depending on the system architecture:
 - Windows 32-bit
 - Windows 64-bit

msiexec – Windows Installer

Webex Application Installation – MSIEXEC



Windows Installer (msiexec) is included within Windows builds (Win2000 and later), first released in August 1999.

The Windows Installer can be used by Administrators to bulk install the Webex MSI file via available command line toggles

It uses the pattern and options described in the figure when running msiexec without parameters

Webex Application Installation – msixexec

- /quiet - Silent Install, only the EULA will require user interaction
 - Example: `msixexec /i c:\work\Webex.msi /quiet`
- ACCEPT_EULA – Automatically accept the End User License Agreement. Paired with the /quiet flag, the end user will have no interaction with the installation
 - Example: `msixexec /i c:\work\Webex.msi ACCEPT_EULA=TRUE /quiet`
- AUTOSTART_WITH_WINDOWS - Auto start with Windows is a Client setting check box, if this flag is set to true, the box will be force checked and users will be unable to uncheck the box. By default, the box is checked on but toggleable by the user.
 - Example: `msixexec /i c:\work\Webex.msi ACCEPT_EULA=TRUE AUTOSTART_WITH_WINDOWS=TRUE /quiet`
- DEFAULT_THEME – Set the default client theme to “Light” or “Dark”, without this setting the default theme is the Dark Theme
 - Example: `msixexec /i c:\work\Webex.msi DEFAULT_THEME="Light" /quiet`

Webex Application Installation – msixexec

- DELETEUSERDATA – During an update over an existing install, user database or log files are normally retained. Setting this flag to '1' will delete that data during the install
 - Example: `msiexec /i c:\work\Webex.msi DELETEUSERDATA=1`
- EMAIL – Automatically set the login email for the user
 - Example: `msiexec /i c:\work\Webex.msi EMAIL=testuser@example.com`
- ENABLEOUTLOOKINTEGRATION – Enable registration with Outlook for Presence Integration, the default is it is disabled. Setting the flag to "0" will lock out the check box option and disable it for the user
 - Example: `msiexec /i c:\work\Webex.msi ENABLEOUTLOOKINTEGRATION=1`
- INSTALL_ROOT – Choose a different install folder for the application
 - Example: `msiexec /i c:\work\Webex.msi INSTALL_ROOT="C:\Program Files"`

Webex Application Installation – msixexec

- The ALLUSERS Flag:
- By Default, the Webex App is installed in the folder
 - %LocalAppData%\Programs\Cisco Spark
- ALLUSERS=1 is an msixexec flag that when set will install the Application in C:\Program Files\
- This flag is required for several Virtual Desktop Infrastructure (VDI) install flags
- When you use the ALLUSERS=1 property to specify a per machine installation, you must have administration access privileges.

Install and Upgrade

- Installation with Auto-upgrade enabled:
 - Using administrative permissions, install the app on the HVD using these command and arguments (these examples use a download directory of `c:\users\[username]\Downloads\Webex.msi` (where "username" is the name of the signed in user) and the autodetect VDI switch (`ENABLEVDI=2`):
 - Auto-upgrade enabled:
 - VDI client in **a persistent VDI setting with autoupgrade enabled**—`msiexec /i c:\users\[username]\Downloads\Webex.msi ALLUSERS=1 ENABLEVDI=2 AUTOUPGRADEENABLED=1 FORCELOCKDOWN=LockWhenCompatible`
 - VDI client in **a non-persistent VDI setting with autoupgrade enabled**—`msiexec /i c:\users\[username]\Downloads\Webex.msi ALLUSERS=1 ENABLEVDI=2 AUTOUPGRADEENABLED=1 ROAMINGENABLED=1 FORCELOCKDOWN=LockWhenCompatible`
 - If you use auto-upgrade, we recommend that you [move your Control Hub organization to the slow channel](#). For more information, see Upgrade Management in this guide.

Install and Upgrade

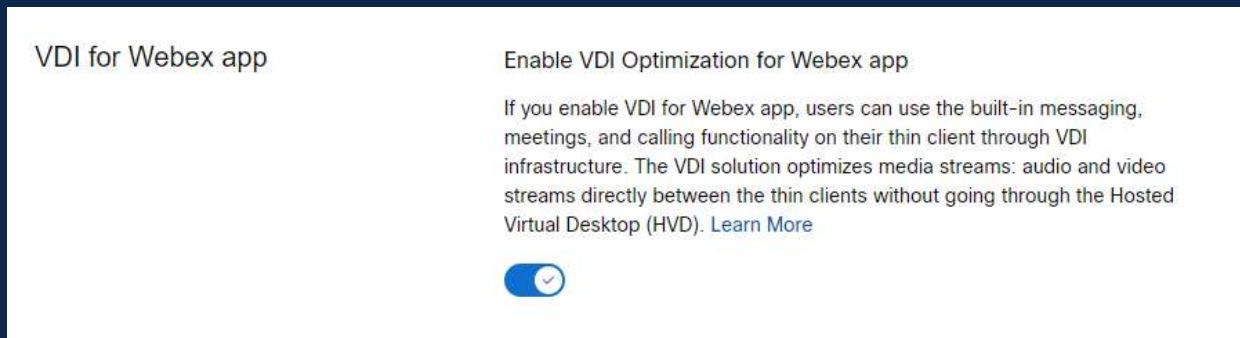
- Installation with Auto-upgrade disabled:
 - VDI client in a persistent VDI setting with autoupgrade disabled—msiexec /i c:\users\[username]\Downloads\Webex.msi ALLUSERS=1 ENABLEVDI=2 AUTOUPGRADEENABLED=0 FORCELOCKDOWN=LockWhenCompatible
 - VDI client in a non-persistent VDI setting with autoupgrade disabled—msiexec /i c:\users\[username]\Downloads\Webex.msi ALLUSERS=1 ENABLEVDI=2 AUTOUPGRADEENABLED=0 ROAMINGENABLED=1 FORCELOCKDOWN=LockWhenCompatible

Install and Upgrade

- Enable VDI Command Line Command
 - ENABLEVDI=0 essentially disables VDI Optimization Mode
 - ENABLEVDI=1 enables VDI Optimization Mode and will work with the Thin Client Plugin installed
 - ENABLEVDI=2 performs automatic detection of the VDI environment, if detected and the Thin Client Plugin is installed, Optimization Mode will be enabled.

