

VMware Horizon HTML Access Installation and Setup Guide

MAR 2020

VMware Horizon HTML Access 5.4

VMware Horizon 7 7.12

You can find the most up-to-date technical documentation on the VMware website at:

<https://docs.vmware.com/>

VMware, Inc.
3401 Hillview Ave.
Palo Alto, CA 94304
www.vmware.com

Copyright © 2013-2020 VMware, Inc. All rights reserved. [Copyright and trademark information.](#)

Contents

VMware Horizon HTML Access Installation and Setup Guide 5

1 Setup and Installation 6

- System Requirements for HTML Access 7
- Preparing Connection Server and Security Servers 8
 - Firewall Rules for Client Web Browser Access 11
- Configure Horizon 7 to Remove Credentials from Cache 11
- Prepare Desktops, Pools, and Farms 12
- Requirements for the Session Collaboration Feature 14
- Configure HTML Access Agents to Use New TLS Certificates 15
 - Add the Certificate Snap-In to MMC on a Remote Desktop 16
 - Import a Certificate for the HTML Access Agent into the Windows Certificate Store 16
 - Import Root and Intermediate Certificates for the HTML Access Agent 17
 - Set the Certificate Thumbprint in the Windows Registry 18
- Configure HTML Access Agents to Use Specific Cipher Suites 19
- Configuring iOS to Use CA-Signed Certificates 20
- Using a CA-Signed Certificate with Unified Access Gateway 20
- Configuring Autoplay in Chrome and Safari 20
- Upgrading HTML Access 20
- Uninstall the HTML Access Component from Connection Server 21
- Configure Horizon Client Data Sharing 21
 - Disabling Data Sharing for all HTML Access Users 22
 - Data Collected by VMware 22

2 Configuring HTML Access for End Users 24

- Configure the VMware Horizon Web Portal Page for End Users 24
- Using URIs to Configure HTML Access Web Clients 28
 - Syntax for Creating URIs for HTML Access 28
 - Examples of URIs 31
- HTML Access Group Policy Settings 33

3 Managing Remote Desktop and Published Application Connections 34

- Connect to a Remote Desktop or Published Application 34
- Trust a Self-Signed Root Certificate 36
- Connect to a Server in Workspace ONE Mode 37
- Use Unauthenticated Access to Connect to Published Applications 38
- Setting the Time Zone 39
- Allowing H.264 Decoding 39

[Log Off or Disconnect](#) 40

4 Using a Remote Desktop or Published Application 42

[Feature Support Matrix](#) 43

[Using the Sidebar](#) 44

[Monitors and Screen Resolution](#) 46

[Use Multiple Monitors](#) 46

[Setting the Screen Resolution](#) 48

[Using DPI Synchronization](#) 48

[Use Full-Screen Mode](#) 50

[Using the Real-Time Audio-Video Feature for Webcams and Microphones](#) 51

[Sharing Remote Desktop Sessions](#) 51

[Invite a User to Join a Remote Desktop Session](#) 52

[Manage a Shared Remote Desktop Session](#) 54

[Join a Remote Desktop Session](#) 54

[Copying and Pasting Text](#) 55

[Use the Copy and Paste Window](#) 57

[Transferring Files Between the Client and a Remote Desktop or Published Application](#) 58

[Download Files From a Remote Desktop or Published Application to the Client System](#) 59

[Upload Files From the Client System to a Remote Desktop or Published Application](#) 60

[Printing From a Remote Desktop or Published Application](#) 60

[Set Printing Preferences for the VMware Integrated Printing Feature](#) 61

[Use Multiple Sessions of a Published Application From Different Client Devices](#) 61

[Adjusting the Sound in Remote Desktops and Published Applications](#) 62

[Shortcut Key Combinations](#) 63

[Internationalization](#) 66

[International Keyboards](#) 66

5 Troubleshooting Horizon Client 68

[Restart a Remote Desktop](#) 68

[Reset Remote Desktops or Published Applications](#) 69

VMware Horizon HTML Access Installation and Setup Guide

This guide, *VMware Horizon HTML Access Installation and Setup Guide*, describes how to install, configure, and use the VMware Horizon® HTML Access™ software to connect to virtual desktops without having to install any software on a client system.

The information in this document includes system requirements and instructions for installing HTML Access software on a VMware Horizon 7 server and on a remote desktop virtual machine so that end users can use a Web browser to access remote desktops.

Important This information is intended for administrators who already have some experience using Horizon 7 and VMware vSphere. If you are a novice user of Horizon 7, you might occasionally need to refer to the step-by-step instructions for basic procedures in the *Horizon 7 Installation* documentation and the *VMware Horizon Console Administration* documentation.

Setup and Installation

1

Setting up a Horizon 7 deployment for HTML Access involves installing the HTML Access component in Connection Server and allowing inbound traffic on certain TCP ports. To allow end users to use HTML Access to access published desktops and published applications, you must enable HTML Access in the farm settings. For virtual desktops, you must enable HTML Access in the desktop pool settings.

End users access their remote desktops and published applications by opening a supported browser and entering the URL for a server. When an end user connects to a server, the VMware Horizon Web portal page appears. You can configure the appearance of the VMware Horizon Web Portal page, and you can set group policies to control image quality, the ports used, and other settings.

This chapter includes the following topics:

- [System Requirements for HTML Access](#)
- [Preparing Connection Server and Security Servers](#)
- [Configure Horizon 7 to Remove Credentials from Cache](#)
- [Prepare Desktops, Pools, and Farms](#)
- [Requirements for the Session Collaboration Feature](#)
- [Configure HTML Access Agents to Use New TLS Certificates](#)
- [Configure HTML Access Agents to Use Specific Cipher Suites](#)
- [Configuring iOS to Use CA-Signed Certificates](#)
- [Using a CA-Signed Certificate with Unified Access Gateway](#)
- [Configuring Autoplay in Chrome and Safari](#)
- [Upgrading HTML Access](#)
- [Uninstall the HTML Access Component from Connection Server](#)
- [Configure Horizon Client Data Sharing](#)

System Requirements for HTML Access

With HTML Access, the client system does not require any software other than a supported browser. The Horizon 7 deployment must meet certain software requirements.

Browsers on the client system

Browser	Version
Chrome	75, 76
Internet Explorer	11
Safari	12
Firefox	67, 68
Microsoft Edge	42, 44
VMware Workspace ONE Web	The latest version in the Apple App Store (iOS devices) or Google Play Store (Android devices).

Note

- On an Android device, Chrome does not support the Windows key, multiple monitors, copy and paste to the system, file transfer, printing, H.264 decoding, credential cleanup, and an external mouse. The Del, Ctrl+A, Ctrl+C, Ctrl+V, Ctrl+X, Ctrl+Y, Ctrl+Z key combinations do not work on the software keyboard.
- On a mobile device, Safari does not support an external mouse, the Windows key, multiple monitors, copy and paste to the system, file transfer, printing, H.264 decoding, and credential cleanup.

Client operating systems

Operating System	Version
Windows	7 SP1 (32-bit and 64-bit) 8.x (32-bit and 64-bit) 10 (32-bit and 64-bit)
macOS	10.14.x (Mojave) 10.13.x (High Sierra)
iOS	10 or later
Chrome OS	28.x or later
Android	7 or later

Remote desktops

HTML Access requires Horizon Agent 7.0 or later and supports all the desktop operating systems that Horizon Agent 7.0 supports. For more information, see "Supported Operating Systems for Horizon Agent" in version 7.0 or later of the *Horizon 7 Installation* document.

Pool settings

HTML Access requires the following pool settings.

- The **Max resolution of any one monitor** setting must be **1920x1200** or higher so that the remote desktop has at least 17.63 MB of video RAM.

If you use 3D applications, or if end users use a MacBook with Retina Display or a Google Chromebook Pixel, see [Setting the Screen Resolution](#).

- The **HTML Access** setting must be enabled.

For configuration instructions, see [Prepare Desktops, Pools, and Farms](#).

Connection Server

The HTML Access option must be installed in Connection Server.

When you install the HTML Access component, the **VMware Horizon View Connection Server (Blast-In)** rule is enabled in the Windows Firewall. This rule configures the firewall to allow inbound traffic to TCP port 8443 automatically.

Security Server

If you use a security server, the same version as Connection Server must be installed on the security server.

Note You can use Unified Access Gateway appliances rather than security servers for secure external access.

Third-party firewalls

Add rules to allow the following traffic:

- For servers (including security servers, Connection Server instances, and replica servers), allow inbound traffic to TCP port 8443.
- For remote desktop virtual machines, allow inbound traffic (from servers) to TCP port 22443.

Display protocols

VMware Blast

When you use a Web browser to access a remote desktop, the VMware Blast display protocol is used rather than PCoIP or Microsoft RDP. VMware Blast uses HTTPS (HTTP over SSL/TLS).

Preparing Connection Server and Security Servers

Before end users can connect to a server and access a remote desktop or published application, a Horizon administrator must install Connection Server and install security servers, if used.

You can use Unified Access Gateway appliances, rather than security servers, for secure external access. For more information, see the *Deploying and Configuring Unified Access Gateway* document.

Following is a check list of the tasks that a Horizon administrator must perform to use HTML Access.

- 1 Install Connection Server with the **Install HTML Access** setting selected on the server, or servers, that comprise a Connection Server replicated group. This setting installs the HTML Access component. This setting is selected in the installer by default. For more information, see the *Horizon 7 Installation* document.

To verify that the HTML Access component is installed, you can open the Windows Uninstall a Program applet and look for **VMware Horizon 7 HTML Access** in the list.

- 2 If you use security servers, install Security Server. The version of Security Server must match the version of Connection Server. For installation instructions, see the *Horizon 7 Installation* document.
- 3 Verify that each Connection Server instance or security server has a TLS certificate that can be fully verified by using the host name that you enter in the Web browser. For more information, see the *Horizon 7 Installation* document.
- 4 To use two-factor authentication, such as RSA SecurID or RADIUS authentication, verify that this feature is enabled on Connection Server. Beginning with Horizon 7 version 7.11, you can customize the labels on the RADIUS authentication login page. Beginning with Horizon 7 version 7.12, you can configure two-factor authentication to occur after a remote session times out. For more information, see the topics about two-factor authentication in the *VMware Horizon Console Administration* document.
- 5 To hide the **Domain** drop-down menu in Horizon Client, enable the **Hide domain list in client user interface** global setting. This setting is available in Horizon 7 version 7.1 and later. Beginning with Horizon 7 version 7.8, it is enabled by default. For more information, see the *VMware Horizon Console Administration* document.
- 6 To send the domain list to Horizon Client, enable the **Send domain list** global setting. This setting is available in Horizon 7 version 7.8 and later and is disabled by default. Earlier Horizon 7 versions send the domain list. For more information, see the *VMware Horizon Console Administration* document for Horizon 7 version 7.8 or later.
- 7 If you use third-party firewalls, configure rules to allow inbound traffic to TCP port 8443 for all security servers and Connection Server hosts in a replicated group, and configure a rule to allow inbound traffic (from servers) to TCP port 22443 on remote desktop virtual machines and RDS hosts in the data center. For more information, see [Firewall Rules for Client Web Browser Access](#).
- 8 To provide unauthenticated access to published applications, enable this feature in Connection Server. For more information, see the *VMware Horizon Console Administration* document.

The following table shows how the **Send domain list** and **Hide domain list in client user interface** global settings determine how users can log in to the server from Horizon Client.

Send domain list setting	Hide domain list in client user interface setting	How users log in
Disabled (default)	Enabled	The Domain drop-down menu is hidden. Users must enter one of the following values in the User name text box. <ul style="list-style-type: none"> ■ User name (not allowed for multiple domains) ■ <i>domain\username</i> ■ <i>username@domain.com</i>
Disabled (default)	Disabled	If a default domain is configured on the client, the default domain appears in the Domain drop-down menu. If the client does not know a default domain, *DefaultDomain* appears in the Domain drop-down menu. Users must enter one of the following values in the User name text box. <ul style="list-style-type: none"> ■ User name (not allowed for multiple domains) ■ <i>domain\username</i> ■ <i>username@domain.com</i>
Enabled	Enabled	The Domain drop-down menu is hidden. Users must enter one of the following values in the User name text box. <ul style="list-style-type: none"> ■ User name (not allowed for multiple domains) ■ <i>domain\username</i> ■ <i>username@domain.com</i>
Enabled	Disabled	Users can enter a user name in the User name text box and then select a domain from the Domain drop-down menu. Alternatively, users can enter one of the following values in the User name text box. <ul style="list-style-type: none"> ■ <i>domain\username</i> ■ <i>username@domain.com</i>

After the servers are installed, the **Blast Secure Gateway** setting is enabled on the applicable Connection Server instances and security servers in Horizon Console. Also, the **Blast External URL** setting is configured to use the Blast Secure Gateway on the applicable Connection Server instances and security servers. By default, the URL includes the FQDN of the secure tunnel external URL and the default port number, 8443. The URL must contain the FQDN and port number that a client system can use to reach the Connection Server host or security server host. For more information, see "Set the External URLs for a Connection Server Instance," in the *Horizon 7 Installation* document.

Note You can use HTML Access with VMware Workspace ONE to allow users to connect to their desktops from an HTML5 browser. For information about installing Workspace ONE and configuring it for use with Connection Server, see the Workspace ONE documentation. For information about pairing Connection Server with a SAML Authentication server, see the *VMware Horizon Console Administration* document.

Firewall Rules for Client Web Browser Access

To allow client Web browsers to make connections to security servers, Connection Server instances, remote desktops, and published applications, your firewalls must allow inbound traffic on certain TCP ports.

HTML Access connections must use HTTPS. HTTP connections are not allowed.

By default, when you install a Connection Server instance or security server, the **VMware Horizon View Connection Server (Blast-In)** rule is enabled in the Windows Firewall and the firewall is configured to allow inbound traffic to TCP port 8443.

