

View Agent Direct- Connection Plug-In Administration

Modified for Horizon 7 7.3.2
VMware Horizon 7 7.3



vmware®

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

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

If you have comments about this documentation, submit your feedback to

docfeedback@vmware.com

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

Copyright © 2013–2017 VMware, Inc. All rights reserved. [Copyright and trademark information.](#)

Contents

| | |
|---|----|
| View Agent Direct-Connection Plug-In Administration | 4 |
| 1 Installing View Agent Direct-Connection Plug-In | 5 |
| View Agent Direct-Connection Plug-In System Requirements | 5 |
| Install View Agent Direct-Connection Plug-In | 6 |
| Install View Agent Direct-Connection Plug-In Silently | 7 |
| 2 View Agent Direct-Connection Plug-In Advanced Configuration | 8 |
| View Agent Direct-Connection Plug-In Configuration Settings | 8 |
| Disabling Weak Ciphers in SSL/TLS | 12 |
| Replacing the Default Self-Signed SSL Server Certificate | 13 |
| Authorizing Horizon Client to Access Desktops and Applications | 13 |
| Using Network Address Translation and Port Mapping | 14 |
| Add a Certificate Authority to the Windows Certificate Store | 17 |
| 3 Setting Up HTML Access | 19 |
| Install View Agent for HTML Access | 19 |
| Set Up Static Content Delivery | 20 |
| Set Up Trusted CA-Signed SSL Server Certificate | 21 |
| Disable HTTP/2 Protocol on Windows 10 and Windows 2016 Desktops | 22 |
| 4 Setting Up View Agent Direct Connection on Remote Desktop Services Hosts | 23 |
| Remote Desktop Services Hosts | 23 |
| Entitle RDS Desktops and Applications | 24 |
| 5 Troubleshooting View Agent Direct-Connection Plug-In | 25 |
| Incorrect Graphics Driver is Installed | 25 |
| Insufficient Video RAM | 26 |
| Enabling Full Logging to Include TRACE and DEBUG information | 26 |

View Agent Direct-Connection Plug-In Administration

View Agent Direct-Connection Plug-In Administration provides information about installing and configuring View Agent Direct-Connection Plugin. This plug-in is an installable extension to View Agent that allows Horizon Client to directly connect to a virtual machine-based desktop, a Remote Desktop Services (RDS) desktop, or an application without using View Connection Server. All the desktop and application features work in the same way as when the user connects through View Connection Server.

Intended Audience

This information is intended for an administrator who wants to install, upgrade or configure View Agent Direct-Connection Plug-In in a virtual machine-based desktop or an RDS host. This guide is written for experienced Windows system administrators who are familiar with virtual machine technology and datacenter operations.

Installing View Agent Direct-Connection Plug-In

1

View Agent Direct-Connection (VADC) Plug-In enables Horizon Clients to directly connect to virtual machine-based desktops, RDS desktops, or applications. VADC Plug-In is an extension to View Agent and is installed on virtual machine-based desktops or RDS hosts.

This section includes the following topics:

- [View Agent Direct-Connection Plug-In System Requirements](#)
- [Install View Agent Direct-Connection Plug-In](#)
- [Install View Agent Direct-Connection Plug-In Silently](#)

View Agent Direct-Connection Plug-In System Requirements

View Agent Direct-Connection (VADC) Plug-In is installed on machines where View Agent is already installed. For a list of operating systems that View Agent supports, see "Supported Operating Systems for View Agent" in the *View Installation* document.

VADC Plug-In has the following additional requirements:

- The virtual or physical machine that has VADC Plug-In installed must have a minimum of 128 MB of video RAM for PCoIP to function properly.
- For a virtual machine, you must install VMware Tools before you install View Agent.
- A physical machine must have a Teradici host card. Installing VMware Tools is not required.

Note A virtual machine-based desktop that supports VADC can be joined to a Microsoft Active Directory domain, or it can be a member of a workgroup.

Install View Agent Direct-Connection Plug-In

View Agent Direct-Connection (VADC) Plug-In is packaged in a Windows Installer file that you can download from the VMware Web site and install.

Prerequisites

- Verify that View Agent is installed. If your environment does not include View Connection Server, install View Agent from the command line and specify a parameter that tells View Agent not to register with View Connection Server. See [Install View Agent for HTML Access](#).
- Enable the screen DMA setting for virtual machines on vSphere 6.0 and later. If screen DMA is disabled, users see a black screen when they connect to the remote desktop. For more information on how to set the screen DMA, see the VMware Knowledge Base (KB) article 2144475 <http://kb.vmware.com/kb/2144475>.

Procedure

- 1 Download the VADC Plug-In installer file from the VMware download page at <http://www.vmware.com/go/downloadview>.

The installer filename is VMware-viewagent-direct-connection-x86_64-y.y.y-xxxxxx.exe for 64-bit Windows or VMware-viewagent-direct-connection--y.y.y-xxxxxx.exe for 32-bit Windows, where y.y.y is the version number and xxxxxx is the build number.

- 2 Double-click the installer file.

- 3 (Optional) Change the TCP port number.

The default port number is 443.

- 4 (Optional) Choose how to configure the Windows Firewall service.

By default, **Configure Windows Firewall automatically** is selected and the installer configures Windows Firewall to allow the required network connections.

- 5 (Optional) Choose whether to disable SSL 3.0.

By default, **Disable support for SSLv3 automatically (recommended)** is selected and the installer disables SSL 3.0 at the operating system level. This option is not displayed and the installer performs no action if SSL 3.0 is already explicitly enabled or disabled in the registry. If this option is deselected, the installer also performs no action.