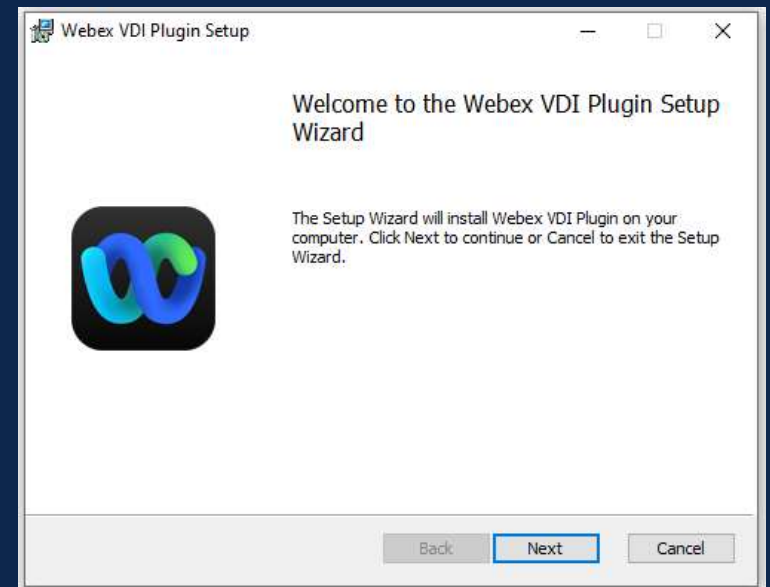
Install and Upgrade

- Installation with Optimization Enabled From Control Hub
 - Enabling this setting in Control Hub affects users across the organization unlike the installation parameters which affect your deployment at the server level.



Install and Upgrade

- Installation of the Webex VDI Plugin happens on the Thin Client itself.



Install and Upgrade

- Head to the download link for the VDI Plugin
 - <https://www.webex.com/downloads/teams-vdi.html>
- All of the supported VDI Plugins are available here except the iGelOS and ThinOS versions which are provided by their respective vendors.



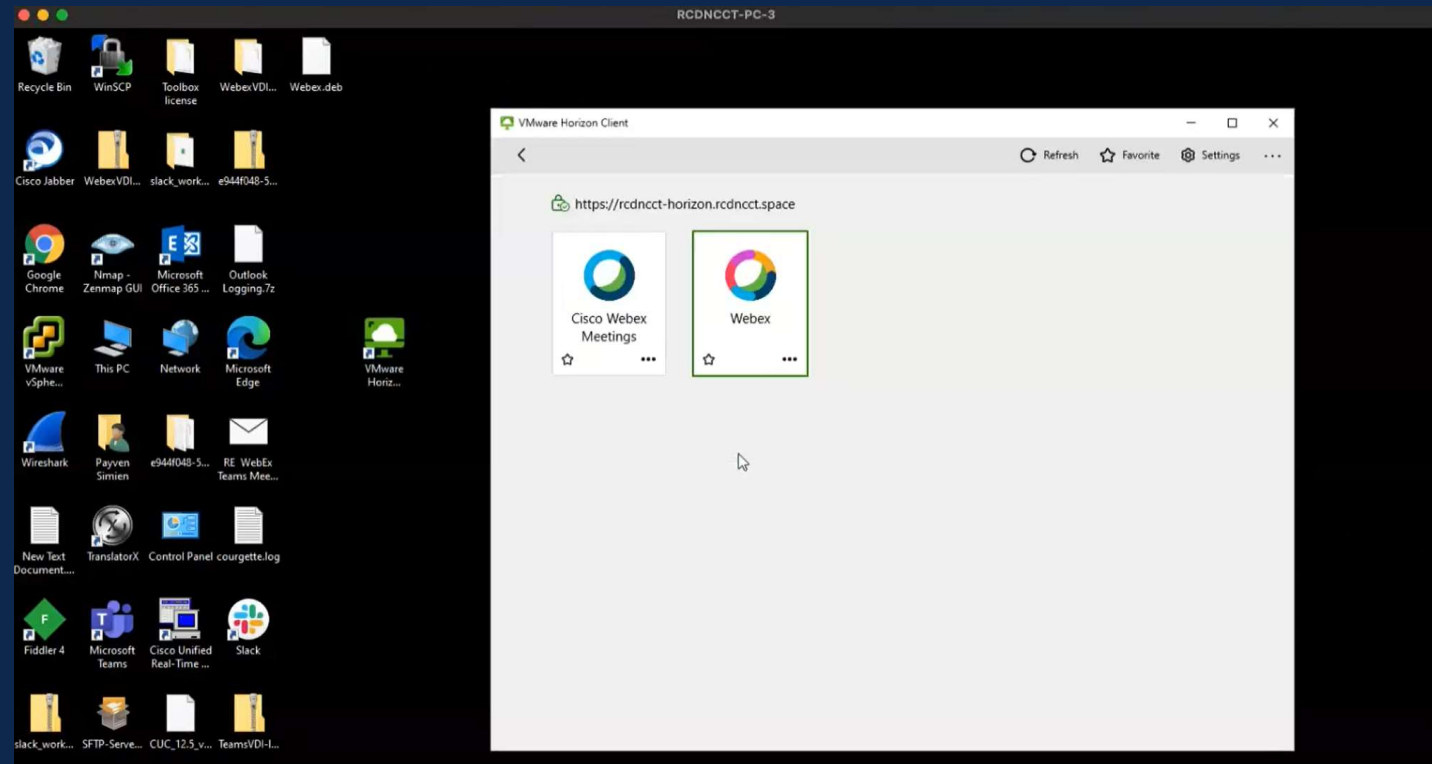
Webex VDI

The Webex application can be used with Windows or Linux thin-client. The different Webex VDI plugins can be found on this page. For more information, please refer to the [Webex VDI Release Notes](#).

Release Date	Webex App (42.6.0.22645)	Webex App VDI Plugin (42.6.0.22645)	Bundled VDI Plugin (42.6.0.22645)
06/17/2022	Windows 32-bit Windows 64-bit	Windows 32-bit	Windows 32-bit (with MC VDI plugin: 42.6.1.7)
		Windows 64-bit	
		Ubuntu 64-bit	
		eLux RP6 64-bit	
		HP ThinPro 64-bit	Windows 64-bit (with MC VDI plugin: 42.6.1.7)
		MacOS Installer	
		iGelOS: Will be available on IGEL website	MacOS Installer (with MC VDI plugin: 42.6.1.7)
		Dell ThinOS: Will be available on DellOS website	
		Stratodesk NoTouchOS: View Stratodesk documentation for details	