Table 1-1. Firewall Rules for Client Browser Access

Source	Default Source Port	Protocol	Target	Default Target Port	Notes
Client Web browser	TCP Any	HTTPS	Security server or Connection Server instance	TCP 443	To make the initial connection, the Web browser on a client device connects to a security server or Connection Server instance on TCP port 443.
Client Web browser	TCP Any	HTTPS	Blast Secure Gateway	TCP 8443	After the initial connection is made, the Web browser on a client device connects to the Blast Secure Gateway on TCP port 8443. The Blast Secure Gateway must be enabled on a security server or Connection Server instance to allow this second connection to take place.
Blast Secure Gateway	TCP Any	HTTPS	HTML Access Agent	TCP 22443	If the Blast Secure Gateway is enabled, after the user selects a remote desktop or published application, the Blast Secure Gateway connects to the HTML Access Agent on TCP port 22443 on the remote desktop virtual machine or RDS host. This agent component is included when you install Horizon Agent.
Client Web browser	TCP Any	HTTPS	HTML Access Agent	TCP 22443	If the Blast Secure Gateway is not enabled, after the user selects a remote desktop or published application, the Web browser on a client device makes a direct connection to the HTML Access Agent on TCP port 22443 on the remote desktop virtual machine or RDS host. This agent component is included when you install Horizon Agent.

Configure Horizon 7 to Remove Credentials from Cache

You can configure Horizon 7 to remove a user's credentials from cache when a user closes a tab that connects to a remote desktop or published application, or closes a tab that connects to the desktop and application selection window.

When this feature is disabled (the default setting), the credentials remain in cache.

Note When you enable this feature, the credentials are also removed from cache when a user refreshes the desktop and application selection page or the remote session page, or runs a URI command in the tab that contains the remote session. If the server presents a self-signed certificate, the credentials are removed from cache after a user starts a remote desktop or published application and accepts the certificate when the security warning appears.

Prerequisites

This feature requires Horizon 7 version 7.0.2 or later.

Procedure

- 1 In Horizon Console, select **Settings > Global Settings**, click the **General Settings** tab, and click **Edit**.
- 2 Select the **Clean up credential when tab closed for HTML Access** check box.
- 3 To save your changes, click **OK**.

Results

Your changes take effect immediately. You do not need to restart Connection Server.

Prepare Desktops, Pools, and Farms

Before end users can access a remote desktop or published application, a Horizon administrator must configure certain pool and farm settings and install Horizon Agent on desktop virtual machines and RDS hosts.

Horizon Client offers more features and better performance than HTML Access. For example, with HTML Access, some key combinations do not work in the remote desktop, but these key combinations do work with Horizon Client. HTML Access is a good alternative when Horizon Client software is not installed on the client system.

Prerequisites

- Verify that the Horizon components meet the system requirements for HTML Access. See [System Requirements for HTML Access](#).
- Verify that the HTML Access component is installed with Connection Server on the host or hosts and that the Windows firewalls on Connection Server instances and any security servers allow inbound traffic on TCP port 8443. See [Preparing Connection Server and Security Servers](#).
- If you use third-party firewalls, configure a rule to allow inbound traffic from Horizon servers to TCP port 22443 on desktop virtual machines and RDS hosts in the data center. See [Firewall Rules for Client Web Browser Access](#).

- Verify that the virtual machine you plan to use as a desktop source, or the RDS host that hosts published desktops and applications, has a supported operating system and VMware Tools installed. See [System Requirements for HTML Access](#).
- Become familiar with the procedures for creating pools and farms and entitling users. See the *Setting Up Virtual Desktops in Horizon 7* and *Setting Up Published Desktops and Applications in Horizon 7* documents.
- To verify that the remote desktop or published application is accessible to end users, install Horizon Client for Windows on a client system. You can use Horizon Client for Windows to test the connection before you attempt to connect from a Web browser. For installation instructions, see the *VMware Horizon Client for Windows Installation and Setup Guide* document.
- Verify that you have one of the supported browsers for accessing a remote desktop or published application. See [System Requirements for HTML Access](#).

Procedure

- 1 For published desktops and applications, use Horizon Console to create or edit the farm and enable the **Allow HTML Access to desktops and applications on this farm** option in the farm settings.
- 2 For virtual desktops, use Horizon Console to edit the desktop pool so that the pool can be used with HTML Access.
 - a Enable the **HTML Access** in the Desktop Pool settings.
 - b In the pool settings, verify that the **Max resolution of any one monitor** setting is **1920x1200** or higher.
- 3 After the pools are created, recomposed, or upgraded to use Horizon Agent with the **Allow HTML Access to desktops and applications on this farm** or **HTML Access** option, use Horizon Client for Windows to connect to a remote desktop or published application.

With this step, before you attempt to use HTML Access, you verify that the pool is working correctly.

- 4 Open a supported browser and enter a URL that points to your Connection Server instance.

For example:

```
https://horizon.mycompany.com
```

You must include **https** in the URL.

- 5 On the Web page that appears, click **VMware Horizon HTML Access** and log in as you do with Horizon Client for Windows.
- 6 On the desktop and application selection page that appears, click an icon to connect.

Results

You can now access a remote desktop or published application from a Web browser.

What to do next

For added security, if your security policies require that the HTML Access Agent on the remote desktop uses a TLS certificate from a certificate authority, see [Configure HTML Access Agents to Use New TLS Certificates](#).

Requirements for the Session Collaboration Feature

With the Session Collaboration feature, users can invite other users to join an existing remote desktop session. To support the Session Collaboration feature, your Horizon deployment must meet certain requirements.

Session collaborators

To join a collaborative session, a user must have Horizon Client 4.7 or later for Windows, Mac, or Linux installed on the client system, or must use HTML Access 4.7 or later.

Windows remote desktops

- Horizon Agent 7.4 or later must be installed in the Windows virtual desktop, or on the RDS host for published desktops.
- The Session Collaboration feature must be enabled at the desktop pool or farm level. For information about enabling the Session Collaboration feature for desktop pools, see the *Setting Up Virtual Desktops in Horizon 7* document. For information about enabling the Session Collaboration feature for a farm, see the *Setting Up Published Desktops and Applications in Horizon 7* document.

You can use Horizon Agent group policy settings to configure the Session Collaboration feature. For information, see the *Configuring Remote Desktop Features in Horizon 7* document.

Linux remote desktops

For Linux remote desktop requirements, see the *Setting Up Horizon 7 for Linux Desktops* document.

Connection Server

The Session Collaboration feature requires that the Connection Server instance uses an Enterprise license.

Display protocols

VMware Blast

The Session Collaboration feature does not support published application sessions.

Configure HTML Access Agents to Use New TLS Certificates

To comply with industry or security regulations, you can replace the default TLS certificates that the HTML Access Agent generates with certificates that a Certificate Authority (CA) signs.

When you install the HTML Access Agent on a remote desktop, the HTML Access Agent service creates default self-signed certificates. The service presents the default certificates to browsers that use HTML Access.

Note In the guest operating system on the desktop virtual machine, this service is called the VMware Blast service.

To replace the default certificates with signed certificates that you obtain from a CA, you must import a certificate into the Windows local computer certificate store on each remote desktop. You must also set a registry value that allows the HTML Access Agent to use the new certificate.

If you replace the default HTML Access Agent certificates with CA-signed certificates, configure a unique certificate on each remote desktop. Do not configure a CA-signed certificate on a parent virtual machine or template that you use to create a desktop pool. That approach results in hundreds or thousands of remote desktops that have identical certificates.

Procedure

1 [Add the Certificate Snap-In to MMC on a Remote Desktop](#)

Before you can add certificates to the Windows local computer certificate store, you must add the Certificate snap-in to the Microsoft Management Console (MMC) on the remote desktops where the HTML Access Agent is installed.

2 [Import a Certificate for the HTML Access Agent into the Windows Certificate Store](#)

To replace a default HTML Access Agent certificate with a CA-signed certificate, you must import the CA-signed certificate into the Windows local computer certificate store. Perform this procedure on each remote desktop where the HTML Access Agent is installed.

3 [Import Root and Intermediate Certificates for the HTML Access Agent](#)

If the root certificate and intermediate certificates in the certificate chain are not imported with the SSL certificate that you imported for the HTML Access Agent, you must import these certificates into the Windows local computer certificate store.

4 [Set the Certificate Thumbprint in the Windows Registry](#)

To allow the HTML Access Agent to use a CA-signed certificate that was imported into the Windows certificate store, you must configure the certificate thumbprint in a Windows registry key. You must take this step on each remote desktop on which you replace the default certificate with a CA-signed certificate.

Add the Certificate Snap-In to MMC on a Remote Desktop

Before you can add certificates to the Windows local computer certificate store, you must add the Certificate snap-in to the Microsoft Management Console (MMC) on the remote desktops where the HTML Access Agent is installed.

Prerequisites

Verify that the MMC and Certificate snap-in are available on the Windows guest operating system where the HTML Access Agent is installed.

Procedure

- 1 On the remote desktop, click **Start** and type **mmc.exe**.
- 2 In the **MMC** window, go to **File > Add/Remove Snap-in**.
- 3 In the **Add or Remove Snap-ins** window, select **Certificates** and click **Add**.
- 4 In the **Certificates snap-in** window, select **Computer account**, click **Next**, select **Local computer**, and click **Finish**.
- 5 In the **Add or Remove snap-in** window, click **OK**.

What to do next

Import the SSL certificate into the Windows local computer certificate store. See [Import a Certificate for the HTML Access Agent into the Windows Certificate Store](#).

Import a Certificate for the HTML Access Agent into the Windows Certificate Store

To replace a default HTML Access Agent certificate with a CA-signed certificate, you must import the CA-signed certificate into the Windows local computer certificate store. Perform this procedure on each remote desktop where the HTML Access Agent is installed.

Prerequisites

- Verify that the HTML Access Agent is installed on the remote desktop.
- Verify that the CA-signed certificate was copied to the remote desktop.
- Verify that the Certificate snap-in was added to MMC. See [Add the Certificate Snap-In to MMC on a Remote Desktop](#).

Procedure

- 1 In the MMC window on the remote desktop, expand the **Certificates (Local Computer)** node and select the **Personal** folder.
- 2 In the Actions pane, go to **More Actions > All Tasks > Import**.
- 3 In the **Certificate Import** wizard, click **Next** and browse to the location where the certificate is stored.

- 4 Select the certificate file and click **Open**.

To display your certificate file type, you can select its file format from the **File name** drop-down menu.

- 5 Type the password for the private key that is included in the certificate file.

- 6 Select **Mark this key as exportable**.

- 7 Select **Include all extendable properties**.

- 8 Click **Next** and click **Finish**.

The new certificate appears in the **Certificates (Local Computer) > Personal > Certificates** folder.

- 9 Verify that the new certificate contains a private key.

- a In the **Certificates (Local Computer) > Personal > Certificates** folder, double-click the new certificate.
- b In the General tab of the Certificate Information dialog box, verify that the following statement appears: You have a private key that corresponds to this certificate.

What to do next

If necessary, import the root certificate and intermediate certificates into the Windows certificate store. See [Import Root and Intermediate Certificates for the HTML Access Agent](#).

Configure the appropriate registry key with the certificate thumbprint. See [Set the Certificate Thumbprint in the Windows Registry](#).

Import Root and Intermediate Certificates for the HTML Access Agent

If the root certificate and intermediate certificates in the certificate chain are not imported with the SSL certificate that you imported for the HTML Access Agent, you must import these certificates into the Windows local computer certificate store.

Procedure

- 1 In the MMC console on the remote desktop, expand the **Certificates (Local Computer)** node and go to the **Trusted Root Certification Authorities > Certificates** folder.
 - If your root certificate is in this folder, and there are no intermediate certificates in your certificate chain, skip this procedure.
 - If your root certificate is not in this folder, proceed to step 2.
- 2 Right-click the **Trusted Root Certification Authorities > Certificates** folder and click **All Tasks > Import**.
- 3 In the **Certificate Import** wizard, click **Next** and browse to the location where the root CA certificate is stored.

- 4 Select the root CA certificate file and click **Open**.
- 5 Click **Next**, click **Next**, and click **Finish**.
- 6 If an intermediate CA signed your server certificate, import all intermediate certificates in the certificate chain into the Windows local computer certificate store.
 - a Go to the **Certificates (Local Computer) > Intermediate Certification Authorities > Certificates** folder.
 - b Repeat steps 3 through 6 for each intermediate certificate that must be imported.

What to do next

Configure the appropriate registry key with the certificate thumbprint. See [Set the Certificate Thumbprint in the Windows Registry](#).

Set the Certificate Thumbprint in the Windows Registry

To allow the HTML Access Agent to use a CA-signed certificate that was imported into the Windows certificate store, you must configure the certificate thumbprint in a Windows registry key. You must take this step on each remote desktop on which you replace the default certificate with a CA-signed certificate.

Prerequisites

Verify that the CA-signed certificate is imported into the Windows certificate store. See [Import a Certificate for the HTML Access Agent into the Windows Certificate Store](#).

Procedure

- 1 In the MMC window on the remote desktop where the HTML Access Agent is installed, navigate to the **Certificates (Local Computer) > Personal > Certificates** folder.
- 2 Double-click the CA-signed certificate that you imported into the Windows certificate store.
- 3 In the Certificates dialog box, click the Details tab, scroll down, and select the **Thumbprint** icon.
- 4 Copy the selected thumbprint to a text file.

For example: 31 2a 32 50 1a 0b 34 b1 65 46 13 a8 0a 5e f7 43 6e a9 2c 3e

Note When you copy the thumbprint, do not to include the leading space. If you inadvertently paste the leading space with the thumbprint into the registry key (in Step 7), the certificate might not be configured successfully. This problem can occur even though the leading space is not displayed in the registry value text box.

- 5 Start the Windows Registry Editor on the desktop where the HTML Access Agent is installed.
- 6 Navigate to the HKEY_LOCAL_MACHINE\SOFTWARE\VMware, Inc.\VMware Blast\Config registry key.
- 7 Modify the SslHash value and paste the certificate thumbprint into the text box.

8 Reboot Windows.

Results

When a user connects to a remote desktop through HTML Access, the HTML Access Agent presents the CA-signed certificate to the user's browser.

Configure HTML Access Agents to Use Specific Cipher Suites

You can configure the HTML Access Agent to use specific cipher suites instead of the default set of ciphers.

By default, the HTML Access Agent requires incoming TLS connections to use encryption based on certain ciphers that provide strong protection against network eavesdropping and forgery. You can configure an alternative list of ciphers for the HTML Access Agent to use. The set of acceptable ciphers is expressed in the OpenSSL format, which is described at <https://www.openssl.org/docs/manmaster/man1/ciphers.html>.