- 6 Follow the prompts and finish the installation.

Install View Agent Direct-Connection Plug-In Silently

You can use the silent installation feature of Microsoft Windows Installer (MSI) to install View Agent Direct-Connection (VADC) Plug-In. In a silent installation, you use the command line and do not have to respond to wizard prompts.

With silent installation, you can efficiently deploy VADC Plug-In in a large enterprise. For more information on Windows Installer, see "Microsoft Windows Installer Command-Line Options" in the *Setting Up Virtual Desktops in Horizon 7* document. VADC Plug-In supports the following MSI properties.

Table 1-1. MSI Properties for the Silent Installation of View Agent Direct-Connection Plug-In

| MSI Property | Description | Default Value |
|----------------|---|---------------|
| LISTENPORT | The TCP port that VADC Plug-In uses to accept remote connections. By default, the installer will configure Windows Firewall to allow traffic on the port. | 443 |
| MODIFYFIREWALL | If set to 1, the installer will configure Windows Firewall to allow traffic on LISTENPORT. If set to 0, the installer will not. | 1 |
| DISABLE_SSLV3 | If SSL 3.0 is already explicitly enabled or disabled in the registry, the installer ignores this property. Otherwise, the installer disables SSL 3.0 at the operating system level if this property is set to 1, and the installer performs no action if this property is set to 0. | 1 |

Prerequisites

- Verify that Horizon Agent is installed. If your environment does not include Horizon Connection Server, install Horizon Agent from the command line and specify a parameter that tells Horizon Agent not to register with Horizon Connection Server. See [Install View Agent for HTML Access](#).

Procedure

- Open a Windows command prompt.
- Run the VADC Plug-In installer file with command-line options to specify a silent installation. You can optionally specify additional MSI properties.

The following example installs VADC Plug-In with default options.

```
VMware-viewagent-direct-connection--y.y.y-xxxxxx.exe /s
```

The following example installs VADC Plug-In and specifies a TCP port that vadc will listen to for remote connections.

```
VMware-viewagent-direct-connection--y.y.y-xxxxxx.exe /s /v"/qn LISTENPORT=9999"
```

View Agent Direct-Connection Plug-In Advanced Configuration

2

You can use the default View Direct-Connection Plug-In configuration settings or customize them through Windows Active Directory group policy objects (GPOs) or by modifying specific Windows registry settings.

This section includes the following topics:

- [View Agent Direct-Connection Plug-In Configuration Settings](#)
- [Disabling Weak Ciphers in SSL/TLS](#)
- [Replacing the Default Self-Signed SSL Server Certificate](#)
- [Authorizing Horizon Client to Access Desktops and Applications](#)
- [Using Network Address Translation and Port Mapping](#)
- [Add a Certificate Authority to the Windows Certificate Store](#)

View Agent Direct-Connection Plug-In Configuration Settings

All configuration settings for View Agent Direct-Connection Plug-In are stored in the local registry on each virtual machine-based desktop or RDS host. You can manage these settings using Windows Active Directory group policy objects (GPOs), through the local policy editor, or by directly modifying the registry.

The registry values are located in the registry key `HKEY_LOCAL_MACHINE\Software\VMware, Inc.\VMware VDM\Agent\Configuration\XMLAPI`.

Table 2-1. View Agent Direct-Connection Plug-In Configuration Settings

| Setting | Registry Value | Type | Description |
|-------------------|-----------------|--------|--|
| HTTPS Port Number | httpsPortNumber | REG_SZ | The TCP port on which the plug-in listens for incoming HTTPS requests from Horizon Client. If this value is changed, you must make a corresponding change to the Windows firewall to allow incoming traffic. |
| Session Timeout | sessionTimeout | REG_SZ | The period of time a user can keep a session open after logging in with Horizon Client. The value is set in minutes. The default is 600 minutes. When this timeout is reached, all of a user's desktop and applications sessions are disconnected. |

Table 2-1. View Agent Direct-Connection Plug-In Configuration Settings (Continued)

| Setting | Registry Value | Type | Description |
|----------------------------------|-------------------|--------|--|
| Default Protocol | defaultProtocol | REG_SZ | The default display protocol used by Horizon Client to connect to the desktop. If the value is not set, then the default value is BLAST. |
| Disclaimer Enabled | disclaimerEnabled | REG_SZ | The value can be set to TRUE or FALSE. If set to TRUE, show disclaimer text for user acceptance at login. The text is shown from 'Disclaimer Text' if written, or from the GPO Configuration\Windows Settings\Security Settings\Local Policies\Security Options: Interactive logon. The default setting for disclaimerEnabled is FALSE. |
| Disclaimer Text | disclaimerText | REG_SZ | The disclaimer text shown to Horizon Client users at login. The Disclaimer Enabled policy must be set to TRUE. If the text is not specified, the default is to use the value from Windows policy Configuration\Windows Settings\Security Settings\Local Policies\Security Options. |
| Client setting: AlwaysConnect | alwaysConnect | REG_SZ | The value can be set to TRUE or FALSE. AlwaysConnect setting is sent to Horizon Client. If this policy is set to TRUE, it overrides any saved client preferences. No value is set by default. Enabling this policy sets the value to TRUE. Disabling this policy sets the value to FALSE. |
| External PCoIP Port | externalPCoIPPort | REG_SZ | The port number sent to Horizon Client for the destination TCP/UDP port number that is used for the PCoIP protocol. A + character in front of the number indicates a relative number from the port number used for HTTPS. Only set this value if the externally exposed port number does not match the port that the service is listening on. Typically, this port number is in a NAT environment. No value is set by default. |
| External Blast Port | externalBlastPort | REG_SZ | The port number sent to Horizon Client for the destination TCP port number that is used for the HTML5/Blast protocol. A + character in front of the number indicates a relative number from the port number used for HTTPS. Only set this value if the externally exposed port number does not match the port that the service is listening on. Typically, this port number is in a NAT environment. No value is set by default. |
| External RDP Port | externalRDPPort | REG_SZ | The port number sent to Horizon Client for the destination TCP port number that is used for the RDP protocol. A + character in front of the number indicates a relative number from the port number used for HTTPS. Only set this value if the externally exposed port number does not match the port that the service is listening on. Typically, this port number is in a NAT environment. No value is set by default. |