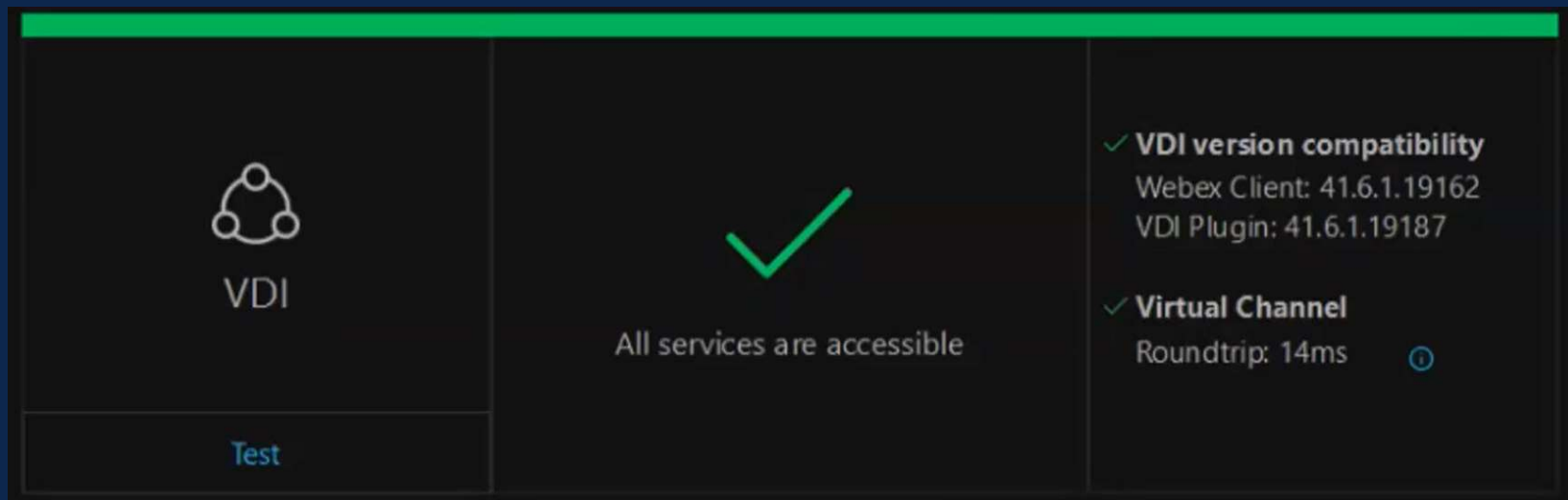
Install and Upgrade

- VMware Installation example with the VMware Horizon Client .



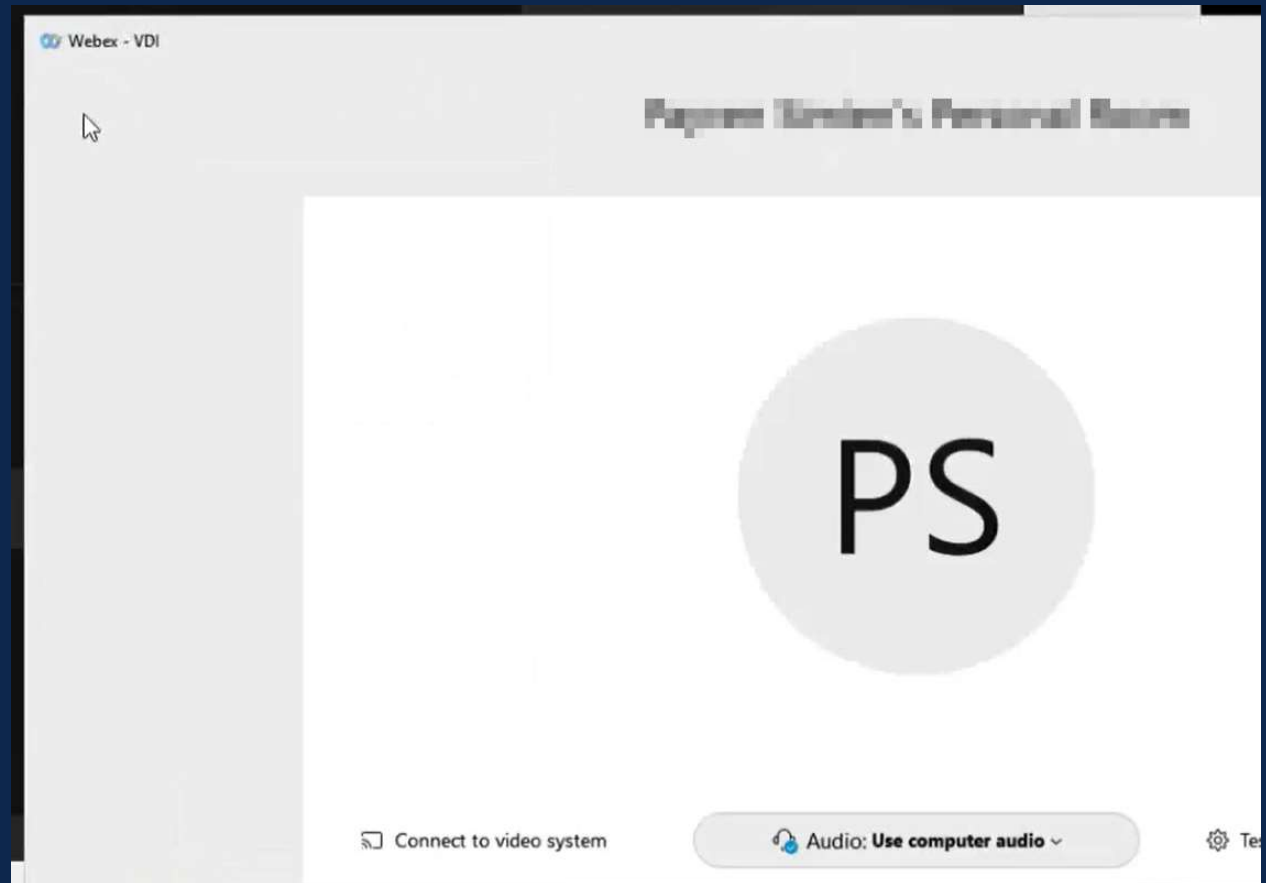
Install and Upgrade

- After installation, the Webex App Health Checker will have a new panel for VDI
 - The Panel will show the Webex Client version, VDI Plugin version and the Virtual Channel round trip time.



Install and Upgrade

- Meetings that are open will be marked with the “Webex – VDI” designator in the left-hand corner.



Troubleshooting

Troubleshooting

- Troubleshooting starts with a supported environment.
 - The VDI Feature has an extensive list of supported versions for underlying HVD, Operating Systems, Clients and Plugins.
 - Verifying with the customer and by the logs that they are running supported versions for everything.
 - If they are not, request they test on the supported versions per the deployment guide and attempt to recreate the issue.
 - If they can recreate it with all supported versions, gather logs and troubleshoot from the supported environment. This will help you later if Engineering Support is required.