Procedure

- 1 On the desktop where the HTML Access Agent is installed, start the Windows Registry Editor.
- 2 Navigate to the HKEY_LOCAL_MACHINE\SOFTWARE\VMware, Inc.\VMware Blast\Config registry key.
- 3 Add a new String (REG_SZ) value, SslCiphers, and paste the cipher list in the OpenSSL format into the text box.
- 4 To make your changes take effect, restart the VMware Blast service.

In the Windows guest operating system, the service for the HTML Access Agent is called VMware Blast.

Results

To revert to using the default cipher list, delete the SslCiphers value and restart the VMware Blast service. Do not simply delete the data part of the value because the HTML Access Agent will then treat all ciphers as unacceptable, in accordance with the OpenSSL cipher list format definition.

When the HTML Access Agent starts, it writes the cipher definition in the VMware Blast service's log file. You can discover the current default cipher list by inspecting the logs when the VMware Blast service starts with no SslCiphers value configured in the Windows Registry.

The HTML Access Agent default cipher definition might change from one release to the next to provide improved security.

Configuring iOS to Use CA-Signed Certificates

To use HTML Access on iOS devices, you must install TLS certificates that are signed by a Certificate Authority (CA). You cannot use the default TLS certificates that Connection Server or the HTML Access Agent generate.

For information, see "Configure Horizon Client for iOS to Trust Root and Intermediate Certificates" in the *Horizon 7 Installation* document.

Using a CA-Signed Certificate with Unified Access Gateway

If you use a Unified Access Gateway appliance instead of a Connection Server or security server, you must install a CA-signed certificate that has a Subject Alternative Name (SAN) configured.

If you use a CA-signed certificate that does not have a SAN configured, or a self-signed certificate, users receive a "Your connection is not private" error and cannot connect with HTML Access.

Note If you use a Connection Server instance or security server, users can still connect by clicking the `Proceed to ip-address (unsafe)` link.

For information about installing and configuring certificates for Horizon 7, see the *Horizon 7 Installation* document. For information about configuring HTML Access agents to use TLS certificates, see [Configure HTML Access Agents to Use New TLS Certificates](#).

Configuring Autoplay in Chrome and Safari

When using HTML Access in Safari 12 or Chrome 71 or later, users might see the `Click to enable audio` dialog box when they start a remote desktop or published application for the first time, or when they refresh the browser while using a remote desktop or published application. If users click **OK** in this dialog box, audio plays normally.

To prevent this dialog box from appearing, configure the autoplay policy in the browser.

- In Safari on a Mac, select **Safari > Settings for This Website**, move the mouse to the right of **Auto-Play**, click the drop-down menu, and select **Allow All Auto-Play**.
- In Chrome, type **chrome://flags/#autoplay-policy** in the navigation bar, scroll down to **Autoplay policy**, and select **No user gesture required** from the drop-down menu.

Upgrading HTML Access

Upgrading HTML Access involves upgrading Connection Server and Horizon Agent.

When you upgrade HTML Access, make sure that the corresponding version of Connection Server is installed on all the instances in a replicated group.

When you upgrade Connection Server, HTML Access is installed or upgraded automatically.

To verify that the HTML Access component is installed, open the Uninstall a Program applet in the Windows operating system and look for HTML Access in the list.

Uninstall the HTML Access Component from Connection Server

You can remove the HTML Access component by using the same method that you use to remove other Windows software.

Procedure

- 1 On the Connection Server instance where HTML Access is installed, open the Uninstall a Program applet provided by the Windows Control Panel.
- 2 Select **VMware Horizon 7 HTML Access** and click **Uninstall**.
- 3 (Optional) In the Windows Firewall for the host, verify that TCP port 8443 no longer allows inbound traffic.

What to do next

Disallow inbound traffic to TCP port 8443 on the Windows Firewall of any paired security servers.

On third-party firewalls, if applicable, change the rules to disallow inbound traffic to TCP port 8443 for all paired security servers and the Connection Server instance.

Configure Horizon Client Data Sharing

If a Horizon administrator has opted to participate in the VMware Customer Experience Improvement Program (CEIP), VMware collects and receives anonymous data from client systems through Connection Server. You can configure whether to share this client data with Connection Server.

For information about configuring Horizon to join the CEIP, see the *VMware Horizon Console Administration* document.

Data sharing is enabled by default in HTML Access. You cannot change the data sharing setting after you connect to a server.

A Horizon administrator can disable data sharing in HTML Access for all users and prevent users from changing the data sharing setting in HTML Access. For more information, see [Disabling Data Sharing for all HTML Access Users](#).

Procedure

- 1 Click **Settings** (gear icon) on the VMware Horizon Web Portal page.
- 2 Toggle the **Allow data sharing** option to on or off.

Disabling Data Sharing for all HTML Access Users

A Horizon administrator can disable data sharing for all HTML Access users, and prevent users from changing the **Allow data sharing** option in HTML Access, by adding the following setting to the C:\Program Files\VMware\VMware View\Server\broker\webapps\portal\WEB-INF\classes\portal-version.properties file on the Connection Server instance.

```
CEIP.disabled=true
```

When this setting is set to true, **Settings** (gear icon) does not appear on the VMware Horizon Web Portal page.

Note This setting has no affect on Horizon Client. For information about disabling data sharing in Horizon Client, see the installation and setup guide for the Horizon Client platform.

Data Collected by VMware

If your company participates in the VMware Customer Experience Improvement Program (CEIP), and data sharing is enabled on the client, VMware collects data about the client system.

VMware collects data on the clients to prioritize hardware and software compatibility. If a Horizon administrator has opted to participate in the CEIP, VMware collects anonymous data about your deployment to improve the response to customer requirements. No data that identifies your organization is collected. Client information is sent first to Connection Server and then on to VMware, along with data from servers, desktop pools, and remote desktops.

To participate in the CEIP, the administrator who installs Connection Server can opt in while running the Connection Server installation wizard, or an administrator can set an option in Horizon Console after the installation.

Table 1-2. Client Data Collected for the CEIP

Description	Field name	Is This Field Made	
		Anonymous?	Example Value
Company that produced the application	<client_vendor>	No	VMware
Product name	<client_product>	No	VMware Horizon HTML Access
Client product version	<client_version>	No	5.4.0-build_number
Client binary architecture	<client_arch>	No	Examples include the following values: <ul style="list-style-type: none"> ■ browser ■ arm

Table 1-2. Client Data Collected for the CEIP (continued)

Description	Field name	Is This Field Made Anonymous?	Example Value
Native architecture of the browser	<browser_arch>	No	Examples include the following values: <ul style="list-style-type: none"> ■ Win32 ■ Win64 ■ MacIntel ■ iPad ■ Linux armv81 (for Android Chrome support)
Browser user agent string	<browser_user_agent>	No	Examples include the following values: <ul style="list-style-type: none"> ■ Mozilla/5.0 (Windows NT 6.1; WOW64) ■ AppleWebKit/703.00 (KHTML, like Gecko) ■ Chrome/3.0.1750 ■ Safari/703.00 ■ Edge/13.10586
Browser's internal version string	<browser_version>	No	Examples include the following values: <ul style="list-style-type: none"> ■ 7.0.3 (for Safari), ■ 44.0 (for Firefox) ■ 13.10586 (for Edge)
Browser's core implementation	<browser_core>	No	Examples include the following values: <ul style="list-style-type: none"> ■ Chrome ■ Safari ■ Firefox ■ Internet Explorer ■ Edge
Whether the browser is running on a handheld device	<browser_is_handheld>	No	true

Configuring HTML Access for End Users

2

You can change the appearance of the VMware Horizon Web Portal page, which is the web page that end users see when they enter the URL for HTML Access. You can also set group policies that control the image quality, the ports used, and other settings.

This chapter includes the following topics:

- [Configure the VMware Horizon Web Portal Page for End Users](#)
- [Using URIs to Configure HTML Access Web Clients](#)
- [HTML Access Group Policy Settings](#)

Configure the VMware Horizon Web Portal Page for End Users

You can configure the VMware Horizon Web Portal page to show or hide the icon for downloading Horizon Client, the icon for connecting to a remote desktop through HTML Access, and other links.

By default, the VMware Horizon Web Portal page shows both an icon for downloading and installing Horizon Client and an icon for connecting through HTML Access. The default values defined in the `portal-links-html-access.properties` file determine the download link that appears on the VMware Horizon Web Portal page.

Sometimes, you might want the links on the VMware Horizon Web Portal page to point to an internal web server, or you might want to make specific client versions available on your own server. You can reconfigure the VMware Horizon Web Portal page to point to a different download URL by modifying the contents of the `portal-links-html-access.properties` file. If that file is unavailable or is empty, and the `oslinks.properties` file exists, the `oslinks.properties` file determines the link value for the installer file.

The `oslinks.properties` file is installed in the `installation-directory\VMware\VMware View\Server\broker\webapps\portal\WEB-INF` directory. If this file is missing during the HTML Access session, the download link directs users to <https://www.vmware.com/go/viewclients> by default. The file contains the following default values.

```
link.download=https://www.vmware.com/go/viewclients
# download Links for particular platforms
link.win32=https://www.vmware.com/go/viewclients#win32
link.win64=https://www.vmware.com/go/viewclients#win64
link.linux32=https://www.vmware.com/go/viewclients#linux32
link.linux64=https://www.vmware.com/go/viewclients#linux64
link.mac=https://www.vmware.com/go/viewclients#mac
link.ios=https://itunes.apple.com/us/app/vmware-view-for-ipad/id417993697
link.android=https://play.google.com/store/apps/details?id=com.vmware.view.client.android
link.chromeos=https://chrome.google.com/webstore/detail/vmware-horizonclient/
pckbpdplfajmgaip1jfamclkinbjdnma
link.winmobile=https://www.microsoft.com/en-us/store/p/vmware-horizon-client/9nblggh51p19
```

You can define installer links for specific client operating systems in the `portal-links-html-access.properties` file or the `oslinks.properties` file. For example, if you browse to the VMware Horizon Web Portal page from a macOS system, the link for the Horizon Client for Mac installer appears. For Windows and Linux clients, you can make separate links for 32-bit and 64-bit installers.

Procedure

- 1 On the Connection Server host, use a text editor to open the `portal-links-html-access.properties` file `CommonAppDataFolder\VMware\VDM\portal\portal-links-html-access.properties` directory.

For Windows Server 2012 operating systems, the `CommonAppDataFolder` directory is `C:\ProgramData`. To show the `C:\ProgramData` folder in Windows Explorer, use the Folder Options dialog box to show hidden folders.

If the `portal-links-html-access.properties` file does not exist, but the `oslinks.properties` file does exist, open the `<installation-directory>\VMware\VMware View\Server\broker\webapps\portal\WEB-INF\oslinks.properties` file to modify the URLs to use for downloading specific installer files.

2 Edit the configuration properties.

By default, both the installer icon and the HTML Access icon are enabled and a link points to the client download page on the VMware website. To disable an icon, which removes the icon from the web page, set the property to `false`.

Note The `oslinks.properties` file can be used only to configure the links to the specific installer files.

Option	Property Setting
Disable HTML Access	<p><code>enable.webclient=false</code></p> <p>If this option is set to false, but the <code>enable.download</code> option is set to true, the user is taken to a web page for downloading the native Horizon Client installer. If both options are set to false, the user sees the following message: "Contact your local administrator for instructions on accessing this Connection Server."</p>
Disable downloading Horizon Client	<p><code>enable.download=false</code></p> <p>If this option is set to false, but the <code>enable.webclient</code> option is set to true, the user is taken to the HTML Access login web page. If both options are set to false, the user sees the following message: "Contact your local administrator for instructions on accessing this Connection Server."</p>
Change the URL of the Web page for downloading Horizon Client	<p><code>link.download=https://url-of-web-server</code></p> <p>Use this property if you plan to create your own web page.</p>

Option	Property Setting
Create links for specific installers	<p>The following examples show full URLs. If you place the installer files in the downloads directory, which is under the C:\Program Files\VMware\VMware View\Server\broker\webapps\ directory on the Connection Server host, you can use relative URLs as described in the next step.</p> <ul style="list-style-type: none"> ■ General link to download installer: <pre data-bbox="671 407 1422 464">link.download=https://server/downloads</pre> ■ 32-bit Windows installer: <pre data-bbox="671 520 1422 600">link.win32=https://server/downloads/VMware-Horizon-Client-x86-build#.exe</pre> ■ 64-bit Windows installer: <pre data-bbox="671 657 1422 737">link.win64=https://server/downloads/VMware-Horizon-Client-x86_64-build#.exe</pre> ■ Windows Phone installer: <pre data-bbox="671 793 1422 873">link.winmobile=https://server/downloads/VMware-Horizon-Client-build#.appx</pre> ■ 32-bit Linux installer: <pre data-bbox="671 930 1422 1010">link.linux32=https://server/downloads/VMware-Horizon-Client-build#.x86.bundle</pre> ■ 64-bit Linux installer: <pre data-bbox="671 1066 1422 1146">link.linux64=https://server/downloads/VMware-Horizon-Client-build#.x64.bundle</pre> ■ Mac OS X installer: <pre data-bbox="671 1203 1422 1283">link.mac=https://server/downloads/VMware-Horizon-Client-build#.dmg</pre> ■ iOS installer: <pre data-bbox="671 1339 1422 1419">link.ios=https://server/downloads/VMware-Horizon-Client-iPhoneOS-build#.ipa</pre> ■ Android installer: <pre data-bbox="671 1476 1422 1556">link.android=https://server/downloads/VMware-Horizon-Client-AndroidOS-build#.apk</pre> ■ Chrome OS installer: <pre data-bbox="671 1612 1422 1692">link.chromeos=https://server/downloads/VMware-Horizon-Client-ChromeOS-build#.apk</pre>
Change the URL for the Help link in the login page	<pre data-bbox="671 1724 730 1751">link.help</pre> <p>By default, this link points to a help system hosted on the VMware website. The Help link appears at the bottom of the login page.</p>

- 3 To have users download installers from a location other than the VMware website, place the installer files on the HTTP server where the installer files reside.