Table 2-1. View Agent Direct-Connection Plug-In Configuration Settings (Continued)

| Setting | Registry Value | Type | Description |
|---------------------------------|------------------------------|--------|--|
| External IP Address | externalIPAddress | REG_SZ | The IPV4 address sent to Horizon Client for the destination IP address that is used for secondary protocols (RDP, PCoIP, Framework channel, and so on). Only set this value if the externally exposed address does not match the address of the desktop machine. Typically, this address is in a NAT environment. No value is set by default. |
| External Framework Channel Port | externalFrameworkChannelPort | REG_SZ | The port number sent to the Horizon Client for the destination TCP port number that is used for the Framework Channel protocol. A + character in front of the number indicates a relative number from the port number used for HTTPS. Only set this value if the externally exposed port number does not match the port where the service is listening. Typically, this port number is in a NAT environment. No value is set by default. |
| USB Enabled | usbEnabled | REG_SZ | The value can be set to TRUE or FALSE. Determines whether desktops can use USB devices connected to the client system. The default value is enabled. To prevent the use of external devices for security reasons, change the setting to disabled (FALSE). |
| Client setting: USB AutoConnect | usbAutoConnect | REG_SZ | The value can be set to TRUE or FALSE. Connect USB devices to the desktop when they are plugged in. If this policy is set, it overrides any saved client preferences. No value is set by default. |
| Reset Enabled | resetEnabled | REG_SZ | The value can be set to TRUE or FALSE. When set to TRUE, an authenticated Horizon client can perform an operating system level reboot. The default setting is disabled (FALSE). |
| Client Credential Cache Timeout | clientCredentialCacheTimeout | REG_SZ | The time period, in minutes, that a Horizon client allows a user to use a saved password. 0 means never, and -1 means forever. Horizon Client offers users the option of saving their passwords if this setting is set to a valid value. The default is 0 (never). |
| User Idle Timeout | userIdleTimeout | REG_SZ | If there is no user activity on the Horizon client for this period of time, the user's desktop and application sessions are disconnected. The value is set in seconds. The default is 900 seconds (15 minutes). |
| Smart Card Support | x509CertAuth | REG_SZ | Indicates how smart card authentication is supported based on the following values: <ul style="list-style-type: none"> ■ 0: Not allowed ■ 1: Optional ■ 2: Required The default value is 0. |

Table 2-1. View Agent Direct-Connection Plug-In Configuration Settings (Continued)

| Setting | Registry Value | Type | Description |
|--------------------------------|-------------------|--------|---|
| Smart Card Certificate Source | x509SSLCertAuth | REG_SZ | Indicates that the smart card certificate is obtained from the SSL negotiation. The value must be set to TRUE whenever x509CertAuth is set to 1 or 2. The default value is FALSE. Changing this setting requires a restart of the View Agent service. |
| Client Config Name Value Pairs | BioMetricsTimeout | REG_SZ | Indicates whether biometric authentication is supported and if so, a time period during which it can be used. 0 means that biometric authentication is not supported. -1 means that it is supported without any time limit. A positive number means that it can be used for that number of minutes. The default is 0 (not supported). |

The External Port numbers and External IP Address values are used for Network Address Translation (NAT) and port mapping support. For more information see, [Using Network Address Translation and Port Mapping](#).

You can set policies that override these registry settings by using the Local Policy Editor or by using Group Policy Objects (GPOs) in Active directory. Policy settings have precedence over normal registry settings. A GPO template file is supplied to configure policies. When ViewView Agent and the plug-in are installed in the default location, the template file has the following location:

```
C:\Program Files\VMware\VMware View\Agent\extras\view_agent_direct_connection.adm
```

You can import this template file into Active Directory or the Local Group Policy Editor to simplify the management of these configuration settings. See the Microsoft Policy Editor and GPO handling documentation for details of managing policy settings in this way. Policy settings for the plug-in are stored in the registry key:

```
HKEY_LOCAL_MACHINE Software\Policies\VMware, Inc.\VMware  
VDM\Agent\Configuration\XMLAPI
```

For smart card authentication, the certificate authority (CA) that signs the smart card certificates must be in the Windows certificate Store. For information about how to add a certificate authority, see [Add a Certificate Authority to the Windows Certificate Store](#).

Note If a user attempts to log in using a smart card to a Windows 7 or Windows Server 2008 R2 machine and the Smart Card certificate has been signed by an intermediate CA, the attempt may fail because Windows can send the client a trusted issuer list that does not contain intermediate CA names. If this happens, the client will be unable to select an appropriate Smart Card certificate. To avoid this problem, set the registry value SendTrustedIssuerList (REG_DWORD) to 0 in the registry key HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL. With this registry value set to 0, Windows does not send a trusted issuer list to the client, which can then select all the valid certificates from the smart card.