Troubleshooting

- How do you verify VDI Capability?
 - Customer tells you it's a VDI deployment, how do you verify this and then verify if the Plugin is installed?
 - From the Webex App Logs:
 - Platform Info:
 - CoreFramework::init:Platform info: **VMware7,1** ; Intel(R) Xeon(R) Gold 5118 CPU @ 2.30GHz
 - WDM Device Type:
 - CoreFramework::init:WDM device type: **WBX_APP_VDI**
 - From the Webex Meetings Tracer Logs:
 - mm::MeetingDaemon::initialize, mApplication->isVDIEnvironment=**TRUE**

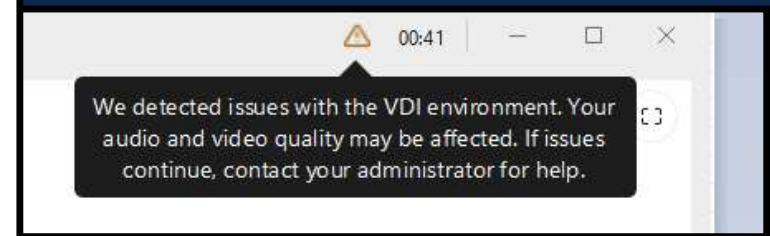
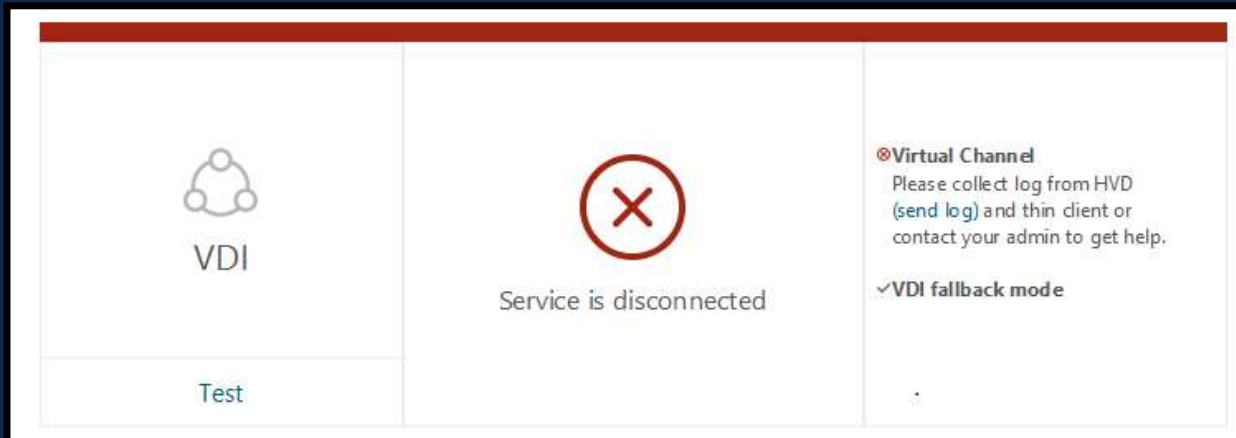
Troubleshooting

- How do you verify VDI Capability continued:
 - Verify the Plugin is installed
 - VDI Diagnostic Data Manager
 - VDIDiagnosticDataManager::OnVirtualChannelStatusChanged:Connection Status:Connected Virtual Environment:VMware Plugin version:41.12.0.20899 Version Compatibility:Compatible Thin client OS:
 - Verify Version compatibility:
 - The Health Check Manager line will display both HVD and Plugin client versions:
 - HealthCheckManager.cpp:449 printVersions: HVDClient:41.12.0.20899 ThinClient:41.12.0.20899 TCSDK:1.0.588.0 HVDSDK:1.0.588.0 TCPlugin:1.0.588.0 HVDAgent:1.0.588.0 Citrix:21.9.0.33 VMWare: MyInternal:1 PeerInternal:1

Troubleshooting

- Fallback mode

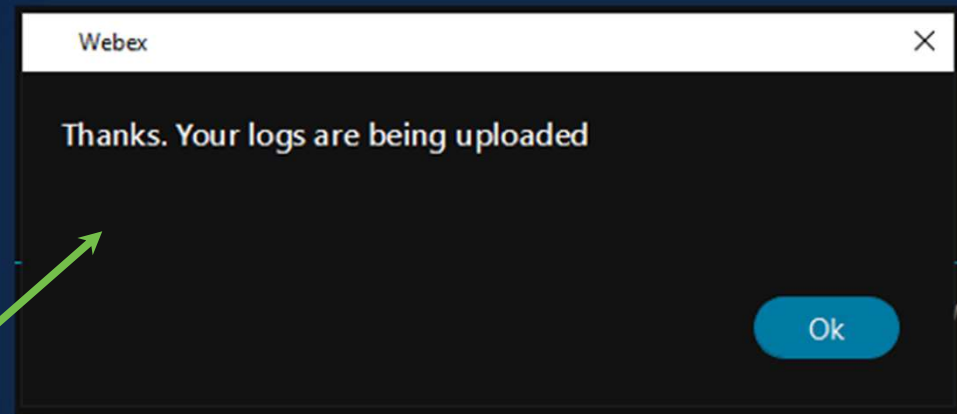
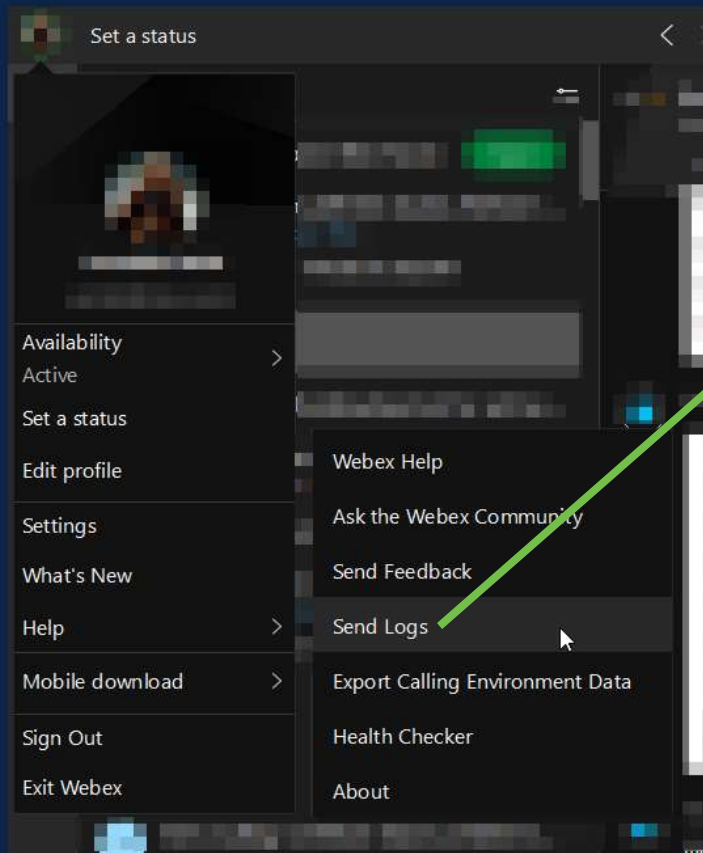
- Webex App VDI fallback mode offers short-term support for basic audio and video calls when VDI can't establish the virtual channel. Fallback mode supports standard calls and call recording. The full feature set isn't supported.
- Identifying if you are in fallback mode:
 - HD video is disabled, and Webex App shows a notification that you may see a media quality issue.