This location must correspond to the URLs that you specified in the `portal-links-html-access.properties` file or in the `oslinks.properties` file from the previous step. For example, to place the files in a `downloads` directory on the Connection Server host, use the following path.

```
C:\Program Files\VMware\VMware View\Server\broker\webapps\downloads
```

The links to the installer files can then use relative URLs with the format `/downloads/client-installer-file-name`.

- 4 Restart the Horizon Web Component service.

Using URIs to Configure HTML Access Web Clients

You can use uniform resource identifiers (URIs) to create web or email links for end users. End users can click these links to start HTML Access, connect to a server, and start a remote desktop or published application with specific configuration options.

You create these links by constructing URIs that provide some or all the following information so that end users do not need to supply it.

- Server address
- Port number for the server
- Active Directory user name
- RADIUS or RSA SecurID user name, if different from the Active Directory user name
- Domain name
- Remote desktop or published application display name
- Actions, including browse, reset, log out, and start session

Syntax for Creating URIs for HTML Access

Syntax includes a path part to specify the server, and, optionally, a query to specify a user, remote desktop or published application, and actions or configuration options.

URI Specification

Use the following syntax to create URIs for starting HTML Access:

```
https://authority-part[/?query-part]
```

authority-part

Specifies the server address and, optionally, a non-default port number. Server names must conform to DNS syntax.

To specify a port number, use the following syntax:

```
server-address:port-number
```

query-part

Specifies the configuration options to use or the actions to perform. Queries are not case-sensitive. To use multiple queries, use an ampersand (&) between the queries. If queries conflict with each other, the last query in the list is used. Use the following syntax:

```
query1=value1[&query2=value2. . .]
```

Observe the following guidelines when creating the query-part:

- If you do not use at least one of the supported queries, the default VMware Horizon Web portal page appears.
- In the query part, some special characters are not supported, and you must use the URL encoding format for them, as follows: For the pound symbol (#) use **%23**, for the percent sign (%) use **%25**, for the ampersand (&) use **%26**, for the at sign (@) use **%40**, and for the backslash (\) use **%5C**.

For more information about URL encoding, go to http://www.w3schools.com/tags/ref_urlencode.asp.

- In the query part, non-ASCII characters must first be encoded according to UTF-8 [STD63], and then each octet of the corresponding UTF-8 sequence must be percent-encoded to be represented as URI characters.

For information about encoding for ASCII characters, see the URL encoding reference at <http://www.utf8-chartable.de/>.

Supported Queries

This topic lists the queries that are supported for HTML Access. If you are creating URIs for multiple types of clients, such as desktop clients and mobile clients, see the installation and setup document for each type of client system.

action

Table 2-1. Values That Can Be Used With the action Query

Value	Description
browse	Displays a list of available remote desktops and published applications hosted on the specified server. You are not required to specify a remote desktop or published application when you use this action.
start-session	Starts the specified remote desktop or published application. If no action query is provided and the remote desktop or published application name is provided, start-session is the default action.

Table 2-1. Values That Can Be Used With the action Query (continued)

Value	Description
reset	Shuts down and restarts the specified remote desktop. Unsaved data is lost. Resetting a remote desktop is the equivalent of pressing the Reset button on a physical PC. This action is not valid for a published application.
logoff	Logs the user out of the guest operating system in the remote desktop. This action is not valid for a published application.
restart	Shuts down and restarts the primary remote desktop after the user confirms the restart operation request. This action is not valid for a published application.

applicationId

The published application display name. The display name is the name specified in Horizon Console when the application pool was created. If the display name contains a space, the browser uses **%20** to represent the space.

args

Specifies command-line arguments to add when starting a published application. Use the syntax `args=value`, where *value* is a string. Use percent encoding for the following characters:

- For a colon (:), use **%3A**
- For a back slash (\), use **%5C**
- For a space (), use **%20**
- For a double quotation mark ("), use **%22**

For example, to specify the filename "My new file.txt" for the Notepad++ application, use **%22My%20new%20file.txt%22**.

desktopId

The remote desktop display name. The display name is the name specified in Horizon Console when the desktop pool was created. If the display name contains a space, the browser uses **%20** to represent the space.

domainName

The NETBIOS domain name associated with the user who is connecting to the remote desktop or published application. For example, use `mycompany` rather than `mycompany.com`.

tokenUserName

The RSA or RADIUS user name. Use this query only if the RSA or RADIUS user name is different from the Active Directory user name. If you do not specify this query and RSA or RADIUS authentication is required, the Windows user name is used.

userName

The Active Directory user who is connecting to the remote desktop or published application. The user name can be in one of the following formats:

- *userName*
- *domainName%5CuserName*
- user principal name (UPN), that is, *userName@domainName*

unauthenticatedAccessEnabled

If this option is set to **true**, the Unauthenticated Access feature is enabled by default. HTML Access starts and an anonymous user account appears. An example of the syntax is **unauthenticatedAccessEnabled=true**.

unauthenticatedAccessAccount

Sets the account to use if the Unauthenticated Access feature is enabled. If Unauthenticated Access is disabled, then this query is ignored. An example of the syntax using the **anonymous1** user account is **unauthenticatedAccessAccount=anonymous1**

Examples of URIs

With a URI, you can create hypertext links or buttons and include these links in an email message or on a web page. End users can click these links to open a particular remote desktop or published application with the startup options that you specify.

URI Syntax Examples

Each of the following URI examples is followed by a description of what the end user sees after clicking the URI link. Queries are not case-sensitive, for example, you can use **domainName** or **domainname**.

1 `https://horizon.mycompany.com/?domainName=finance&userName=fred`

HTML Access starts and connects to the `horizon.mycompany.com` server. In the login box, the **User name** text box is populated with the name **fred**, and the **Domain** text box is populated with **finance**. The user must supply only a password.

2 `https://horizon.mycompany.com/?userName=finance%5Cfred`

HTML Access starts and connects to the `horizon.mycompany.com` server. In the login box, the **User name** text box is populated with the name **finance\fred**. The user must supply only a password.

3 `https://horizon.mycompany.com/?userName=fred@finance`

HTML Access starts and connects to the `horizon.mycompany.com` server. In the login box, the **User name** text box is populated with the name **fred@finance**. The user must supply only a password.

4 `https://horizon.mycompany.com/?desktopId=Primary%20Desktop&action=start-session`

HTML Access starts and connects to the `horizon.mycompany.com` server. The login box prompts the user for a user name, domain name, and password. After a successful login, the client connects to the remote desktop that has the display name **Primary Desktop** and the user is logged in to the guest operating system.

5 `https://horizon.mycompany.com/?applicationId=Notepad&action=start-session`

HTML Access starts and connects to the `horizon.mycompany.com` server. The login box prompts the user for a user name, domain name, and password. After a successful login, the Notepad application starts.

6 `https://horizon.mycompany.com:7555/?desktopId=Primary%20Desktop`

This URI has the same effect as the previous example, except that it uses the non-default port 7555 for the server. The default port is 443. Because a remote desktop identifier is provided, the remote desktop starts even though the `start-session` action is not included in the URI.

7 `https://horizon.mycompany.com/?applicationId=Primary%20Application&desktopId=Primary%20Desktop`

This URI specifies both a published application and a remote desktop. When you specify both a published application and a remote desktop, only the remote desktop starts.

8 `https://horizon.mycompany.com/?desktopId=Primary%20Desktop&action=reset`

HTML Access starts and connects to the `horizon.mycompany.com` server. The login box prompts the user for a user name, domain name, and password. After a successful login, the client displays a dialog box that prompts the user to confirm the reset operation for Primary Desktop.

Note This action is available only if a Horizon administrator has allowed end users to reset their machines.

9 `https://horizon.mycompany.com/?My%20Notepad++?args=%22My%20new%20file.txt%22`

Opens My Notepad++ on server `horizon.mycompany.com` and passes the argument `My new file.txt` in the application start command. The filename is enclosed in double quotes because it contains spaces.

10 `https://horizon.mycompany.com/?Notepad++%2012?args=a.txt%20b.txt`

Opens Notepad++ 12 on server `horizon.mycompany.com` and passes the argument `a.txt b.txt` in the application start command. Because the argument is not enclosed in double quotes, a space separates the filenames and the two files are opened separately in Notepad++.

Note Applications can differ in the way that they use command-line arguments. For example, if you pass the argument `a.txt b.txt` to WordPad, WordPad opens only one file, `a.txt`.

11 `https://horizon.mycompany.com/?desktopId=Primary%20Desktop&action=restart`

HTML Access starts and connects to the `horizon.mycompany.com` server. The login box prompts the user for a user name, domain name, and password. After a successful login, the client displays a dialog box that prompts the user to confirm the restart operation for Primary Desktop.

Note This action is available only if a Horizon administrator has allowed end users to restart their machines.

12 `https://horizon.mycompany.com/?unauthenticatedAccessEnabled=true&unauthenticatedAccessAccount=anonymous_user1`

HTML Access starts and connects to the `horizon.mycompany.com` server using the `anonymous_user1` account.

HTML Code Examples

You can use URIs to make hypertext links and buttons to include in emails or on web pages. The following examples show how to use the URI from the first URI example to code a hypertext link that reads **Test Link** and a button that reads **TestButton**.

```
<html>
<body>

<a href="https://horizon.mycompany.com/?domainName=finance&userName=fred">Test Link</a><br>

<form><input type="button" value="TestButton" onClick="window.location.href=
'https://horizon.mycompany.com/?domainName=finance&userName=fred'"></form> <br>

</body>
</html>
```

HTML Access Group Policy Settings

HTML Access uses the VMware Blast protocol. You configure group policies for HTML Access by configuring group policies for the VMware Blast protocol.

For more information, see "Configuring Policies for Desktop and Application Pools" and "VMware Blast Policy Settings" in the *Configuring Remote Desktop Features in Horizon 7* document.

Managing Remote Desktop and Published Application Connections

3

End users can use HTML Access to connect to a server and use remote desktops and published applications. For troubleshooting purposes, end users can reset remote desktops and published applications.

This chapter includes the following topics:

- [Connect to a Remote Desktop or Published Application](#)
- [Trust a Self-Signed Root Certificate](#)
- [Connect to a Server in Workspace ONE Mode](#)
- [Use Unauthenticated Access to Connect to Published Applications](#)
- [Setting the Time Zone](#)
- [Allowing H.264 Decoding](#)
- [Log Off or Disconnect](#)

Connect to a Remote Desktop or Published Application

To connect to a remote desktop or published application, you must provide the name of a server and supply credentials for your user account.

Prerequisites

- Obtain login credentials, such as an Active Directory user name and password, RSA SecurID user name and passcode, or RADIUS authentication credentials.
- Obtain the NETBIOS domain name for logging in. For example, you might use `mycompany` rather than `mycompany.com`.
- If you are outside the corporate network and require a VPN connection to access remote desktops and published applications, verify that the client device is set up to use a VPN connection and turn on that connection.
- Verify that you have the fully qualified domain name (FQDN) of the server that provides access to the remote desktop or published application. Underscores (`_`) are not supported in server names. If the port is not 443, you also need the port number.

Procedure

- 1 If a VPN connection is required, turn on the VPN.
- 2 Open a browser and type the server name in the navigation bar.

Type **https** and use the fully qualified domain name (FQDN) of the server, for example, `https://view.company.com`.

Server connections always use TLS. The default port for TLS connections is 443. If the server is not configured to use the default port, use the format **view.company.com:1443**.

- 3 When the VMware Horizon Web Portal page appears, select one of the following options.

The following table lists all the possible options. The options that are available to you depend on the server that you connect to and how your environment is configured.

Option	Description
Launch Native Client	(Unified Access Gateway only) Starts Horizon Client.
Browser Access	(Unified Access Gateway only) Starts HTML Access.
VMware Horizon HTML Access	Starts HTML Access.
Install VMware Horizon Client	Opens the VMware Horizon Clients download page, where you can download the Horizon Client installer for your client system.
	Note This option might appear as a link instead of an option.

Optionally, you can select a check box to save your selection and skip the VMware Horizon Web Portal page the next time you enter the server name in the same browser type on the same client system. If you change your mind later, you can use the **Restore default landing page** setting on the HTML Access Settings page to display the VMware Horizon Web Portal page.

- 4 If you are prompted for RSA SecurID credentials or RADIUS authentication credentials, enter the credentials and click **Login**.

The passcode might include both a PIN and the generated number on the token.

- 5 If you are prompted a second time for RSA SecurID credentials or RADIUS authentication credentials, enter the next generated number on the token.

Do not enter your PIN, and do not enter the same generated number that you entered previously. If necessary, wait until a new number is generated. This step is required only when you mistype the first passcode or when configuration settings in the RSA server change.

- 6 If you are prompted for a user name and password, supply your Active Directory credentials.
 - a Enter the user name and password of a user who is entitled to use at least one desktop or application pool.
 - b (Optional) Select a domain.

If you cannot select a domain, you must enter the user name in the format *domain \username* or *username@domain* .

- c Log in.
- 7 To connect a remote desktop or published application, click its icon in the desktop and application selector window.

The remote desktop or published application opens in the browser window. To open the sidebar, click the tab on the left side of the browser window. From the sidebar, you can open other remote desktops or published applications, configure settings, copy and paste text, and perform other tasks.

- 8 (Optional) To mark a remote desktop or published application as a favorite, in the desktop and application selector window, click the gray star inside the icon for the remote desktop or published application.

The star icon turns from gray to yellow. The next time you log in, you can click the star icon in the upper-right part of the browser window to show only your favorite items.

What to do next

If you are disconnected after connecting to a remote desktop or published application, and a prompt appears asking you to click a link to accept the security certificate, select whether to trust the certificate. See [Trust a Self-Signed Root Certificate](#).

If the time zone in the remote desktop or published application does not use the time zone set in the client device, you can set the time zone manually. See [Setting the Time Zone](#).

Trust a Self-Signed Root Certificate

Sometimes, when connecting to a remote desktop or published application for the first time, the browser might prompt you to accept the self-signed certificate that the remote machine uses. You must trust the certificate before you can connect to the remote desktop or published application.

Most browsers give you the option to trust the self-signed certificate permanently. If you do trust the certificate permanently, you must verify the certificate every time you restart your browser. If you are using a Safari browser, you must trust the security certificate permanently to establish the connection.