Disabling Weak Ciphers in SSL/TLS

To achieve greater security, you can configure the domain policy GPO (group policy object) to ensure that communications that use the SSL/TLS protocol between Horizon Clients and virtual machine-based desktops or RDS hosts do not allow weak ciphers.

Procedure

- 1 On the Active Directory server, edit the GPO by selecting **Start > Administrative Tools > Group Policy Management**, right-clicking the GPO, and selecting **Edit**.
- 2 In the Group Policy Management Editor, navigate to the **Computer Configuration > Policies > Administrative Templates > Network > SSL Configuration Settings**.
- 3 Double-click **SSL Cipher Suite Order**.
- 4 In the SSL Cipher Suite Order window, click **Enabled**.
- 5 In the Options pane, replace the entire content of the SSL Cipher Suites text box with the following cipher list:

```
TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256_P256,
TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256_P384,
TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA_P256,
TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA_P384,
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA_P256,
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA_P384,
TLS_RSA_WITH_AES_128_CBC_SHA256,
TLS_RSA_WITH_AES_128_CBC_SHA,
TLS_RSA_WITH_AES_256_CBC_SHA256,
TLS_RSA_WITH_AES_256_CBC_SHA
```

The cipher suites are listed above on separate lines for readability. When you paste the list into the text box, the cipher suites must be on one line with no spaces after the commas.

- 6 Exit the Group Policy Management Editor.
- 7 Restart the VADC machines for the new group policy to take effect.

Note If Horizon Client is not configured to support any cipher that is supported by the virtual desktop operating system, the TLS/SSL negotiation will fail and the client will be unable to connect.

For information on configuring supported cipher suites in Horizon Clients, refer to Horizon Client documentation at https://www.vmware.com/support/viewclients/doc/viewclients_pubs.html.

Replacing the Default Self-Signed SSL Server Certificate

A self-signed SSL server certificate cannot give Horizon Client sufficient protection against threats of tampering and eavesdropping. To protect your desktops from these threats, you must replace the generated self-signed certificate.

When View Agent Direct-Connection Plug-In starts for the first time after installation, it automatically generates a self-signed SSL server certificate and places it in the Windows Certificate Store. The SSL server certificate is presented to Horizon Client during the SSL protocol negotiation to provide information to the client about this desktop. This default self-signed SSL server certificate cannot give guarantees about this desktop, unless it is replaced by a certificate signed by a Certificate Authority (CA) that is trusted by the client and is fully validated by the Horizon Client certificate checks.

The procedure for storing this certificate in the Windows Certificate Store and the procedure for replacing it with a proper CA signed certificate, are the same as those used for View Connection Server (version 5.1 or later). See "Configuring SSL Certificates for View Servers," in the *View Installation* document for details on this certificate replacement procedure.

Certificates with Subject Alternative Name (SAN) and wildcard certificates are supported.

Note To distribute the CA signed SSL Server Certificates to a large number of desktops using the View Agent Direct-Connection Plug-In, use Active Directory Enrollment to distribute the certificates to each virtual machine. For more information see: <http://technet.microsoft.com/en-us/library/cc732625.aspx>.

Authorizing Horizon Client to Access Desktops and Applications

The authorization mechanism that allows a user to access desktops and applications directly is controlled within a local operating system group called **View Agent Direct-Connection Users**.

If a user is a member of this group, that user is authorized to connect to the virtual machine-based desktop, an RDS desktop, or applications. When the plug-in is first installed, this local group is created and contains the Authenticated Users group. Anyone who is successfully authenticated by the plug-in is authorized to access the desktop or applications.

To restrict access to this desktop or RDS host, you can modify the membership of this group to specify a list of users and user groups. These users can be local or domain users and user groups. If the user is not in this group, the user gets a message after authentication saying that the user is not entitled to access this virtual machine-based desktop or an RDS desktop and applications that are hosted on this RDS host.

Using Network Address Translation and Port Mapping

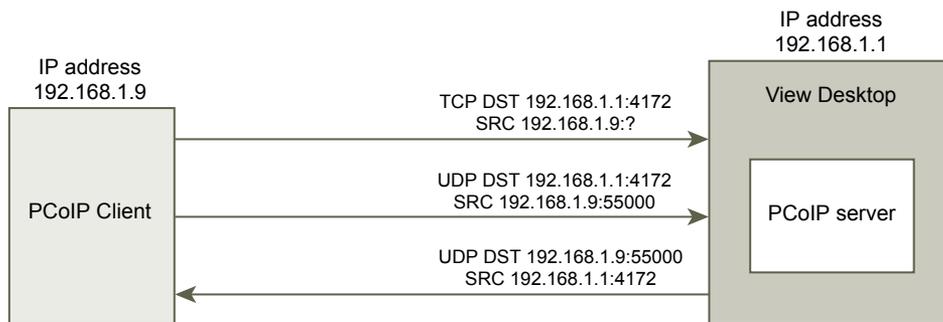
Network Address Translation (NAT) and port mapping configuration are required if Horizon Clients connect to virtual machine-based desktops on different networks.

In the examples included here, you must configure external addressing information on the desktop so that Horizon Client can use this information to connect to the desktop by using NAT or a port mapping device. This URL is the same as the External URL and PCoIP External URL settings on View Connection Server and security server.