Troubleshooting

- From the Client Logs, the Virtual Channel status will change to **Connected = False** and then show that the VDI virtual channel is disconnected:
 - MediaEngineVDIProxy.cpp:834
MediaEngineVDIProxy::OnVirtualChannelStatusChanged:OnVirtualChannelStatusChanged - **connected = false.**
 - MediaManager.cpp:3710 MediaManager::onVDIVirtualChannelDisconnected:**VDI virtual channel disconnected**
 - EccMediaConnectionManager.cpp:1466
EccMediaConnectionManager::onVDIVirtualChannelDisconnected:**VDI virtual channel disconnected**

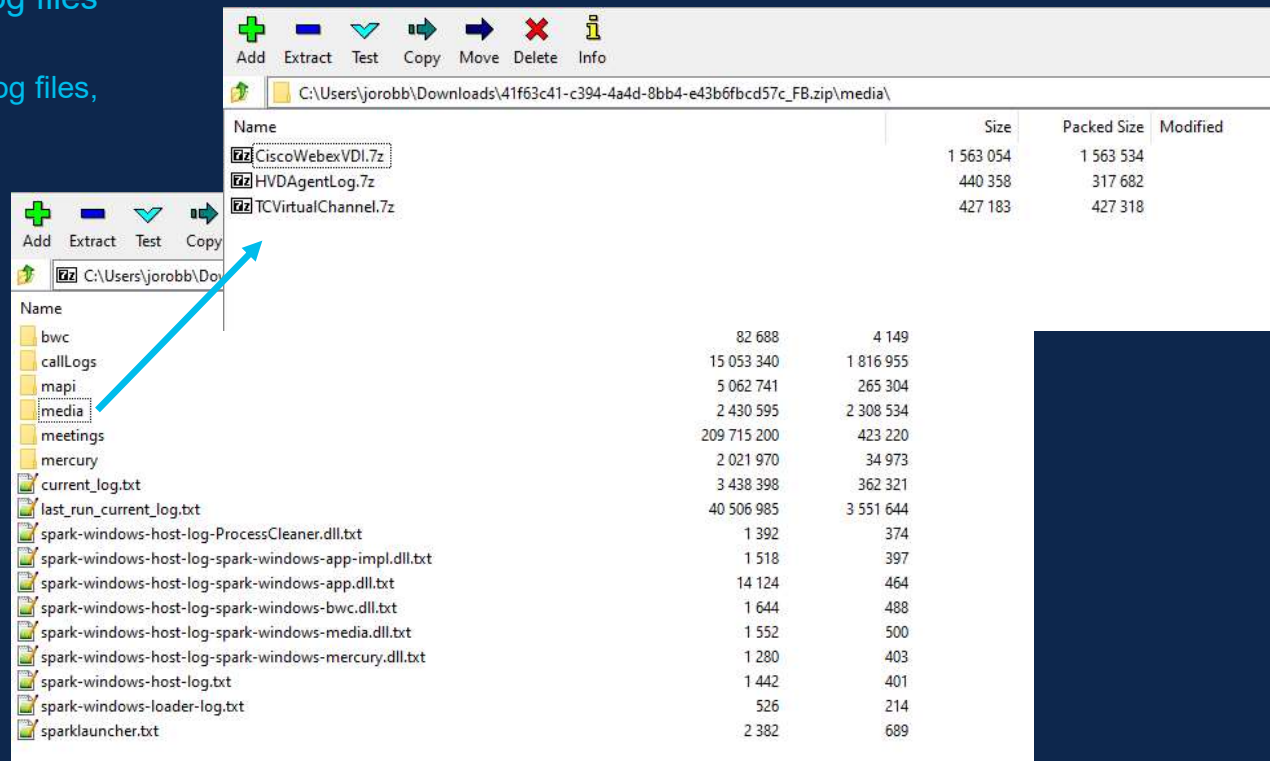
Gathering Client Logs



Send Logs from within the Webex Client. Logs are sent from Thin Client to HVD to the Cloud.