Procedure

- 1 If the browser presents an untrusted certificate warning, or a warning appears stating that your connection is not private, examine the certificate to verify that it matches the certificate that your company uses.

You might need to contact your system administrator for assistance. For example, in Chrome, you might use the following procedure.

- a Click the lock icon in the address bar.
- b Click the **Certificate information** link.
- c Verify that the certificate matches the certificate that your company uses.

You might need to contact your system administrator for assistance.

- 2 Accept the security certificate.

Each browser has its own browser-specific prompts for accepting or always trusting a certificate. For example, in Chrome, you can click the **Advanced** link on the browser page and click **Proceed to *server-name* (unsafe)**.

In Safari, use the following procedure to trust the certificate permanently.

- a Click the **Show Certificate** button when the untrusted certificate dialog box appears.
- b Select the **Always Trust** check box and click **Continue**.
- c When prompted, provide your password and click **Update Settings**.

Results

The remote desktop or published application starts.

Connect to a Server in Workspace ONE Mode

Beginning with Horizon 7 version 7.2, a Horizon administrator can enable Workspace ONE mode on a Connection Server instance.

When Workspace ONE mode is enabled, you can connect to the server only through the Workspace ONE Web Portal. You are redirected to the Workspace ONE Web Portal when you try to connect to the server through HTML Access. After you connect to the server through the Workspace ONE Web Portal, you can start remote desktops and published applications only through the Workspace ONE Web Portal.

When Workspace ONE mode is enabled, the sidebar does not show all the remote desktops and published applications that you are entitled to use. Instead, it shows only the currently running remote desktops and published applications.

You might encounter the following problems when Workspace ONE mode is enabled.

- You cannot connect to the server through HTML Access. You might not reach the server, or you might see a message that states that the server expects to receive your login credentials from another application or server.

- After you start a remote desktop or published application through the Workspace ONE Web Portal, you cannot see or start the remote desktop or published application in HTML Access.

Use Unauthenticated Access to Connect to Published Applications

If you have an Unauthenticated Access user account, you can log in to a server anonymously and connect to your published applications.

Prerequisites

- Perform the administrative tasks described in [Preparing Connection Server and Security Servers](#).
- Set up Unauthenticated Access users on the Connection Server instance. For information, see "Providing Unauthenticated Access for Published Applications" in the *VMware Horizon Console Administration* document.

Procedure

- 1 To connect to the server on which you have unauthenticated access, open a browser and enter a Uniform Resource Identifier (URI).

Use one of the following URI syntaxes.

- `https://authority-part?unauthenticatedAccessEnabled=true`
- `https://authority-part?unauthenticatedAccessEnabled=true&unauthenticatedAccessAccount=anonymous_account`

authority-part is the server address and, optionally, a non-default port number. If you need to specify a port number, enter *server-address:port-number*.

anonymous_account is the Unauthenticated Access user account.

Connections always use TLS. The default port for TLS connections is 443. If the server is not configured to use the default port, use the format shown in this example:

horizon.company.com:1443.

- 2 (Optional) If you did not specify an Unauthenticated Access user account in the URI, select an Unauthenticated Access user account from the **User account** drop-down menu, if necessary, and click **Submit**.

If only one Unauthenticated Access user account is available, that user account is selected by default.

The application selection window appears.

- 3 Click the icon for the published application that you want to access.

The published application appears in your browser. A navigation sidebar is also available. You can click the tab on the left side of the browser window to show the sidebar. You can use the sidebar to access other published applications, show the **Settings** window, copy and paste text, and more.

Note You cannot reconnect to unauthenticated application sessions. When you disconnect from the client, you are logged off the local user session automatically.

Setting the Time Zone

The time zone that a remote desktop or published application uses is set to the time zone in your local system automatically.

When you use HTML Access, if the time zone cannot be correctly determined due to certain daylight saving policies, you might need to set the time zone manually.

To set the correct time zone manually before you are connected to a remote desktop or published application, click the **Settings** toolbar button in the upper-right corner of the desktop and application selector window. Turn off the **Set Time Zone Automatically** option in the **Settings** window and select one of the time zones from the drop-down menu. The value you select is saved as your preferred time zone to use when connecting to a remote desktop or published application.

To set the correct time zone manually after you are connected to a remote desktop or published application, return to the desktop and application selector window and change the current time zone setting.

The **Set Time Zone Automatically** option is not available from the **Settings** window that is accessible from the sidebar.

Note When you use the Chrome browser on an Android device, if the **Set Time Zone Automatically** option is set to **true** and you change the Android system time zone, the new time zone is not synchronized with the remote desktop automatically. This problem is a Chrome limitation on the Android system. You must restart the Android device and the Chrome browser to synchronize the selected time zone.

Allowing H.264 Decoding

When you use a Chrome browser, you can allow H.264 decoding in the client for remote desktop and published application sessions.

H.264 is an industry standard for video compression, which is the process of converting digital video into a format that takes up less capacity when it is stored or transmitted.

When you allow H.264 decoding, HTML Access uses H.264 decoding if the agent supports H.264 encoding. If the agent does not support H.264 encoding, HTML Access uses JPEG/PNG decoding.

If you are connected to a remote desktop or published application, you can allow H.264 decoding by turning on the **Allow H.264 decoding** option in the **Settings** window, which is available from the sidebar. You must disconnect and reconnect to the remote desktop or published application for the new setting to take effect.

If you are not connected to a remote desktop or published application, you can click the **Settings** toolbar button in the upper-right corner of the desktop and application selector window and turn on the **Allow H.264 decoding** option in the **Settings** window. The new setting takes effect for any sessions that are connected after you change the setting.

Log Off or Disconnect

If you disconnect from a remote desktop without logging off, applications in the remote desktop might remain open. You can also disconnect from a server and leave published applications running.

Procedure

- ◆ Log out of the server and disconnect from (but do not log out from) the remote desktop, or quit the published application.

Option	Action
From the desktop and application selector window, before connecting to a remote desktop or published application	Click the Log Out toolbar button in the upper-right corner of the window.
From the sidebar when connected to a remote desktop or published application	Click the Log out toolbar button at the top of the sidebar.

- ◆ Close a published application.

Option	Action
From within the published application	Quit the published application in the usual manner, for example, click the X (Close) button in the corner of the published application window.
From the sidebar	Click the X next to the published application name in the Running list in the sidebar.

- ◆ Log off or disconnect from a remote desktop.

Option	Action
From within the remote desktop	To log off, use the Windows Start menu to log off.
From the sidebar	To log off and disconnect, click the Open Menu toolbar button next to the remote desktop name in the Running list in the sidebar and select Log Off . Files that are open on the remote desktop are closed without being saved first. To disconnect without logging off, click the Open Menu toolbar button next to the remote desktop name in the Running list and select Close .
	Note A Horizon administrator can configure the remote desktop to log off automatically when disconnected. In that case, any open applications in the remote desktop are closed.

Using a Remote Desktop or Published Application

4

HTML Access provides a familiar, personalized desktop and application environment. After you connect to a remote desktop or published application, you can use a navigation sidebar to start other remote desktops and published applications, switch between running remote desktops and published applications, and perform other actions.

You can copy and paste text and transfer files from the client device to remote desktops and published applications, print from locally attached printers in remote desktops and published applications, use the client machine's webcam and microphone in remote desktops and published applications, and share your remote desktop sessions with other users.

This chapter includes the following topics:

- [Feature Support Matrix](#)
- [Using the Sidebar](#)
- [Monitors and Screen Resolution](#)
- [Use Full-Screen Mode](#)
- [Using the Real-Time Audio-Video Feature for Webcams and Microphones](#)
- [Sharing Remote Desktop Sessions](#)
- [Copying and Pasting Text](#)
- [Transferring Files Between the Client and a Remote Desktop or Published Application](#)
- [Printing From a Remote Desktop or Published Application](#)
- [Use Multiple Sessions of a Published Application From Different Client Devices](#)
- [Adjusting the Sound in Remote Desktops and Published Applications](#)
- [Shortcut Key Combinations](#)
- [Internationalization](#)
- [International Keyboards](#)

Feature Support Matrix

When planning which features to make available to your end users, use the following information to determine which guest operating systems support the feature when they use HTML Access. Additional features are available if end users use a natively installed Horizon Client application, such as Horizon Client for Windows.

Table 4-1. Features Supported for HTML Access to Windows Virtual Desktops

Feature	Windows 7 Desktop	Windows 8.x Desktop	Windows 10 Desktop	Windows Server 2012 R2, Windows Server 2016, or Windows Server 2019 Desktop
RSA SecurID or RADIUS	X	X	X	X
Single sign-on	X	X	X	X
RDP display protocol				
PCoIP display protocol				
VMware Blast display protocol	X	X	X	X
USB redirection				
Real-Time Audio-Video (RTAV)	X	X	X	X
Windows Media MMR				
Virtual printing				
VMware Integrated Printing			X	Windows Server 2016/2019 only
Location-based printing	X	X	X	X
Smart cards				
Multiple monitors	X	X	X	X

For descriptions of these features and their limitations, see the *Horizon 7 Architecture Planning* document.

Feature Support for Published Desktops on RDS Hosts

RDS hosts are server computers that have Windows Remote Desktop Services and Horizon Agent installed. Multiple users can have remote desktop sessions on an RDS host simultaneously. An RDS host can be either a physical machine or a virtual machine.

Table 4-2. Features Supported for HTML Access to RDS Hosts

Feature	Windows Server 2012 or 2012 R2 RDS Host	Windows Server 2016	Windows Server 2019
RSA SecurID or RADIUS	X	Horizon Agent 7.0.2 and later	Horizon Agent 7.7 and later
Single sign-on	X	Horizon Agent 7.0.2 and later	Horizon Agent 7.7 and later

Table 4-2. Features Supported for HTML Access to RDS Hosts (continued)

Feature	Windows Server 2012 or		
	2012 R2 RDS Host	Windows Server 2016	Windows Server 2019
VMware Blast display protocol	X	Horizon Agent 7.0.2 and later	Horizon Agent 7.7 and later
VMware Integrated Printing		Horizon Agent 7.12 later	Horizon Agent 7.12 and later
Location-based printing	X (virtual machine only)	Horizon Agent 7.0.2 and later (virtual machine only)	Horizon Agent 7.7 and later
Real-Time Audio-Video (RTAV)	Horizon Agent 7.0.2 and later	Horizon Agent 7.0.3 and later	Horizon Agent 7.7 and later
Multiple monitors (for session-based desktops only)	X	X	X

For information about which editions of each guest operating system are supported, see the *Horizon 7 Installation* document.

Using the Sidebar

After you connect to a remote desktop or published application, you can use the sidebar to start other remote desktops and published applications, switch between running remote desktops and published applications, and perform other actions.

The sidebar appears on the left side of the remote desktop or published application window. To show or hide the sidebar, click the sidebar tab. You can also slide the tab up and down.

To see a list of the documents that a running published application has open, click the expander arrow next to the published application in the **Running** list.

Note If you have documents open from the same published application on two different servers, the published application appears twice in the **Running** list in the sidebar.

Table 4-3. Sidebar Actions

Action	Procedure
Show the sidebar	When a remote desktop or published application is open, click the sidebar tab. When the sidebar is open, you can still perform actions in the remote desktop or published application window.
Hide the sidebar	Click the sidebar tab.
Start a remote desktop or published application	Click the name of a remote desktop or published application in the Available list in the sidebar. Remote desktops are listed first.
Search for a remote desktop or published application	<ul style="list-style-type: none"> ■ Click in the Search box and begin typing the name of the remote desktop or published application. ■ To start a remote desktop or published application, click its name in the search results. ■ To return to the home view of the sidebar, tap the X in the search box.

Table 4-3. Sidebar Actions (continued)

Action	Procedure
Create a list of favorite remote desktops or published applications	Click the gray star next to the name of the remote desktop or published application in the Available list in the sidebar. You can then click the Show Favorites toolbar button (star icon) next to Available to show a list of only favorites.
Switch between remote desktops or published applications	Click the remote desktop or published application name in the Running list in the sidebar.
Enable multi-session mode for published applications	Click the Open Menu button in the sidebar, click Settings , and scroll down to the Multi-Launch setting. For more information, see Use Multiple Sessions of a Published Application From Different Client Devices .
Open the Copy & Paste panel	Click the Copy & Paste button at the top of the sidebar. Use this button for copying text to and from applications on your local client system. For more information, see Copying and Pasting Text . On iOS Safari, this button is not available because the copy and paste feature is not supported.
Open the File Transfer window	To download files from, or upload files to, a remote desktop or published application, click the File Transfer button at the top of the sidebar. For more information, see Download Files From a Remote Desktop or Published Application to the Client System and Upload Files From the Client System to a Remote Desktop or Published Application .
Enable Command-A, Command-C, Command-V, and Command-X	This option appears in the Settings window only if you are using a Mac. Click the Open Menu toolbar button at the top of the sidebar and then click Settings . When this feature is enabled, The Command key on the Mac is mapped to the Ctrl key on the remote Windows desktop or application. For example, pressing Command-A on a Mac keyboard is the same as pressing Ctrl+A on the remote Windows desktop or application.
Close a running remote desktop	Click the Open Menu button next to the remote desktop name in the Running list in the sidebar and select an action. <ul style="list-style-type: none"> ■ Select Close to disconnect from the remote desktop without logging off from its operating system. A Horizon administrator can configure a remote desktop to log off automatically when disconnected. In that case, unsaved changes in open applications are lost. ■ Select Log off to log off from the operating system and disconnect from the remote desktop. Any unsaved changes in open applications are lost.
Close a running published application	Click the X next to the file name under the published application name in the Running list in the sidebar. Click the X next to the published application name to quit the published application and close all open files for that published application. You are prompted to save changes made to the files.
Reset a remote desktop	Click the Open Menu button next to the remote desktop name in the Running list in the sidebar and select Reset . Any files that are open on the remote desktop are closed without being saved first. You can reset a remote desktop only if a Horizon administrator has enabled this feature.
Restart a remote desktop	Click the Open Menu button next to the remote desktop name in the Running list in the sidebar and select Restart . The remote desktop operating system usually prompts you to save any unsaved data before it restarts. You can restart a remote desktop only if a Horizon administrator has enabled this feature.