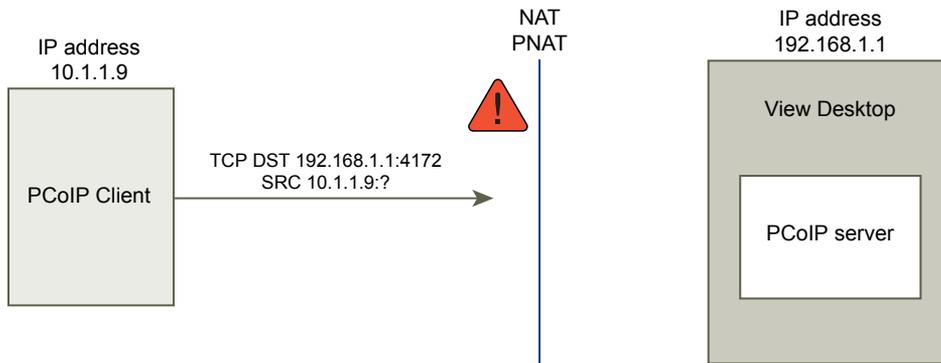
When Horizon Client is on a different network and a NAT device is between Horizon Client and the desktop running the plug-in, a NAT or port mapping configuration is required. For example, If there is a firewall between the Horizon Client and the desktop the firewall is acting as a NAT or port mapping device.

An example deployment of a desktop whose IP address is 192.168.1.1 illustrates the configuration of NAT and port mapping. A Horizon Client system with an IP address of 192.168.1.9 on the same network establishes a PCoIP connection by using TCP and UDP. This connection is direct without any NAT or port mapping configuration.

Figure 2-1. Direct PCoIP from a Client on the Same Network



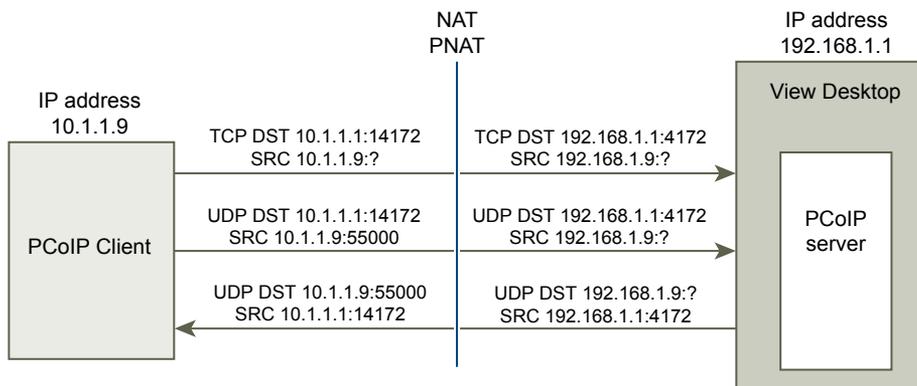
If you add a NAT device between the client and desktop so that they are operating in a different address space and do not make any configuration changes to the plug-in, the PCoIP packets will not be routed correctly and will fail. In this example, the client is using a different address space and has an IP address of 10.1.1.9. This setup fails because the client will use the address of the desktop to send the TCP and UDP PCoIP packets. The destination address of 192.168.1.1 will not work from the client network and might cause the client to display a blank screen.

Figure 2-2. PCoIP From a Client via a NAT Device Showing the Failure

To resolve this problem, you must configure the plug-in to use an external IP address. If `externalIPAddress` is configured as 10.1.1.1 for this desktop, the plug-in gives the client an IP address of 10.1.1.1 when making desktop protocol connections to the desktop. For PCoIP, the PCoIP Secure Gateway service must be started on the desktop for this setup.

For port mapping, when the desktop uses the standard PCoIP port 4172, but the client must use a different destination port, mapped to port 4172 at the port mapping device, you must configure the plug-in for this setup. If the port mapping device maps port 14172 to 4172, the client must use a destination port of 14172 for PCoIP. You must configure this setup for PCoIP. Set `externalPCoIPPort` in the plug-in to 14172.

In a configuration which uses NAT and port mapping, the `externalIPAddress` is set to 10.1.1.1, which is network translated to 192.168.1.1, and `externalPCoIPPort` is set to 14172, which is port mapped to 4172.

Figure 2-3. PCoIP From a Client via a NAT Device and Port Mapping

As with the external PCoIP TCP/UDP port configuration for PCoIP, if the RDP port (3389) or the Framework Channel port (32111) is port mapped, you must configure `externalRDPPort` and `externalFrameworkChannelPort` to specify the TCP port numbers that the client will use to make these connections through a port mapping device.

Advanced Addressing Scheme

When you configure virtual machine-based desktops to be accessible through a NAT and port mapping device on the same external IP address, you must give each desktop a unique set of port numbers. The clients can then use the same destination IP address, but use a unique TCP port number for the HTTPS connection to direct the connection to a specific virtual desktop.

For example, HTTPS port 1000 directs to one desktop and HTTPS port 1005 directs to another, with both using the same destination IP address. In this case, configuring unique external port numbers for every desktop for the desktop protocol connections would be too complex. For this reason, the plugin settings `externalPCoIPPort`, `externalRDPPort`, and `externalFrameworkChannelPort` can take an optional relational expression instead of a static value to define a port number relative to the base HTTPS port number used by the client.

If the port mapping device uses port number 1000 for HTTPS, mapped to TCP 443; port number 1001 for RDP, mapped to TCP 3389; port number 1002 for PCoIP, mapped to TCP and UDP 4172; and port number 1003 for the framework channel, mapped to TCP 32111, to simplify configuration, the external port numbers can be configured to be `externalRDPPort=+1`, `externalPCoIPPort=+2` and `externalFrameworkChannelPort=+3`. When the HTTPS connection comes in from a client that used an HTTPS destination port number of 1000, the external port numbers would automatically be calculated relative to this port number of 1000 and would use 1001, 1002 and 1003 respectively.