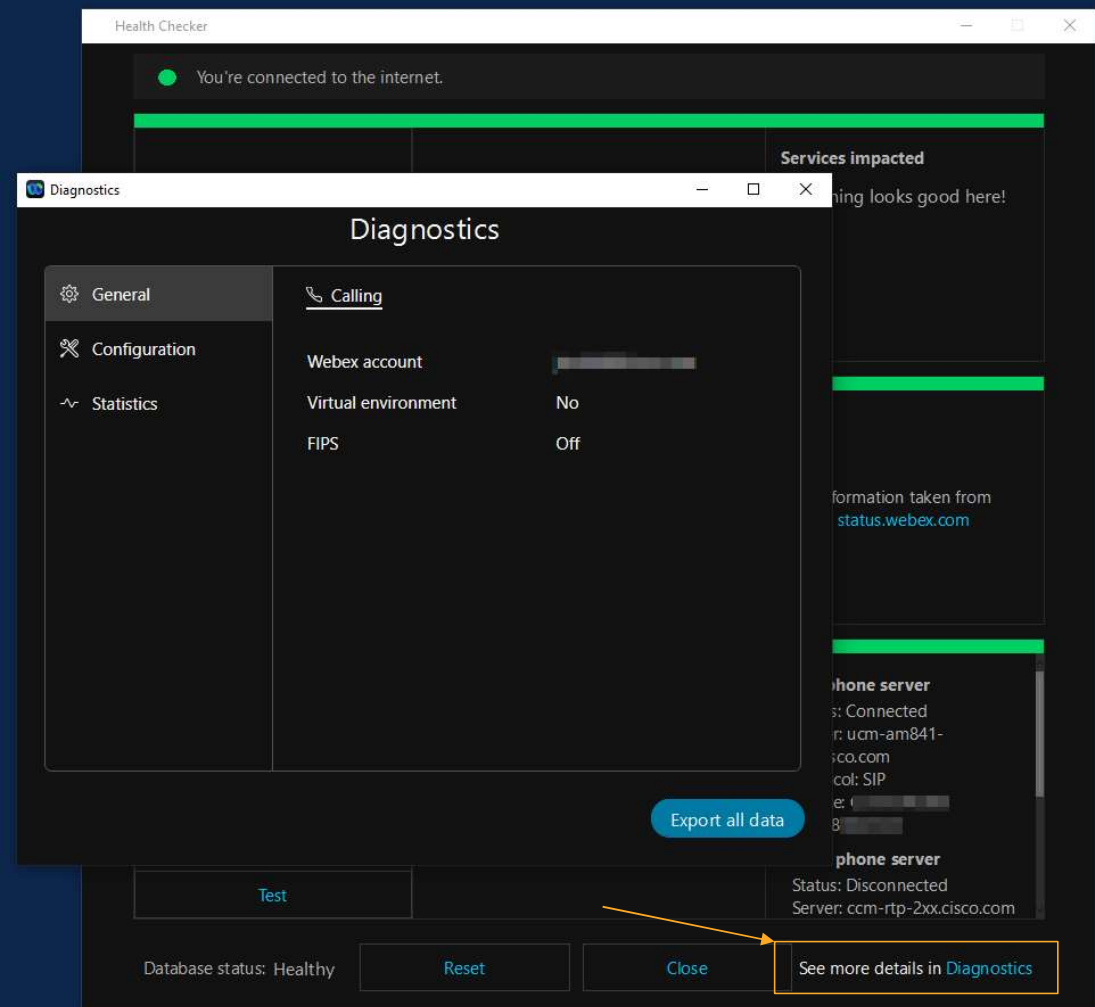
Gathering Client Logs

- VDI logs have different logs in the media folder.
 - TCVirtualChannel.7z contains the Plugin log files from the Thin Client.
 - CiscoWebexVDI.7z contain the Thin Client app log files, including files with .txt and .log extensions.
 - HVDAgentLog.7z contain HVD agent log files.
 - DMPS.7z if there was a Thin Client crash dump



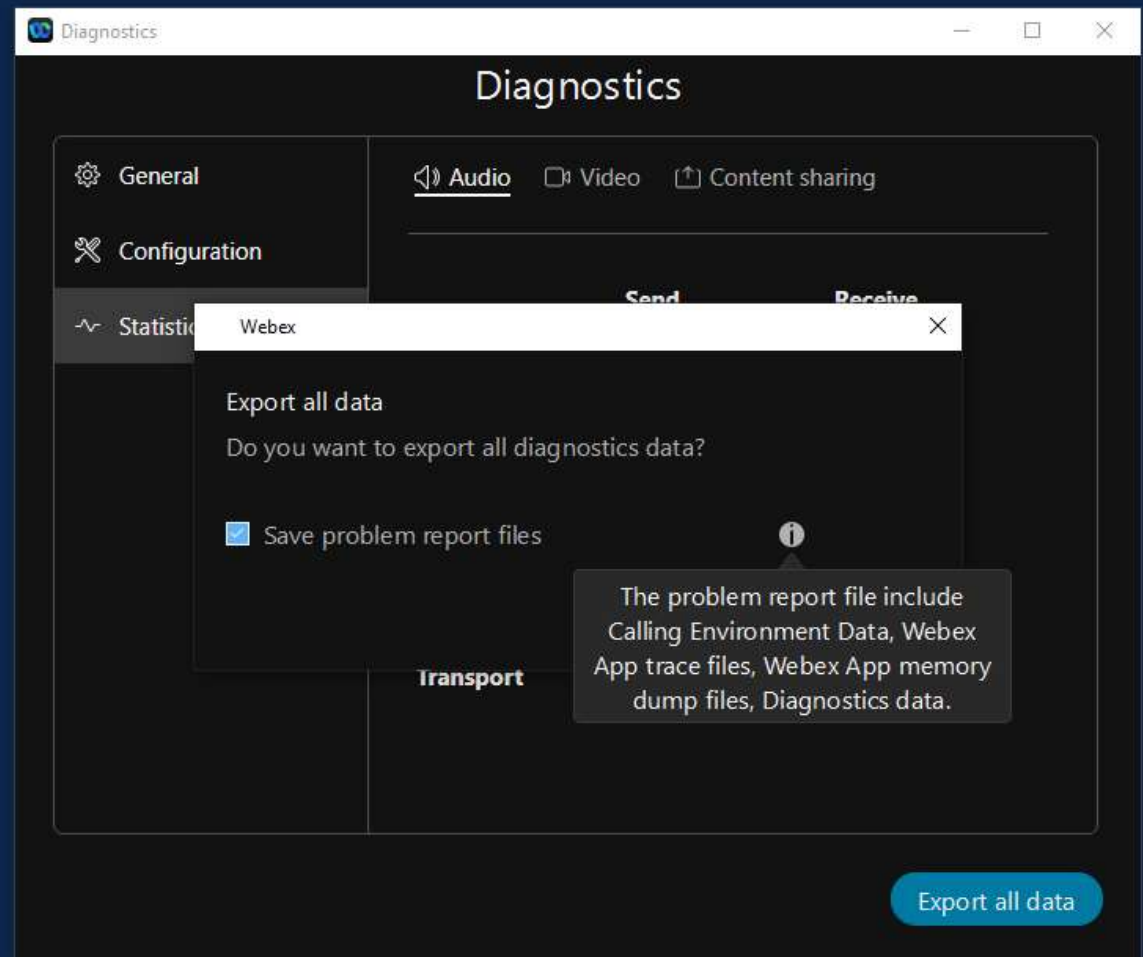
Client Diagnostic Data

- Within the Health Checker, open the Diagnostics Panel from the link.
- Get there a little faster with the keyboard shortcut: Ctrl + Shift + Alt + D
- Use the Diagnostic Panel to gather information on a live call or export that information along with application logs and the Calling Environment Data file