Table 4-3. Sidebar Actions (continued)

Action	Procedure
Reset all running published applications	Click the Open Menu toolbar button at the top of the sidebar, click Settings , and click Reset all your running applications . All unsaved changes are lost.
Use key combinations that include the Windows key	Click the Open Menu toolbar button at the top of the sidebar, click Settings , and turn on Enable Windows Key for Desktops . For more information, see Shortcut Key Combinations .
Send Ctrl+Alt+Del to current work area	Click the Send Ctrl+Alt+Del toolbar button at the top of the sidebar.
Disconnect from a server	Click the Open Menu toolbar button at the top of the sidebar and click Log out .
Use high-resolution mode on machines that have a high-resolution display, such as Retina Macbook Pro	Click the Open Menu toolbar button at the top of the sidebar, click Settings , and turn on High Resolution Mode .
Allow H.264 decoding	(Chrome only) Click the Open Menu toolbar button at the top of the sidebar, click Settings , and turn on Allow H.264 decoding . For more information, see Allowing H.264 Decoding .
Use multiple monitors	(Chrome version 55 or later only) Click the Open Menu toolbar button at the top of the sidebar and select Display Settings . For more information, see Use Multiple Monitors
Call out or close the soft keyboard	(iOS Safari only) Click the keyboard icon at the top of the sidebar. You can also call out or dismiss the soft keyboard by tapping the screen with three fingers.
Show help topics	Click the Open Menu toolbar button at the top of the sidebar, click Settings , and click Help . You can also click the Horizon logo at the top of the sidebar and click Help .
Show the About VMware Horizon Client dialog box	Click the Open Menu toolbar button or the Horizon logo at the top of the sidebar and click About . You can also click the Horizon logo at the top of the sidebar.
Display a remote desktop or published application in full-screen mode	Click the Open Menu toolbar button at the top of the sidebar and click Fullscreen .
Exit from full-screen mode	Click the Open Menu toolbar button at the top of the sidebar and click Quit fullscreen .
Send Esc to a remote desktop or published application when in full-screen mode	Click the Open Menu toolbar button at the top of the sidebar and click Send ESC .

Monitors and Screen Resolution

You can extend a remote desktop or published application to multiple monitors. If you have a high-resolution monitor, you can see the remote desktop or published application in full resolution.

Use Multiple Monitors

You can use multiple monitors to display a remote desktop window. You can add up to one additional monitor to your primary monitor to display the current remote desktop window to

which you are connected. For example, if you have three monitors, you can specify that the remote desktop window appears on only two of those monitors. You must select adjacent monitors for the multiple-monitor setup. You can position the monitors side by side or stack them vertically.

Prerequisites

You must use HTML Access in Chrome version 55 or later.

Procedure

- 1 Start HTML Access and log in to a server.
- 2 In the desktop and application selection window, click the icon for the remote desktop that you want to access.
- 3 To open the sidebar, click the sidebar tab.
- 4 Click the **Open Menu** toolbar button at the top of the sidebar and select **Multi monitor**.
- 5 In the **Multi monitor** window, click **Add Display**.

Note If the **Display Selector** browser window does not appear, add the FQDN address of the server into the pop-up exceptions section of the browser's **Content settings** window.

- 6 Drag the **Display Selector** browser window so that it appears in the other monitor display that you want to use.

The message in the **Display Selector** browser window changes and a gray rectangular icon appears.

- 7 To confirm that you want to use the current monitor display, in the **Display Selector** browser window, click the **+** monitor icon.

The **Waiting for other displays** message appears on the current monitor display and the gray monitor icon in the **Multi monitor** window in your primary display changes to a green color.

- 8 When you are finished adding the monitor displays that you want to use for the session, click **OK** in the **Multi monitor** window.

The **Multi monitor** window is dismissed. The **Waiting for other displays** message is cleared in the non-primary monitor display and shows the remote desktop window.

- 9 To exit the multiple displays mode, press Esc and click **Yes** in the **Exit the multiple displays mode** dialog box to confirm.

Note To use the Esc key in a remote desktop, open the sidebar tab, click the **Open Menu** toolbar button at the top of the sidebar, and select **Send ESC**.

Setting the Screen Resolution

HTML Access can resize the remote desktop to match the size of the browser window. To use this feature, a Horizon administrator must configure the remote desktop to have the correct amount of video RAM (VRAM). The default VRAM configuration is 36 MB. If you are not using 3D applications, the minimum VRAM requirement is 16 MB.

If you use a browser or Chrome device that has a high pixel density resolution, such as a MacBook with Retina Display or a Google Chromebook Pixel, you can set the remote desktop or published application to use that resolution. Turn on the **High Resolution Mode** option in the **Settings** window, which is available from the sidebar. This option appears in the **Settings** window only if you are using a high-resolution display or a normal display that uses a scale that is greater than 100 percent.

The High Resolution Mode feature cannot change the resolution for an active remote session. You must log out and log in again to make the feature take effect.

To use the 3D rendering feature, you must allocate sufficient VRAM for each remote desktop.

- The software-accelerated graphics feature, which is available with vSphere 5.0 or later, enables you to use 3D applications, such as Windows Aero themes or Google Earth. This feature requires from 64 MB to 128 MB of VRAM.
- The shared hardware-accelerated graphics feature (vSGA), which is available with vSphere 5.1 or later, enables you to use 3D applications for design, modeling, and multimedia. This feature requires from 64 MB to 512 MB of VRAM. The default is 96 MB.
- The dedicated hardware-accelerated graphics feature (vDGA), which is available with vSphere 5.5 or later, dedicates a single physical GPU (graphical processing unit on an ESXi host) to a single virtual machine. Use this feature if you require high-end hardware-accelerated workstation graphics. This feature requires from 64 MB to 512 MB of VRAM. The default is 96 MB.

When 3D rendering is enabled, the maximum number of monitors is one and the maximum resolution is 3840 x 2160.

Similarly, if you use a browser on a device that has a high pixel density resolution, such as a MacBook with Retina Display or a Google Chromebook Pixel, you must allocate sufficient VRAM for each remote desktop.

Important Estimating the amount of VRAM that you need for the VMware Blast display protocol is similar to estimating how much VRAM is required for the PCoIP display protocol. For guidelines, see "Estimating Memory Requirements for Virtual Desktops" in the *Horizon 7 Architecture Planning* document.

Using DPI Synchronization

The DPI Synchronization feature ensures that the DPI setting in a remote desktop or published application matches the client system's DPI setting.

If DPI synchronization is disabled, display scaling is used. The Display Scaling feature scales the remote desktop or published application appropriately.

If you want to set the resolution manually, you might be able to enable the **High Resolution Mode** setting. For information, see [Setting the Screen Resolution](#).

The **DPI Synchronization** agent group policy setting determines whether the DPI Synchronization feature is enabled. The feature is enabled by default. With DPI Synchronization, the DPI value in the remote session changes to match the DPI value of the client machine when you connect to a remote desktop or published application. The DPI Synchronization feature requires Horizon Agent 7.0.2 or later.

If the **DPI Synchronization Per Connection** agent group policy setting is enabled in addition to the **DPI Synchronization** group policy setting, DPI Synchronization is supported when you reconnect to a remote desktop. This feature is disabled by default. The DPI Synchronization Per Connection feature requires Horizon Agent 7.8 or later.

For more information about the **DPI Synchronization** and **DPI Synchronization Per Connection** group policy settings, see the *Configuring Remote Desktop Features in Horizon 7* document.

For virtual desktops, the DPI Synchronization feature is supported on the following guest operating systems:

- 32-bit or 64-bit Windows 7
- 32-bit or 64-bit Windows 8.x
- 32-bit or 64-bit Windows 10
- Windows Server 2012 R2 configured as a desktop
- Windows Server 2016 configured as a desktop
- Windows Server 2019 configured as a desktop

For published desktops and published applications, the DPI Synchronization feature is supported on the following RDS hosts:

- Windows Server 2012 R2
- Windows Server 2016
- Windows Server 2019

For virtual desktops, the DPI Synchronization Per Connection feature is supported on the following guest operating systems:

- Windows 10 version 1607 and later
- Windows Server 2016 and later configured as a desktop

The DPI Synchronization Per Connection feature is not supported for published desktops or published applications.

Following are tips for using the DPI Synchronization feature.

- If you change the DPI setting on the client system, but the DPI setting does not change in the remote desktop, you might need to log out and log in again to make Horizon Client aware of the new DPI setting on the client system.
- If you start a remote session on a client system that has a DPI setting of more than 100 percent, and then use the same session on another client system that has a different DPI setting of more than 100 percent, you might need to log out and log back in to the remote session on the second client system to make DPI synchronization work on the second client system.
- Although Windows 10 and Windows 8.x systems support different DPI settings on different monitors, the DPI Synchronization feature uses the DPI value that is set on the client system's monitor in which the Web browser used for launching the HTML Access client session is located. HTML Access does not support different DPI settings in different monitors.
- To sync up with another monitor that has a different DPI setting, you must log out of the remote desktop or published application, drag the Web browser used for launching the HTML Access client session to the other monitor, and log back in to the remote desktop or published application to make the DPI settings match between the client system and remote desktop or published application.

Use Full-Screen Mode

You can display a remote desktop or published application in full-screen mode.

You cannot use full-screen mode in the following situations.

- You are using multiple monitors.
- The browser is in full-screen mode or is maximized by dragging the mouse.
- You are using Safari.

Prerequisites

Connect to the remote desktop or published application.

Procedure

- ◆ To display the remote desktop or published application in full-screen mode, click the **Open Menu** button at the top of the sidebar and click **Fullscreen**.
- ◆ To exit from full-screen mode, click the **Open Menu** button at the top of the sidebar and click **Quit fullscreen**.

Alternatively, press the Esc key on the client system's keyboard.

Using the Real-Time Audio-Video Feature for Webcams and Microphones

With the Real-Time Audio-Video feature, you can use the client machine's webcam or microphone in a remote desktop or published application. Real-Time Audio-Video is compatible with standard conferencing applications and browser-based video applications, and it supports standard webcams, audio USB devices, and analog audio input.

Real-Time Audio-Video is supported only in Chrome, Microsoft Edge, and Firefox. The default video resolution is 320 x 240 pixels. The default Real-Time Audio-Video settings work well with most webcam and audio applications.

For information about changing the Real-Time Audio-Video settings, see "Configuring Real-Time Audio-Video Group Policy Settings" in the *Configuring Remote Desktop Features in Horizon 7* document.

When a remote desktop or published application is connected to the client machine's webcam or microphone, before the remote desktop or published application can use to the webcam or microphone, the browser might ask for permission. Different browsers behave differently.

- Microsoft Edge asks for permission every time. You cannot change this behavior. For more information, see <https://blogs.windows.com/msedgedev/2015/05/13/announcing-media-capture-functionality-in-microsoft-edge>.
- Firefox asks for permission every time. You can change this behavior. For more information, see <https://support.mozilla.org/en-US/kb/permissions-manager-give-ability-store-passwords-set-cookies-more?redirectlocale=en-US&redirectslug=how-do-i-manage-website-permissions>.
- Chrome asks for permission the first time. If you allow the device to be used, Chrome does not ask for permission again.

When a remote desktop is connected to the client machine's webcam or microphone, an icon for each device appears at the top of the sidebar. A red question mark appears over the device icon in the sidebar to indicate the permission request. If you allow a device to be used, the red question mark disappears. If you reject a permission request, the device icon disappears.

If Real-Time Audio-Video is being used in a remote desktop or published application session and you open a connection to a second remote desktop or published application, and if a security warning appears (for example, if a valid certificate was not installed), ignoring the warning and continuing to connect to the second remote desktop or published application causes Real-Time Audio-Video to stop working in the first session.

Sharing Remote Desktop Sessions

With the Session Collaboration feature, you can invite other users to join an existing remote desktop session. A remote desktop session that is shared in this way is called a collaborative session. The user that shares a session with another user is called the session owner, and the user that joins a shared session is called a session collaborator.

A Horizon administrator must enable the Session Collaboration feature.

For Windows desktops, this task includes enabling the Session Collaboration feature at the desktop pool or farm level. It can also include using group policies to configure Session Collaboration features, such as the available invitation methods. For complete requirements, see [Requirements for the Session Collaboration Feature](#).

For information about enabling the Session Collaboration feature for Windows desktops, see the *Setting Up Virtual Desktops in Horizon 7* document. For information about enabling the Session Collaboration feature for a farm, see the *Setting Up Published Desktops and Applications in Horizon 7* document. For information about using group policy settings to configure the Session Collaboration feature, see the *Configuring Remote Desktop Features in Horizon 7* document.

For information about enabling the Session Collaboration feature for Linux desktops, see the *Setting Up Horizon 7 for Linux Desktops* document.

Invite a User to Join a Remote Desktop Session

With the Session Collaboration feature, you can invite users to join a remote desktop session by sending collaboration invitations by email, in an instant message (Windows remote desktops only), or by copying a link to the clipboard and forwarding the link to users.

You can invite only users that belong to a domain that the server allows for authentication. You can invite up to five users by default. A Horizon administrator can change the maximum number of users that you can invite.

The Session Collaboration feature has the following limitations.

- If you have multiple monitors, only the primary monitor is shown to session collaborators.
- You must select the VMware Blast display protocol when you create a remote desktop session to share. The Session Collaboration feature does not support PCoIP or RDP sessions.
- H.264 hardware encoding is not supported. If the session owner is using hardware encoding and a collaborator joins the session, both fall back to software encoding.
- Anonymous collaboration is not supported. Session collaborators must be identifiable through Horizon-supported authentication mechanisms.
- Session collaborators must have Horizon Client 4.7 or later for Windows, Mac, or Linux installed, or they must use HTML Access 4.7 or later.
- If a session collaborator has an unsupported version of Horizon Client, an error message appears when the user clicks a collaboration link.
- You cannot use the Session Collaboration feature to share published application sessions.

Prerequisites

- The Session Collaboration feature must be enabled and configured.
- To use the email invitation method, an email application must be installed.

- To use the IM invitation method for a Windows remote desktop, Skype for Business must be installed and configured.

Procedure

- 1 Connect to a remote desktop for which the Session Collaboration feature is enabled.
You must use the VMware Blast display protocol.
- 2 In the system tray in the remote desktop, click the **VMware Horizon Collaboration** icon, for example, .