To deploy another virtual desktop, if the port mapping device used port number 1005 for HTTPS, mapped to TCP 443; port number 1006 for RDP, mapped to TCP 3389; port number 1007 for PCoIP, mapped to TCP and UDP 4172; and port number 1008 for the framework channel, mapped to TCP 32111, with exactly the same external port configuration on the desktop (+1, +2, +3, and so on) when the HTTPS connection comes in from a client that used an HTTPS destination port number of 1005, the external port numbers would automatically be calculated relative to this port number of 1005 and use 1006, 1007, and 1008 respectively.

This scheme allows all desktops to be identically configured and yet all share the same external IP address. Allocating port numbers in increments of five (1000, 1005, 1010 ...) for the base HTTPS port number would therefore allow over 12,000 virtual desktops to be accessed on the same IP address. The base port number is used to determine the virtual desktop to route the connection to, based on the port mapping device configuration. For an `externalIPAddress=10.20.30.40`, `externalRDPPort=+1`, `externalPCoIPPort=+2` and `externalFrameworkChannelPort=+3` configured on all virtual desktops, the mapping to virtual desktops would be as described in the NAT and port mapping table.

Table 2-2. NAT and Port Mapping Values

| VM# | Desktop IP Address | HTTPS | RDP | PCOIP (TCP and UDP) | Framework Channel |
|-----|--------------------|--|---|---|--|
| 0 | 192.168.0.0 | 10.20.30.40:1000 -> 192.168.0.0:443 | 10.20.30.40:1001 -> 192.168.0.0:3389 | 10.20.30.40:1002 -> 192.168.0.0:4172 | 10.20.30.40:1003 -> 192.168.0.0:32111 |
| 1 | 192.168.0.1 | 10.20.30.40:1005 -> 192.168.0.1:443 | 10.20.30.40:1006 -> 192.168.0.1:3389 | 10.20.30.40:1007 -> 192.168.0.1:4172 | 10.20.30.40:1008 -> 192.168.0.1:32111 |

Table 2-2. NAT and Port Mapping Values (Continued)

| VM# | Desktop IP Address | HTTPS | RDP | PCOIP (TCP and UDP) | Framework Channel |
|-----|--------------------|--|---|---|--|
| 2 | 192.168.0.2 | 10.20.30.40:1010 -> 192.168.0.2:443 | 10.20.30.40:1011 -> 192.168.0.2:3389 | 10.20.30.40:1012 -> 192.168.0.2:4172 | 10.20.30.40:1013 -> 192.168.0.2:32111 |
| 3 | 192.168.0.3 | 10.20.30.40:1015 -> 192.168.0.3:443 | 10.20.30.40:1016 -> 192.168.0.3:3389 | 10.20.30.40:1017 -> 192.168.0.3:4172 | 10.20.30.40:1018 -> 192.168.0.3:32111 |

In this example, Horizon Client connects to IP address 10.20.30.40 and an HTTPS destination port number of $(1000 + n * 5)$ where n is the desktop number. To connect to desktop 3, the client would connect to 10.20.30.40:1015. This addressing scheme significantly simplifies the configuration setup for each desktop. All desktops are configured with identical external address and port configurations. The NAT and port mapping configuration is done within the NAT and port mapping device with this consistent pattern, and all desktops can be accessed on a single public IP address. The client would typically use a single public DNS name that resolves to this IP address.

Add a Certificate Authority to the Windows Certificate Store

For smart card authentication, the certificate authority (CA) that signs the smart card certificate must exist in the Windows certificate store. If not, you can add the CA to the Windows certificate store.

Prerequisites

Verify that Microsoft Management Console (MMC) has the Certificates snap-in. See "Add the Certificate Snap-In to MMC" in the *View Installation* document.

Procedure

- 1 Start MMC.
- 2 In the MMC console, expand the **Certificates (Local Computer)** node and go to the **Trusted Root Certification Authorities > Certificates** folder.

If the root certificate is present and there are no intermediate certificates in the certificate chain, exit MMC.
- 3 Right-click the **Trusted Root Certification Authorities > Certificates** folder and click **All Tasks > Import**.
- 4 In the **Certificate Import** wizard, click **Next** and browse to the location where the root CA certificate is stored.
- 5 Select the root CA certificate file and click **Open**.
- 6 Click **Next**, click **Next**, and click **Finish**.

- 7 If the smart card certificate is issued by an intermediate CA, import all intermediate certificates in the certificate chain.
 - a Go to the **Certificates (Local Computer) > Intermediate Certification Authorities > Certificates** folder.
 - b Repeat steps 3 through 6 for each intermediate certificate.

Setting Up HTML Access

View Agent Direct-Connection (VADC) Plug-In supports HTML Access to virtual machine-based desktops and RDS desktops. HTML Access to RDS applications is not supported.

This section includes the following topics:

- [Install View Agent for HTML Access](#)
- [Set Up Static Content Delivery](#)
- [Set Up Trusted CA-Signed SSL Server Certificate](#)
- [Disable HTTP/2 Protocol on Windows 10 and Windows 2016 Desktops](#)

Install View Agent for HTML Access

To support HTML Access, you must install View Agent on the virtual machine-based desktop with a special parameter.

Prerequisites

- Download the View Agent installer file from the VMware download page at <http://www.vmware.com/go/downloadview>.

The installer filename is `VMware-viewagent-y.y.y-xxxxxx.exe` for 32-bit Windows or `VMware-viewagent-x86_64-y.y.y-xxxxxx.exe` for 64-bit Windows, where `y.y.y` is the version number and `xxxxxx` is the build number.

