Pulse Secure Universal App for Windows

Quick Start Guide

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Pulse Secure, LLC
2700 Zanker Road, Suite 200
San Jose, CA 95134
http://www.pulsesecure.net

Pulse Secure Universal App for Windows Quick Start Guide

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Revision History

Revision	Date	Description
1.5	August 2016	5.2.8 – Added PowerShell appendix
1.4	July 2016	5.2.8 – Added support for Statement of Health (SoH)
1.3	April 2016	5.2.7 – Added support for Pulse Policy Secure – Source IP Enforcement
1.2	February 2016	5.2.6 – Added Server Configuration step for bypassing Host Checker restriction
1.1	October 2015	5.2.1
1.0	August 2015	5.2.0

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CHAPTER 1

Introduction

Overview

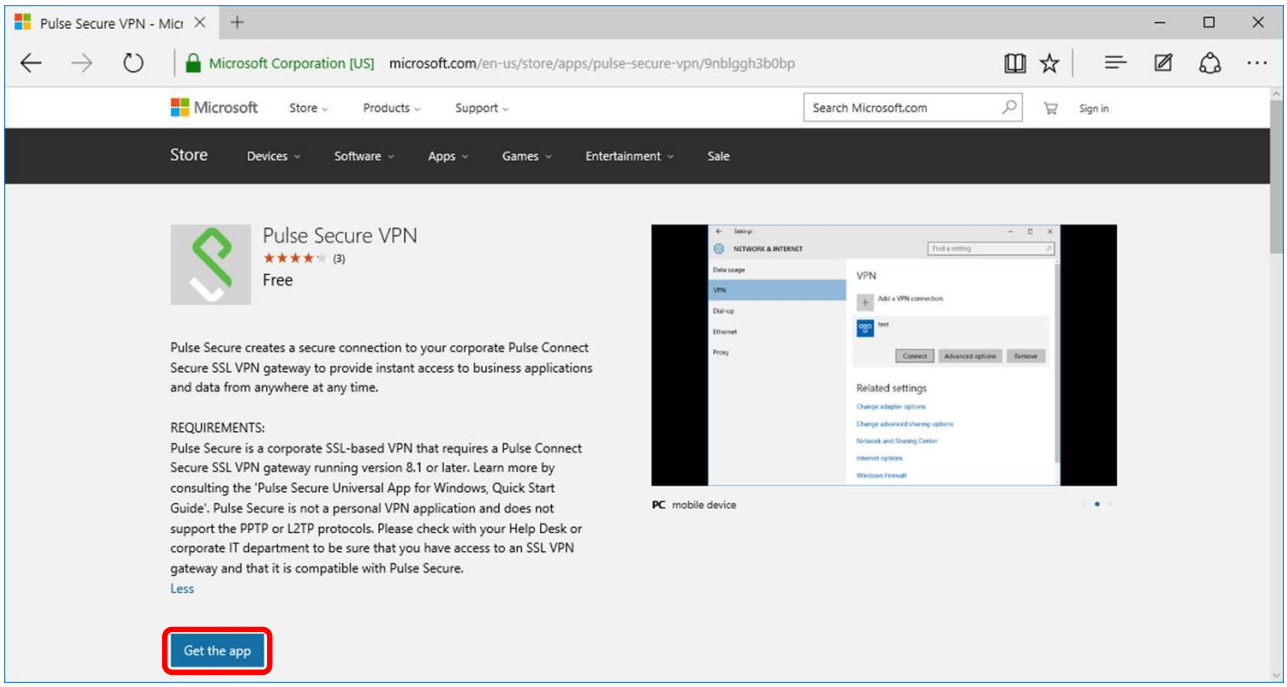
The Pulse Secure Universal App for Windows can create a secure connection to your corporate Pulse Connect Secure SSL VPN gateway to provide instant access to business applications and data from anywhere at any time. The Universal App provides Layer 3 VPN (SSL) secure VPN connections between a Windows 10 and later device (whether PC, tablet, smartphone, Xbox, or Windows 10 IoT) and a Pulse Connect Secure (PCS) gateway (version 8.1 or later). Also, version 5.2.7 and later of the Universal App supports connections to Pulse Policy Secure gateways (version 5.2 or later) to enable Source IP Enforcement of Infranet Enforcers.

The Universal App provides a **subset** of the functionality offered by Pulse Secure's full-featured desktop client for Windows. The Universal App is ideal for users who need a **simple** and **lightweight** way of establishing either SSL-based VPN connections to Pulse Connect Secure gateways or Source IP Enforcement brokered by Pulse Policy Secure gateways. The Pulse Secure Universal App for Windows is the successor to both the Pulse Secure "In-Box" VPN Plugin for Windows 8.1 and the Pulse Secure Windows Phone 8.1 app.

The Pulse Secure Universal App is localized into several foreign languages and is available for download at the Microsoft Store.

NOTE: The Pulse Secure Universal App is not a personal VPN application and does not support the PPTP or L2TP protocols. Please check with your Help Desk or corporate IT department to be sure that you have access to an SSL VPN gateway and that it is compatible with the Pulse Secure Universal App.