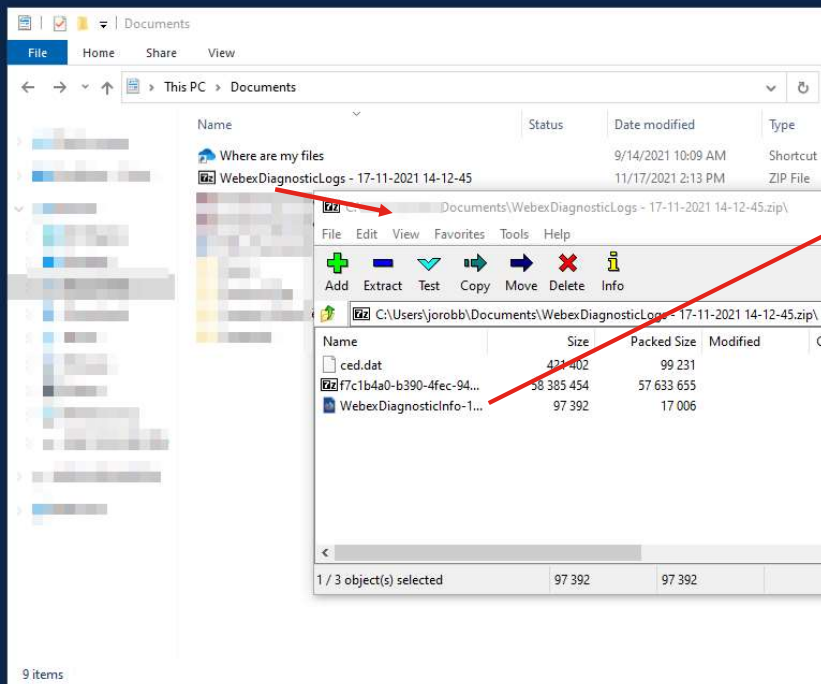


Client Diagnostic Data

- Check Save problem report files, this will export the Calling Environment Data file, Webex Application logs and the Diagnostic data file in a ZIP file.
- If the box is not checked, only the Diagnostic data file will be saved.



Client Diagnostic Data



Calling

Webex account	
Virtual environment	No
FIPS	Off

VDI

Calling

Call on Webex

Video capability	Enabled(Control Hub)
Reachable media server number	26 View details
Calling entitled	Yes
Hybrid calling enabled	No

Advanced Calling

Video capability	Enabled(Control Hub)
Voice services domain	edge-rtp.cisco.com
Internal visibility	Visible
Edge visibility	Not visible

Troubleshooting

- Webex Meetings Citrix Example

- Customer Virtual Channel Fails to connect. Checking the Virtual Channel Log, we see the Plugin isn't detected but we know or have checked, and it is installed correctly.

```
[VirtualChannel] [runVXMTThread] - run thin client.
[VDIFrameworkCommon] [VDIFrameworkCommon::ProcessUtils::createProcess2] - Create Process: C:\Program Files (x86)\Cisco Systems\Cisco Webex Meetings VDI Plug-in\webexvdi.exe
[VDIFrameworkCommon] [VDIFrameworkCommon::ProcessUtils::createProcess2] - command line: "C:\Program Files (x86)\Cisco Systems\Cisco Webex Meetings VDI Plug-in\webexvdi.exe"
[VDIFrameworkCommon] [VDIFrameworkCommon::ProcessUtils::createProcess2] - Process started: webexvdi.exe
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - onNewMessageReceived: RequestInvalidStreams
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - agent disconnected:
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - onNewMessageReceived: RequestNotifyStream|WebexMeetings_StringCipher_TC_TO_HVD
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - agent disconnected:
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - onNewMessageReceived: RequestNotifyStream|WebexMeetings_StringCipher_HVD_TO_TC
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - agent disconnected:
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - onNewMessageReceived: RequestNotifyStream|WebexMeetings_Generic_TC_TO_HVD
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - agent disconnected:
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - onNewMessageReceived: RequestNotifyStream|WebexMeetings_Generic_HVD_TO_TC
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - agent disconnected:
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - onNewMessageReceived: RequestNotifyStream|WebexMeetings_Basic_TC_TO_HVD
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - agent disconnected:
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - onNewMessageReceived: RequestNotifyStream|WebexMeetings_Basic_HVD_TO_TC
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - agent disconnected:
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - onNewMessageReceived: RequestEnviromentType
[VirtualChannel] [VirtualChannelAgent::Agent::notifyEnviromentType] - notify EnviromentType: 1
[VirtualChannel] [VirtualChannelAgent::Agent::notifyInfoS] - - INFO-S subscribers notified: 'EnviromentType|citrix'
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - agent disconnected:
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - onNewMessageReceived: RequestPeerVersion
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - agent disconnected:
[VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - onNewMessageReceived: RequestVCProcessId
[VirtualChannel] [VirtualChannelAgent::Agent::notifyCurrentProcessId] - Current process id:14684
[VirtualChannel] [VirtualChannelAgent::Agent::notifyInfoS] - - INFO-S subscribers notified: 'VCProcessId|14684|false|14684'
```

- Webex Meetings Citrix Example

Citrix Virtual Channel

```
[c:\hvd\CitrixServer\CitrixServer.cpp(241)] [CitrixVirtualChannel] [CiscoVirtualChannel::hvd::CitrixServer::CitrixServer] - Create new Citrix Server.  
[c:\hvd\CitrixServer\CitrixServer.cpp(242)] [CitrixVirtualChannel] [CiscoVirtualChannel::hvd::CitrixServer::CitrixServer] - CSCOMT
```