The collaboration icon might look different, depending on the operating system version.

- 3 When the VMware Horizon Collaboration dialog box opens, enter the user name (for example, **testuser** or **domain\testuser**) or the email address of the user that you want to join the remote desktop session.

The first time you enter the user name or email address of a particular user, you must click **Look up "user"**, enter a comma (,), or press the **Enter** key to validate the user. For Windows remote desktops, the Session Collaboration feature remembers the user the next time you enter the user's user name or email address.

- 4 Select an invitation method.

Not all invitation methods might be available.

Option	Action
Email	Copies the collaboration invitation to the clipboard and opens a new email message in the default email application. An email application must be installed to use this invitation method.
IM	(Windows remote desktops only) Copies the collaboration invitation to the clipboard and opens a new window in Skype for Business. Press Ctrl+V to paste the link into the Skype for Business window. Skype for Business must be installed and configured to use this invitation method.
Copy Link	Copies the collaboration invitation to the clipboard. You must manually open another application, such as Notepad, and press Ctrl+V to paste the invitation.

Results

After you send an invitation, the VMware Horizon Collaboration icon also appears on the desktop and the Session Collaboration user interface turns into a dashboard that shows the current state of the collaboration session and enables you to take certain actions.

When a session collaborator accepts your invitation to join a Windows remote desktop session, the Session Collaboration feature notifies you and a red dot appears on the VMware Horizon Collaboration icon in the system tray. When a session collaborator accepts your invitation to join a Linux remote desktop session, a notification appears in the primary session desktop.

What to do next

Manage the remote desktop session in the VMware Horizon Collaboration dialog box. See [Manage a Shared Remote Desktop Session](#).

Manage a Shared Remote Desktop Session

After you send a session collaboration invitation, the Session Collaboration user interface turns into a dashboard that shows the current state of the shared remote desktop session (collaborative session) and enables you to take certain actions.

A Horizon administrator can prevent the hand off of control to a session collaborator. For Windows remote desktops, see the **Allow control passing to collaborators** group policy setting in the *Configuring Remote Desktop Features in Horizon 7* document. For Linux remote desktops, see the `collaboration.enableControlPassing` parameter in the *Setting Up Horizon 7 for Linux Desktops* document.

Prerequisites

Start a collaborative session. See [Invite a User to Join a Remote Desktop Session](#).

Procedure

- 1 In the remote desktop, click the **VMware Horizon Collaboration** icon in the system tray.
The names of all session collaborators appear in the Name column and their status appears in the Status column.
- 2 Use the VMware Horizon Session Collaboration dashboard to manage the collaborative session.

Option	Action
Revoke an invitation or remove a collaborator	Click Remove in the Status column.
Hand off control to a session collaborator	After the session collaborator joins the session, toggle the switch in the Control column to On . To resume control of the session, double-click or press any key. The session collaborator can also give back control by toggling the switch in the Control column to Off , or by clicking the Give Back Control button.
Add a collaborator	Click Add Collaborators .
End the collaborative session	Click End Collaboration . All active collaborators are disconnected. In Windows remote desktops, you can also end the collaborative session by clicking the Stop button next to the VMware Horizon Session Collaboration icon. The Stop button is not available in Linux remote desktops.

Join a Remote Desktop Session

With the Session Collaboration feature, you can click the link in a collaboration invitation to join a remote desktop session. The link might be in an email or instant message, or in a document that

the session owner forwards to you. Alternatively, you can log in to the server and double-click the icon for the session in the remote desktop and application selector window.

This procedure describes how to join a remote desktop session from a collaboration invitation.

Note In a Cloud Pod Architecture environment, you cannot join a collaborative session by logging in to the server unless you log in to the session owner's pod.

When you join a remote desktop session with the Session Collaboration feature, you cannot use the following features in the remote desktop session.

- Real-Time Audio-Video (RTAV)
- Location-based printing
- Clipboard redirection

You also cannot change the remote desktop resolution in the remote desktop session.

Prerequisites

To join a remote desktop session with the Session Collaboration feature, you must have Horizon Client 4.7 for Windows, Mac, or Linux installed on the client system, or you must use HTML Access 4.7 or later.

Procedure

- 1 Click the link in the collaboration invitation.

Horizon Client opens on the client system.

- 2 Enter your credentials to log in to Horizon Client.

After you are successfully authenticated, the collaborative session begins and you can see the session owner's remote desktop. If the session owner transfers mouse and keyboard control to you, you can use the remote desktop.

- 3 To return mouse and keyboard control to the session owner, click the **VMware Horizon Collaboration** icon in the system tray and toggle the switch in the Control column to **Off**, or click the **Give Back Control** button.

- 4 To leave the collaborative session, click **Close** from the sidebar.

Copying and Pasting Text

You can copy and paste plain text and HTML-format rich text between the client device and remote desktops and published applications. A Horizon administrator can configure this feature so that copy and paste operations are allowed only from the client system to a remote desktop or published application, or only from a remote desktop or published application to the client system, or both, or neither.

A Horizon administrator can configure the ability to copy and paste by using group policy settings that pertain to Horizon Agent for remote desktops and published applications. For more information, see [HTML Access Group Policy Settings](#).

When you copy and paste rich text, the following restrictions apply.

- Image copy and paste is not supported.
- If you copy rich text from the client device and the destination is the WordPad application, only the plain text is copied and pasted.
- Rich text copy and paste is not supported when you use HTML Access on an Internet Explorer (IE), Microsoft Edge, or Safari browser. You must use the **Copy & Paste** window. See [Use the Copy and Paste Window](#).
- A Horizon administrator can use group policy settings to restrict clipboard formats during copy and paste operations. Because HTML Access supports transferring only text in the clipboard, only the text filters work with HTML Access. For information about clipboard format filter policy settings, see the *Configuring Remote Desktop Features in Horizon 7* document.

If you are using HTML Access with a Chrome or Firefox browser, refer to the following tips when using the clipboard feature.

- After you connect to a remote desktop or published application for the first time, the Clipboard User Guide dialog box appears. To dismiss the dialog box and never see it again, click **OK**.
- By default, the Clipboard icon  on the sidebar is selected and appears grey.
 - If the Clipboard icon is selected, when you copy text from a remote desktop or published application, a dialog box appears to ask for your confirmation to copy the text to the local client system's clipboard. Click **OK**.
 - If the Clipboard icon is deselected, the confirmation dialog box does not appear when you copy text from the remote desktop or published application to the local client system's clipboard.
- If you move your mouse over the Clipboard icon on the sidebar, a tooltip explains how the clipboard feature works.

The clipboard can accommodate a maximum of 1 MB of data for all types of copy and paste operations. If the plain text and rich text data together use less than the maximum clipboard size amount, the formatted text is pasted. Often, the rich text cannot be truncated, so that if the text and formatting use more than the maximum clipboard size amount, the rich text is discarded, and plain text is pasted. If you are unable to paste all the formatted text you selected in one operation, you might need to copy and paste smaller amounts in each operation.

You cannot copy and paste graphics. You also cannot copy and paste files between a remote desktop and the file system on the client computer.

Note The copy and paste feature is not supported in iOS Safari or Android devices.

Use the Copy and Paste Window

To copy and paste text from an Internet Explorer (IE), Microsoft Edge, or Safari browser, you must use the **Copy & Paste** button at the top of the sidebar to show the **Copy & Paste** window.

This procedure describes how to use the **Copy & Paste** window to copy text from an IE, Edge, or Safari browser on the local client system to an application in a remote desktop or to a published application, and how to copy text from an application in a remote desktop or published application to the client system.

If you are copying and pasting text between published applications, or between remote desktops, you can simply copy and paste as you normally would, and there is no need to use the **Copy & Paste** window.

When using an IE, Edge, or Safari browser, the **Copy & Paste** window is required only for synchronizing the clipboard on the local system with the clipboard in the remote machine.

The text in the **Copy & Paste** window shows one of the following messages to indicate in which direction you can copy and paste content.

- Use this panel to copy & paste content between your local client and remote desktop/application.
- Use the panel to copy & paste content from your local client to remote desktop/application.
- Use the panel to copy & paste content from your remote desktop/application to local client.

Note The default clipboard redirection group policy setting allows you to copy only from the client system and paste into a remote desktop or published application. To be able to copy from a remote desktop or published application to the client system, the group policy setting must be enabled in both directions.

Prerequisites

If you are using a Mac, verify that you have enabled the setting for mapping the Command key to the Windows Ctrl key when using the key combinations to select, copy, and paste text. Click the **Open Settings Window** toolbar button in the sidebar and turn on **Enable Command-A, Command-C, Command-V, and Command-X**. If you are using a Mac, this option appears only in the **Settings** window.

A Horizon administrator must leave the default policy in effect, which allows users to copy from client systems and paste into remote desktops and published applications, or configure another policy that allows copying and pasting. For more information, see [HTML Access Group Policy Settings](#).

Procedure

- ◆ To copy text from the client system to an application in a remote desktop, or from the client system to a published application, perform these steps.
 - a Copy the text in the local client application.
 - b In HTML Access, open the sidebar and click **Copy & Paste** at the top of the sidebar.

The **Copy & Paste** window appears. If previously copied text already appears in the window, that text is replaced when you paste in the newly copied text.
 - c To paste the text into the **Copy & Paste** window, press Ctrl+V on a Windows system or Command-V on a Mac.

The following message appears briefly: "Remote Clipboard Synced."
 - d Click in the application where you want to past the text and press Ctrl+V.

The text is pasted into the application.
- ◆ To copy text from an application in a remote desktop to the client system, or from a published application to the client system, perform these steps.
 - a Copy the text in the application.
 - b In HTML Access, open the sidebar and click **Copy & Paste** at the top of the sidebar.

The **Copy & Paste** window appears and shows the pasted text. The following message appears briefly: "Remote Clipboard Synced."
 - c To copy the text again, click in the **Copy & Paste** window and press Ctrl+C on a Windows system or Command-C on a Mac.

The text is not selected when you do this action, and you cannot select the text. The following message appears briefly: "Copied from Clipboard Panel."
 - d On the client system, click where you want to paste the text and press Ctrl+V.

The text is pasted into the application on the client system.

Transferring Files Between the Client and a Remote Desktop or Published Application

With the file transfer feature, you can transfer files between the client system and a remote desktop or published application.

A Horizon administrator can configure the ability to allow, disallow, or allow in one direction only, the transfer of files by modifying the **Configure file transfer** group policy setting for VMware Blast. This group policy setting has the following values.

- If the **Disabled both upload and download** value is selected, the **File Transfer** button is disabled.
- If the **Enabled file upload only** value is selected (the default setting), only the **Upload** tab appears in the **Transfer Files** window.
- If the **Enabled file download only** value is selected, only the **Download** tab appears in the **Transfer Files** window.

If the **Configure clipboard redirection** group policy setting is disabled from the server to the client, file download is also disabled.

For more information about these group policy settings, see the *Configuring Remote Desktop Features in Horizon 7* document.

This feature has the following limitations.

- You can download files up to 500 MB and upload files up to 2 GB.
- For 32-bit Internet Explorer 11, downloading a file larger than 300 MB might not work. To resolve the issue, run Internet Explorer 11 in 64-bit mode.
- You cannot download or upload folders or files that have a size of zero.
- Safari on iOS, and Safari 8, do not support upload or download. Safari 9 and later do not support download.
- If a file transfer is in progress in a remote session and you open a connection to a second remote session, and if a security warning appears, if you ignore the warning and continue to connect to the second remote session the file transfer in the first session aborts.
- If you upload a file with Internet Explorer 11, or with Chrome on a Chromebook, if you drag and drop folders, files of zero size, or files that are larger than 2 GB, you receive an error message as expected. After you dismiss the error message, you can no longer drag and drop files that can be transferred.
- You cannot use this feature with Linux remote desktops or Android devices.

Download Files From a Remote Desktop or Published Application to the Client System

You can download files from a remote desktop or published application to the client system.

A Horizon administrator can disable this feature. For more information, see [Transferring Files Between the Client and a Remote Desktop or Published Application](#).

Procedure

- 1 Connect to the remote desktop or published application.

- 2 To open the sidebar, click the sidebar tab.
- 3 Click the file transfer icon  at the top of the sidebar.
The **Transfer Files** window appears.
- 4 Click **Download** in the **Transfer Files** window.
- 5 Select one or more files to download.
- 6 To begin the file transfer, press Ctrl+c.
The files appear on the **Download** tab in the **Transfer Files** window.
- 7 To download the files to the client system, click the download icon (the down arrow).
The files appear in the Downloads folder on the client system.

Upload Files From the Client System to a Remote Desktop or Published Application

You can upload files from the client system to a remote desktop or published application.

A Horizon administrator can disable this feature. For more information, see [Transferring Files Between the Client and a Remote Desktop or Published Application](#).

Procedure

- 1 Connect to the remote desktop or published application.
- 2 To open the sidebar, click the sidebar tab.
- 3 Click the file transfer icon  at the top of the sidebar.
The **Transfer Files** window appears.
- 4 To upload files, drag and drop the files to the **Upload** tab in the **Transfer Files** window, or click **Choose Files** on the **Upload** tab and select the files to upload.
The uploaded files appear in the Documents folder.

Printing From a Remote Desktop or Published Application

You can print to a network printer or a locally attached printer from a remote desktop or published application.

To use this feature, Horizon Agent 7.12 or later must be installed on the virtual machine or RDS host, and the VMware Integrated Printing option must be enabled during the installation. For more information, see the *Setting Up Virtual Desktops in Horizon 7* or *Setting Up Desktop and Application Pools in Horizon 7* document.

You can disable the VMware Integrated Printing feature for HTML Access users by using the **Disable printer redirection for non-desktop client** group policy setting. For more information, see the *Configuring Remote Desktop Features in Horizon 7* document.

Set Printing Preferences for the VMware Integrated Printing Feature

You can set printing preferences in a remote desktop for the VMware Integrated Printing feature. With the VMware Integrated Printing feature, you can use local or network printers from a remote desktop without having to install additional printer drivers in the Windows remote desktop. For each printer available through this feature, you can set preferences for data compression, print quality, double-sided printing, color, and other settings.