Procedure

- ◆ Install View Agent from the command line and specify a parameter that tells View Agent not to register with View Connection Server.

This example installs the 32-bit version of View Agent.

```
VMware-viewagent-y.y.y-xxxxxx.exe /v VDM_SKIP_BROKER_REGISTRATION=1
```

What to do next

Install View Agent Direct-Connection Plug-In. See [Install View Agent Direct-Connection Plug-In](#).

Set Up Static Content Delivery

If the HTML Access client needs to be served by the desktop, you must perform some setup tasks on the desktop. This enables a user to point a browser directly at a desktop.

Prerequisites

- Download the View HTML Access portal.war zip file from the VMware download page at <http://www.vmware.com/go/downloadview>.

The filename is VMware-Horizon-View-HTML-Access-y.y.y-xxxxxx.zip, where y.y.y is the version number and xxxxxx is the build number.

Procedure

- 1 Open **Control Panel**.
- 2 Navigate to **Programs and Features > Turn Windows features on or off**.
- 3 Select the check box **Internet Information Services** and click **OK**.
- 4 In **Control Panel**, navigate to **Administrative Tools > Internet Information Services (IIS) Manager**.
- 5 Expand the items in the left pane.
- 6 Right-click **Default Web Site** and select **Edit Bindings...**
- 7 Click **Add**.
- 8 Specify **https**, **All Unassigned**, and port **443**.
- 9 In the **SSL certificate** field, select the correct certificate.

| Option | Action |
|--|--|
| Certificate vdm is present. | Select vdm and click OK . |
| Certificate vdm is not present. | Select vdmdefault and click OK . |

- 10 In the **Site Bindings** dialog, remove the entry for **http port 80** and click **Close**.
- 11 Click **Default Web Site**.
- 12 Double-click **MIME Types**.
- 13 If the **File name extension** .json does not exist, in the **Actions** pane, click **Add...** Otherwise, skip the next 2 steps.
- 14 For **File name extension**, enter **.json**.
- 15 For **MIME type**, enter **text/h323** and click **OK**.
- 16 For **File name extension**, enter **.mem**.
- 17 For **MIME type**, enter **text/plain** and click **OK**.
- 18 Copy VMware-Horizon-View-HTML-Access-y.y.y-xxxxxx.zip to a temporary folder.

19 Unzip VMware-Horizon-View-HTML-Access-y.y.y-xxxxxx.zip.

The result is a file named portal.war.

20 Rename portal.war to portal.zip.**21** Unzip portal.zip to the folder C:\inetpub\wwwroot.

If necessary, adjust the permissions on the folder to allow files to be added.

The folder C:\inetpub\wwwroot\portal is created.

22 Open **Notepad**.**23** Create the file C:\inetpub\wwwroot\Default.htm with the following content (replace *<IP address or DNS name of desktop>* with the actual IP address or DNS name of the desktop):

```
<HEAD>
<noscript>
  <meta HTTP-EQUIV="REFRESH" content="0; url=https://<IP address or DNS name of
desktop>/portal/webclient/index.html">
</noscript>
</HEAD>
<script>
  var destination = 'https://<IP address or DNS name of desktop>/portal/webclient/index.html';
  var isSearch = !!window.location.search;
  window.location.href = destination + (isSearch ? window.location.search + '&' : '?') + 'vadc=1'
+ (window.location.hash || '');
</script>
```

Set Up Trusted CA-Signed SSL Server Certificate

You can set up trusted CA-Signed SSL server certificate to ensure that traffic between clients and desktops is not fraudulent.

Prerequisites

- Replace the default self-signed SSL server certificate with a trusted CA-signed SSL server certificate. See [Replacing the Default Self-Signed SSL Server Certificate](#). This creates a certificate that has the Friendly Name value **vdm**.
- If the client's static content is served by the desktop, set up static content delivery. See [Set Up Static Content Delivery](#).
- Familiarize yourself with the Windows Certificate Store. See "Configure View Connection Server, Security Server, or View Composer to Use a New SSL Certificate" in the *View Installation* document.

Procedure

- 1 In the Windows Certificate Store, navigate to **Personal > Certificates**.
- 2 Double-click the certificate with Friendly Name **vdm**.
- 3 Click on the **Details** tab.

- 4 Copy the **Thumbprint** value.
- 5 Start the Windows Registry Editor.
- 6 Navigate to the registry key HKEY_LOCAL_MACHINE\SOFTWARE\VMware, Inc.\VMware Blast\Config.
- 7 Add a new String (REG_SZ) value, SslHash, to this registry key.
- 8 Set the SslHash value to the **Thumbprint** value.

Disable HTTP/2 Protocol on Windows 10 and Windows 2016 Desktops

With some web browsers, you might encounter the error ERR_SPDY_PROTOCOL_ERROR when accessing a Windows 10 VADC or Windows 2016 VADC desktop. You can prevent this error by disabling the HTTP/2 protocol on the desktop.

Procedure

- 1 Start the Windows Registry Editor.
- 2 Navigate to the registry key
HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\HTTP\Parameters.
- 3 Add 2 new REG_DWORD values, EnableHttp2Tls and EnableHttp2Cleartext, to this registry key.
- 4 Set both values to **0**.
- 5 Reboot the desktop.

Setting Up View Agent Direct Connection on Remote Desktop Services Hosts

4

Horizon 7 supports Remote Desktop Services (RDS) hosts that provide RDS desktops and applications that users can access from Horizon Clients. An RDS desktop is based on a desktop session to an RDS host. In a typical Horizon 7 deployment, clients connect to desktops and applications through Horizon Connection Server. However, if you install View Agent Direct-Connection Plug-In on an RDS host, clients can connect directly to RDS desktops or applications without using Horizon Connection Server.