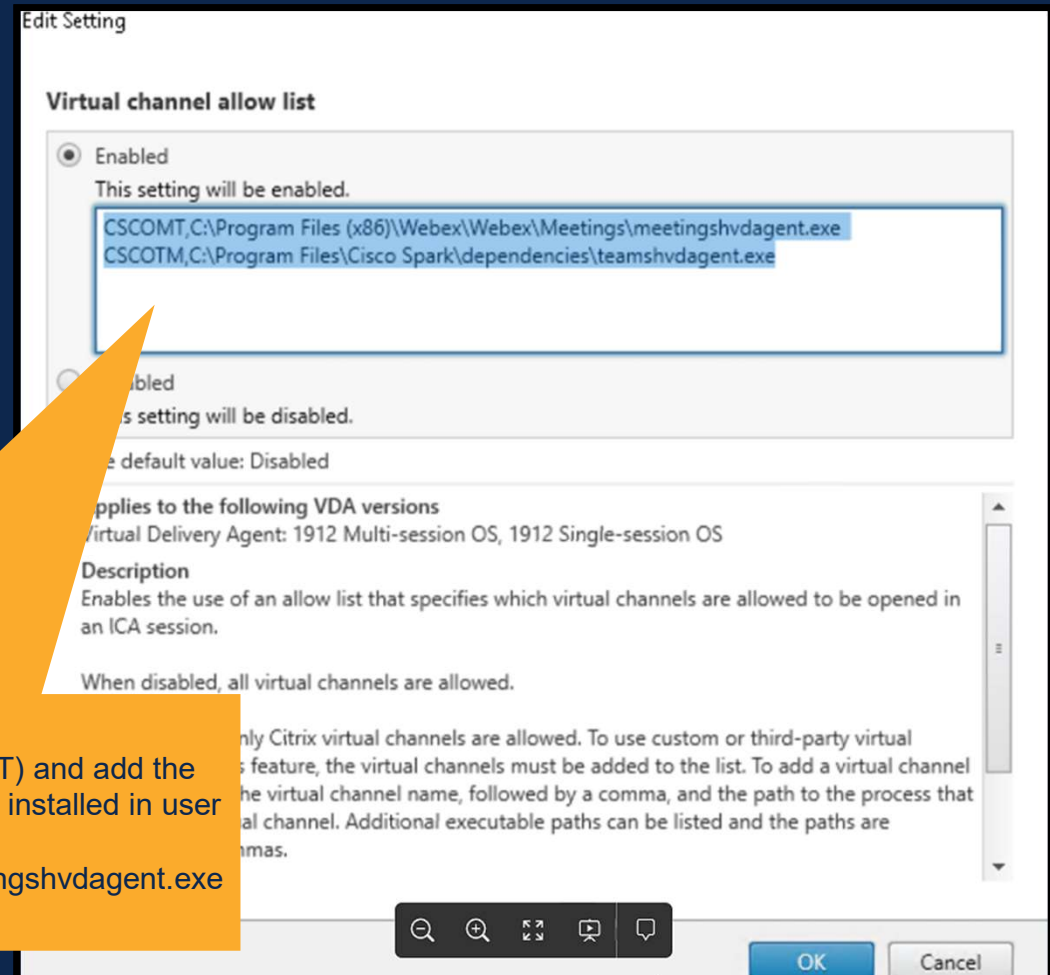
```
[on\vc_agent\VirtualChannelAgent.cpp(230)] [VirtualChannel] [VirtualChannelAgent::Agent::OpenStream] - hvda - OpenStream for reading: WebexMeetings_GenericUnReliable_HVD_TO_TC
[n\vc_agent\VirtualChannelAgent.cpp(1339)] [VirtualChannel] [VirtualChannelAgent::Agent::onNewMessageReceived] - hvda - onNewMessageReceived: SetHVDClientInfo|1332|3
[c\hvd\CitrixServer\CitrixServer.cpp(142)] [CitrixVirtualChannel] [OpenChannelHnd] - Virtual Channel Open failed: 5
[c\hvd\CitrixServer\CitrixServer.cpp(173)] [CitrixVirtualChannel] [OpenChannelHnd] - There was an error: 5
[c\hvd\CitrixServer\CitrixServer.cpp(142)] [CitrixVirtualChannel] [OpenChannelHnd] - Virtual Channel Open failed: 5
[c\hvd\CitrixServer\CitrixServer.cpp(173)] [CitrixVirtualChannel] [OpenChannelHnd] - There was an error: 5
[c\hvd\CitrixServer\CitrixServer.cpp(142)] [CitrixVirtualChannel] [OpenChannelHnd] - Virtual Channel Open failed: 5
[c\hvd\CitrixServer\CitrixServer.cpp(173)] [CitrixVirtualChannel] [OpenChannelHnd] - There was an error: 5
[c\hvd\CitrixServer\CitrixServer.cpp(142)] [CitrixVirtualChannel] [OpenChannelHnd] - Virtual Channel Open failed: 5
[c\hvd\CitrixServer\CitrixServer.cpp(173)] [CitrixVirtualChannel] [OpenChannelHnd] - There was an error: 5
[c\hvd\CitrixServer\CitrixServer.cpp(142)] [CitrixVirtualChannel] [OpenChannelHnd] - Virtual Channel Open failed: 5
[c\hvd\CitrixServer\CitrixServer.cpp(173)] [CitrixVirtualChannel] [OpenChannelHnd] - There was an error: 5
[c\hvd\CitrixServer\CitrixServer.cpp(142)] [CitrixVirtualChannel] [OpenChannelHnd] - Virtual Channel Open failed: 5
[c\hvd\CitrixServer\CitrixServer.cpp(173)] [CitrixVirtualChannel] [OpenChannelHnd] - There was an error: 5
[c\hvd\CitrixServer\CitrixServer.cpp(142)] [CitrixVirtualChannel] [OpenChannelHnd] - Virtual Channel Open failed: 5
[c\hvd\CitrixServer\CitrixServer.cpp(173)] [CitrixVirtualChannel] [OpenChannelHnd] - There was an error: 5
[c\hvd\CitrixServer\CitrixServer.cpp(142)] [CitrixVirtualChannel] [OpenChannelHnd] - Virtual Channel Open failed: 5
[c\hvd\CitrixServer\CitrixServer.cpp(173)] [CitrixVirtualChannel] [OpenChannelHnd] - There was an error: 5
[c\hvd\CitrixServer\CitrixServer.cpp(142)] [CitrixVirtualChannel] [OpenChannelHnd] - Virtual Channel Open failed: 5
[c\hvd\CitrixServer\CitrixServer.cpp(173)] [CitrixVirtualChannel] [OpenChannelHnd] - There was an error: 5
[alchannel\src\hvd\HVDAgent\main.cpp(335)] [VirtualChannel] [waitOnTerminateEventShutdown] - hvdagent received termination event. Process will terminate now
[on\vc_agent\VirtualChannelAgent.cpp(109)] [VirtualChannel] [VirtualChannelAgent::Agent::stop] - hvda - Destroying Virtual Channel Agent
```

Troubleshooting

- **Virtual channel allow list** policy setting enables the use of an allow list that specifies which virtual channels are allowed to be opened in an ICA session.
- When disabled, all virtual channels are allowed.
- When enabled, only Citrix virtual channels are allowed.
- To use custom or third-party virtual channels, add the virtual channels to the list. To add a virtual channel to the list:
 1. Enter the virtual channel name followed by a comma.
 2. Enter the path to the process that accesses the virtual channel.
- More executable paths can be listed, and the paths are separated by commas.

In this instance we check the logs for the Virtual Channel (CSCOMT) and add the folder structure for the meeting client including the `\*` wildcard as it is installed in user directories for this customer.

`CSCOMT,C:\users\*\appdata\local\Webex\WebEx64\meetings\meetingshvdagent.exe`



Resources

Resources

- Download Webex VDI.
 - <https://www.webex.com/downloads/teams-vdi.html>
- Webex App | VDI release notes
 - <https://help.webex.com/en-us/article/ntp1us7/Webex-App-|-VDI-release-notes>
- Deployment Guide for Cisco Webex for Virtual Desktop Infrastructure (VDI)
 - https://www.cisco.com/c/en/us/td/docs/voice_ip_comm/cloudCollaboration/wbxt/vdi/wbx-teams-vdi-deployment-guide/wbx-teams-vdi-deployment_chapter_010.html
- Citrix Product Documentation
 - <https://docs.citrix.com/en-us/citrix-virtual-apps-desktops/technical-overview.html#how-typical-deployments-work>
- Citrix Virtual channel security
 - <https://docs.citrix.com/en-us/citrix-virtual-apps-desktops/secure/virtual-channel-security.html>



The bridge to possible