Prerequisites

To use VMware Integrated Printing, a Horizon administrator must enable the VMware Integrated Printing feature in the remote desktop. This task involves enabling the **VMware Integrated Printing** option in the Horizon Agent installer and setting policies that control virtual printing behavior. For information about installing Horizon Agent, see the *Setting Up Virtual Desktops in Horizon 7* or *Setting Up Published Desktops and Applications in Horizon 7* document. For information about configuring policies, see the *Configuring Remote Desktop Features in Horizon 7* document.

To determine whether the VMware Integrated Printing feature is installed in a remote desktop, verify that the C:\Program Files\Common Files\VMware\Remote Experience\x64\vmware-print-redirect-server.exe and C:\Program Files\Common Files\VMware\Remote Experience\x64\vmware-print-redirect-service.exe files exist in the remote desktop file system.

This feature requires Horizon Agent 7.12 or later.

Procedure

- 1 In the Windows remote desktop, go to **Control Panel > Hardware and Sound > Devices and Printers**.
- 2 In the **Devices and Printers** window, right-click the virtual printer and select **Printer properties** from the context menu.

In a single-user virtual machine desktop, each virtual printer appears as <printer_name>(vdi). By default, in a published desktop or published application, each virtual printer appears as <printer_name>(v<session_ID>).
- 3 On the **General** tab, click **Preferences**.
- 4 In the Printing Preferences dialog box, select the different tabs and specify which settings to use.
- 5 To save your changes, click **OK**.

Use Multiple Sessions of a Published Application From Different Client Devices

When multi-session mode is enabled for a published application, you can use multiple sessions of the same published application when you log on to the server from different client devices.

For example, if you open a published application in multi-session mode on client A, and then open the same published application on client B, the published application remains open on client A and a new session of the published application opens on client B. By comparison, when multi-session mode is disabled (single-session mode), the published application session on client A disconnects and reconnects on client B.

The multi-session mode feature has the following limitations.

- Multi-session mode does not work for applications that do not support multiple instances, such as Skype for Business.
- If the application session is disconnected while you are using a published application in multi-session mode, you are logged off automatically and any unsaved data is lost.

Prerequisites

A Horizon administrator must enable multi-session mode for the application pool. Users cannot modify the multi-session mode for a published application unless a Horizon administrator allows it. See *Setting Up Published Desktops and Applications in Horizon 7*. This feature requires Horizon 7 version 7.7 or later.

Procedure

- 1 Connect to a server.
- 2 Click the **Settings** toolbar button in the upper-right corner of the desktop and application selector window, scroll down to the **Multi-Launch** setting, and click **Set**.

Alternatively, if you previously started a remote desktop or published application, you can click the **Open Menu** button in the sidebar, click **Settings**, and scroll down to the **Multi-Launch** setting. If no published applications are available to use in multi-session mode, the **Multi-Launch** setting is dimmed.

- 3 Select the published applications that you want to use in multi-session mode and click **OK**.

If a Horizon administrator has enforced multi-session mode for a published application, you cannot change this setting.

Adjusting the Sound in Remote Desktops and Published Applications

By default, sound playback is enabled for remote desktops and published applications. A Horizon administrator can set a policy to disable sound playback. Some limitations apply to sound playback in remote desktops and published applications.

- To turn up the volume, use the sound control on the client system, not the sound control in the remote desktop.
- Occasionally, the sound might go out of sync with the video.
- In conditions of heavy network traffic, or if the browser is performing many tasks, sound quality might be reduced. Some browsers work better than others in this regard.

Shortcut Key Combinations

Some key combinations cannot be sent to a remote desktop or published application, regardless of the language that you use.

Web browsers allow some key presses and key combinations to be sent to both the client system and the destination system. For other keys and key combinations, the input is processed only locally and is not sent to the destination system. The key combinations that work on your system depend on the browser software, the client operating system, and the language settings.

Note If you are using a Mac, you can map the Command key to the Windows Ctrl key when you use the key combinations to select, copy, and paste text. To enable this feature, click the **Open Settings Window** toolbar button in the sidebar and turn on **Enable Command-A, Command-C, Command-V, and Command-X**. This option appears in the **Settings** window only if you are using a Mac client system.

The following keys and keyboard combinations often do not work in remote desktops.

- Ctrl+T
- Ctrl+W
- Ctrl+N
- Command key
- Alt+Enter
- Ctrl+Alt+*any_key*

Important To input Ctrl+Alt+Del, use the **Send Ctrl+Alt+Delete** toolbar button at the top of the sidebar.

- Caps Lock+*modifier_key* (such as Alt or Shift)
- Function keys on a Chromebook
- Windows key combinations

If you enable the Windows key for remote desktops, the following Windows key combinations work in remote desktops. To enable this key, click the **Open Settings Window** toolbar button in the sidebar and turn on **Enable Windows Key for Desktops**.

Important After you turn on **Enable Windows Key for Desktops**, you must press Ctrl+Win (on Windows), Ctrl+Command (on Mac), or Ctrl+Search (on Chromebook) to simulate pressing the Windows key.

These key combinations do not work for published applications. These key combinations do work for Windows Server 2012 R2 and Windows Server 2016 remote desktops and published desktops.

Some key combinations that work in remote desktops that have a Windows 8.x or Windows Server 2012 R2 operating system do not work in remote desktops that have a Windows 7 or Windows 10 operating system.

Table 4-4. Windows Key Shortcuts for Windows 10 Remote Desktops and Windows Server 2016 Remote Desktops

Keys	Action	Limitations
Win	Open or close Start.	
Win+A	Open Action center.	
Win+E	Open File Explorer.	
Win+G	Open game bar when a game is open.	
Win+H	Open the Share charm.	
Win+I	Open the Settings charm.	
Win+K	Open the Connection quick action.	
Win+M	Minimize all windows.	
Win+R	Open the Run dialog box.	
Win+S	Open Search.	
Win+X	Open the Quick Link menu.	
Win+, (comma)	Temporarily peek at the remote desktop.	
Win+Pause	Display the System Properties dialog box.	There is no Pause key on Chromebooks or Macs.
Win+Shift+M	Restore minimized windows on the remote desktop.	Does not work in Safari.
Win+Alt+Num	Open the remote desktop and open the jump list for the app pinned to the taskbar in the position indicated by the number.	Does not work on a Chromebook.
Win+Enter	Open Narrator.	

Table 4-5. Windows Key Shortcuts for Windows 8.x and Windows Server 2012 R2 Remote Desktops

Keys	Action	Limitations
Win+F1	Open Windows Help and Support.	Does not work in Safari.
Win	Show or hide the Start window.	
Win+B	Set focus on the notification area.	
Win+C	Open the Charms panel.	
Win+D	Show and hide the remote desktop.	Does not work in Safari. Press Command-D on a Mac.
Win+E	Open File Explorer.	
Win+H	Open the Share charm.	
Win+I	Open the Settings charm.	
Win+K	Open the Devices charm.	

Table 4-5. Windows Key Shortcuts for Windows 8.x and Windows Server 2012 R2 Remote Desktops (continued)

Keys	Action	Limitations
Win+M	Minimize all windows.	
Win+Q	To search everywhere or within the open app, if the app supports app search, open the Search charm.	
Win+R	Open the Run dialog box.	
Win+S	To search Windows and the Web, open the Search charm.	
Win+X	Open the Quick Link menu.	
Win+Z	Show the commands available in the app.	
Win+, (comma)	Temporarily show the remote desktop, as long as you continue pressing the keys.	Does not work on Windows 2012 R2 operating systems.
Win+Pause	Display the System Properties dialog box.	Chromebooks and Macs do not have a Pause key .
Win+Shift+M	Restore minimized windows on the remote desktop.	Does not work in Safari. Press Command-D on a Mac.
Win+Alt+Num	Open the remote desktop and open the jump list for the app pinned to the taskbar in the position indicated by the number.	Does not work on a Chromebook.
Win+Up Arrow	Maximize the window.	Does not work on a Chromebook.
Win+Down Arrow	Remove current app from the screen or minimize the remote desktop window.	Does not work on a Chromebook.
Win+Left Arrow	Maximize the app or remote desktop window to the left side of the screen.	Does not work on a Chromebook.
Win+Right Arrow	Maximize the app or remote desktop window to the right side of the screen.	Does not work on a Chromebook.
Win+Home	Minimize all but the active remote desktop window (restores all windows when you press Win+Home a second time).	Does not work in Safari browsers.
Win+Shift+Up Arrow	Stretch the remote desktop window to the top and bottom of the screen.	Does not work on a Chromebook.
Win+Shift+Down Arrow	Restore the remote desktop window vertically, while maintaining width, after pressing Win+Shift+Up to stretch the window, or minimize active remote desktop window.	Does not work on a Chromebook.
Win+Enter	Open Narrator.	

Table 4-6. Windows Key Shortcuts for Windows 7 Remote Desktops

Keys	Action	Limitations
Win	Open or close the Start menu.	
Win+Pause	Show the System Properties dialog box.	Chromebooks and Macs do not have a Pause key.
Win+D	Show and hide the remote desktop.	Does not work in Safari. Press Command-D on a Mac.
Win+M	Minimize all windows.	

Table 4-6. Windows Key Shortcuts for Windows 7 Remote Desktops (continued)

Keys	Action	Limitations
Win+E	Open the Computer folder.	
Win+R	Open the Run dialog box.	
Win+Up Arrow	Maximize the window.	Does not work on a Chromebook.
Win+Down Arrow	Minimize the window.	Does not work on a Chromebook.
Win+Left Arrow	Maximize the app or remote desktop window to the left side of the window.	Does not work on a Chromebook.
Win+Right Arrow	Maximize the app or remote desktop window to the right side of the window.	Does not work on a Chromebook.
Win+Home	Minimize all but the active remote desktop window.	Does not work in Safari.
Win+Shift+Up Arrow	Stretch the remote desktop window to the top and bottom of the screen.	Does not work on a Chromebook.
Win+G	Cycle through running remote desktop gadgets.	
Win+U	Open the Ease of Access Center.	

Internationalization

The user interface and documentation are available in English, Japanese, French, German, Simplified Chinese, Traditional Chinese, Korean, and Spanish.

For information about which language packs you must use in the client system, browser, and remote desktop, see [International Keyboards](#).

International Keyboards

When using non-English keyboards and locales, you must use certain settings in your client system, browser, and remote desktop. Some languages require you to use an IME (input method editor) on the remote desktop.

With the correct local settings and input methods installed, you can input characters for the following languages: English, Japanese, French, German, simplified Chinese, traditional Chinese, Korean, and Spanish.

Table 4-7. Required Input Language Settings

Language	Input Language on the Local Client System	IME Required on the Local Client System?	Browser and Input Language on the Remote Desktop	IME Required on the Remote Desktop?
English	English	No	English	No
French	French	No	French	No
German	German	No	German	No
Chinese (Simplified)	Chinese (Simplified)	English Input Mode	Chinese (Simplified)	Yes

Table 4-7. Required Input Language Settings (continued)

Language	Input Language on the Local Client System	IME Required on the Local Client System?	Browser and Input Language on the Remote Desktop	IME Required on the Remote Desktop?
Chinese (Traditional)	Chinese (Traditional)	English Input Mode	Chinese (Traditional)	Yes
Japanese	Japanese	English Input Mode	Japanese	Yes
Korean	Korean	English Input Mode	Korean	Yes
Spanish	Spanish	No	Spanish	No

Troubleshooting Horizon Client

5

You can solve most Horizon Client problems by restarting or resetting remote desktops or published applications, or by reinstalling Horizon Client.

This chapter includes the following topics:

- [Restart a Remote Desktop](#)
- [Reset Remote Desktops or Published Applications](#)

Restart a Remote Desktop

If the remote desktop operating system stops responding, you might need to restart a remote desktop. Restarting a remote desktop is similar to using the Windows operating system restart command. The remote desktop operating system usually prompts you to save any unsaved data before it restarts.

You can restart a remote desktop only if a Horizon administrator has enabled the restart feature for the remote desktop.

For information about enabling the desktop restart feature, see the *Setting Up Virtual Desktops in Horizon 7* or *Setting Up Published Desktops and Applications in Horizon 7* document.

Procedure

- ◆ Use the **Restart** command.

Option	Action
From the sidebar	When connected to a remote desktop, click the Open Menu toolbar button next to the remote desktop name in the Running list in the sidebar and select Restart .
Using a URI	To restart a desktop, use the URI <code>https://ConnectionServerFQDN?desktopId=desktop_name&action=restart</code> .

Results

The operating system in the remote desktop restarts and Horizon Client disconnects and logs off from the remote desktop.

What to do next

Wait an appropriate amount of time for the system to restart before you attempt to reconnect to the remote desktop.

If restarting the remote desktop does not solve the problem, you might need to reset the remote desktop. See [Reset Remote Desktops or Published Applications](#).

Reset Remote Desktops or Published Applications

You might need to reset a remote desktop if the desktop operating system stops responding and restarting the remote desktop does not solve the problem.

Resetting a remote desktop is the same as pressing the Reset button on a physical PC to force the PC to restart. Any files that are open on the remote desktop are closed and are not saved.

Resetting published applications quits all open applications.

You can reset a remote desktop only if a Horizon administrator has enabled the reset feature for the remote desktop.

For information about enabling the desktop reset feature, see the *Setting Up Virtual Desktops in Horizon 7* or *Setting Up Published Desktops and Applications in Horizon 7* document.

Procedure

- ◆ Use the **Reset** command.

Option	Action
Reset published applications from the application selector window	From the desktop and application selector window, before connecting to a remote desktop or published application, to reset all running published applications, click the Settings toolbar button in the upper-right corner of the screen, and click Reset .
Reset a remote desktop from the sidebar	When connected to a remote desktop, click the Open Menu toolbar button next to the desktop name in the Running list in the sidebar and select Reset .
Reset published applications from the sidebar	To reset all running applications, click the Open Settings Window toolbar button at the top of the sidebar, and click Reset .
Reset a remote desktop using an URI	To reset a remote desktop, use the URI <code>https://ConnectionServerFQDN?desktopId=desktop_name&action=reset</code> .

Results

When you reset a remote desktop, the operating system in the remote desktop restarts and Horizon Client disconnects and logs off from the remote desktop. When you reset published applications, the published applications quit.

What to do next

Wait an appropriate amount of time for system to restart before attempting to reconnect to the remote desktop or published application.