This section includes the following topics:

- [Remote Desktop Services Hosts](#)
- [Entitle RDS Desktops and Applications](#)

Remote Desktop Services Hosts

A Remote Desktop Services (RDS) host is a server computer that hosts applications and desktops for remote access.

In a Horizon 7 deployment, an RDS host is a Windows server that has the Microsoft Remote Desktop Services role, the Microsoft Remote Desktop Session Host service, and Horizon Agent installed. An RDS host can support View Agent Direct Connection (VADC) if it also has VADC Plug-In installed. For information on setting up an RDS host and installing Horizon 7 Agent, see “Setting Up Remote Desktop Services Hosts” in the *Setting Up Published Desktops and Applications in Horizon 7* document. For information on installing VADC Plug-In, see [Chapter 1 Installing View Agent Direct-Connection Plug-In](#).

Note When you install Horizon Agent, the installer asks for the hostname or IP address of Horizon Connection Server that Horizon Agent will connect to. You can make the installer skip this step by running the installer with a parameter.

```
VMware-viewagent-x86_64-y.y.y-xxxxxx.exe /v "VDM_SKIP_BROKER_REGISTRATION=1"
```

After you set up an RDS host and install VADC Plug-In, you must entitle RDS desktops and applications. See [Entitle RDS Desktops and Applications](#).

Entitle RDS Desktops and Applications

You must entitle users to RDS desktops and applications before the users can access the desktops and applications.

If the RDS host is running Windows Server 2008 R2 SP1, run **RemoteApp Manager** to configure entitlements.

If the RDS host is running Windows Server 2012 or 2012 R2, run **Server Manager** and navigate to **Remote Desktop Services** to configure entitlements.

Desktop Entitlements

To entitle a user to launch an RDS desktop, perform the following steps:

- Ensure that the user is a member of the local group **View Agent Direct-Connection Users**. By default, all authenticated users are a members of this group.
- For Windows Server 2008 R2 SP1, in **RemoteApp Manager**, ensure that the RD Session Host Server is configured to **Show a remote desktop connection to this RD Session Host server in RD Web Access**.
- For Windows 2012 or 2012 R2, run **Server Manager** and navigate to **Remote Desktop Services** to configure entitlements.

Application Entitlements

To entitle a user to launch an application, perform the following steps:

- Ensure that the user is a member of the local group **View Agent Direct-Connection Users**. By default, all authenticated users are a members of this group.
- For Windows Server 2008 R2 SP1, in **RemoteApp Manager**, ensure that the application is listed under **RemoteApp Programs**, is set for **RD Web Access**, and has user assignments set for all users, this user or a group of which the user is a member.
- For Windows 2012 or 2012 R2, run **Server Manager** and navigate to **Remote Desktop Services** to configure entitlements.

Troubleshooting View Agent Direct-Connection Plug-In

5

When using View Agent Direct-Connection Plug-In, you might encounter known issues.

When you investigate a problem with View Agent Direct-Connection Plug-In, make sure that the correct version is installed and running.

If a support issue needs to be raised with VMware, always enable full logging, reproduce the problem, and generate a Data Collection Tool (DCT) log set. VMware technical support can then analyze these logs. For details on generating a DCT log set, refer to Collecting diagnostic information for VMware View KB article <http://kb.vmware.com/kb/1017939>.

This section includes the following topics:

- [Incorrect Graphics Driver is Installed](#)
- [Insufficient Video RAM](#)
- [Enabling Full Logging to Include TRACE and DEBUG information](#)

Incorrect Graphics Driver is Installed

For PCoIP to work properly, the correct version of the graphics driver must be installed.

Problem

A black screen is displayed when a user connects to a desktop or an application using PCoIP.

Cause

An incorrect version of the graphics driver is running. This could happen if an incorrect version of VMware Tools is installed after the installation of View Agent.

Solution

- ◆ Reinstall View Agent.

Insufficient Video RAM

To support PCoIP, a virtual machine that runs a desktop or an RDS host must have a minimum of 128 MB of video RAM.

Problem

A black screen is displayed when a user connects to a desktop or an application using PCoIP.

Cause

The virtual machine does not have enough video RAM.

Solution

- ◆ Configure at least 128 MB of video RAM for each virtual machine.

Enabling Full Logging to Include TRACE and DEBUG information

View Agent Direct-Connection Plug-In writes log entries to the standard View Agent log. TRACE and DEBUG information is not included in the log by default.

Problem

The View Agent log does not contain TRACE and DEBUG information.

Cause

Full logging is not enabled. You must enable full logging to include TRACE and DEBUG information in the View Agent log.

Solution

- 1 Open a command prompt and run `C:\Program Files\VMware\VMware View\Agent\DCT\support.bat loglevels`
- 2 Enter **3** for full logging.

The debug log files are located in `%ALLUSERSPROFILE%\VMware\VDM\logs`. The file `debug*.log` has information logged from the View Agent and the plug-in. Search for `wsm_xmlapi` to find the plug-in log lines.

When the View Agent is started, the plug-in version is logged:

```
2012-10-01T12:09:59.078+01:00 INFO (09E4-0C08) <logloaded> [MessageFramework]
Plugin 'wsm_xmlapi - VMware View Agent XML API Handler Plugin' loaded,
version=e.x.p build- 855808, buildtype=release
```

```
2012-10-01T12:09:59.078+01:00 TRACE (09E4-06E4) <PluginInitThread> [wsm_xmlapi]
Agent XML API Protocol Handler starting
```