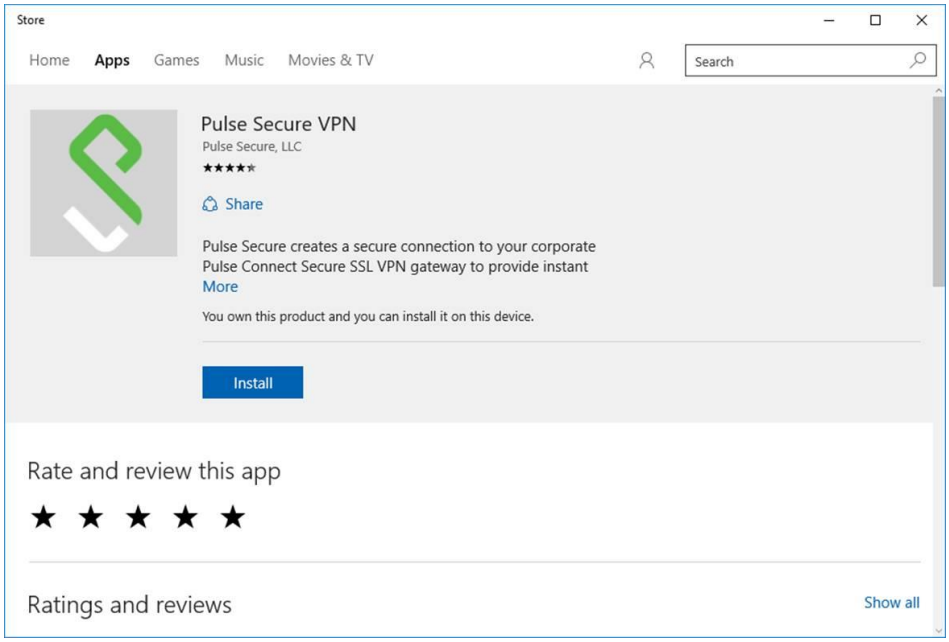
Figure 1: Universal App for Windows



The server-side configuration required to support the Universal App is similar to that for other Pulse Secure desktop and mobile clients. The system administrator can use sign-in policies, authentication realms, roles and VPN tunnel policies to define authentication and access permissions. A typical PCS gateway configuration to enable Universal App access involves the creation of a realm, a role and a remediation role intended for Universal App users.

The *Get the App* button launches the Install screen. Click **Install** to install Pulse Secure Universal App on your device.

Figure 2: Pulse Secure VPN Install Screen



Supported Platforms

The Pulse Secure Universal App for Windows can run on any Windows device that runs a Windows 10 or later variant (example: Windows 10 Professional, Windows 10 Mobile/Phone, etc.). It cannot run on earlier versions of Windows.

The Universal app is qualified to operate with Pulse Connect Secure (PCS) gateways version 8.1 (and later) and Pulse Policy Secure version 5.2 (and later).

NOTE: A device must be running Windows 10 or later to be able to run the Pulse Secure Universal App for Windows.

Supported Features

The following is a list of features supported by the Universal App:

- VPN (SSL) connections to Pulse Connect Secure gateways v8.1 and later
- Manual end-user connection and disconnection
- Authentication types:
  - Username and password
  - Username and RSA token code
    (User PIN and system PIN are supported)
  - Client certificate, smart card, and virtual smart card
  - Radius challenge/response
  - Secondary authentication
- Authentication server prompts for retry, change password, create PIN, change PIN and next-token code
- Realm/role and preferred realm/role selection
- Pre- and post-authentication sign-in notification messages
- HTTPS proxy
- IPv4 and IPv6
- Split tunneling enabled or disabled

NOTE: Universal App connections always have local subnet access enabled.

- Split tunneling policies: IPv4 inclusion and exclusion routes, and IPv6 inclusion routes.
  (In split-tunneled mode, the DNS search order options do not apply. Pulse forwards only those DNS requests contained by the configured DNS suffixes to the specified DNS servers. You can specify the VPN option Search device DNS only to forward all DNS requests to configured DNS servers.)
- Host Checker (OS Check and Statement of Health (SoH) only)
- Graceful handling of sleep/wakeup transitions
- App download from the Microsoft Store
- Source IP Enforcement via a v5.2+ Pulse Policy Secure gateway

Limitations

The following features are ***not*** available with the Universal App:

- Connections to gateways from third parties (Only connections to Pulse Connect Secure and Pulse Policy Secure gateways are supported.)
- Full Host Checker support (only the Host Checker “OS-Check” and “Statement of Health” (SoH) are supported by the Universal App)
- Save realm or role preference (The user cannot choose to save a connection preference.)
- Machine authentication
- Location awareness rules
- Logon and logoff scripts
- WINS server tunnel parameter
- UDP-ESP tunnel (only SSL VPNs are supported)
- Certificate trust override prompt
- RSA soft-token integration
- Session extension
- Manual suspend/resume tunnel
- SAML authentication
- Custom Sign-in pages

Server Configuration

Pulse Connect Secure Configuration

The Pulse Connect Secure (PCS) gateway can be customized to secure your company resources using authentication realms, user roles, and resource policies. For complete information on the PCS gateway, see the Pulse Connect Secure documentation.

A PCS gateway checks the authentication policy defined for the authentication realm. The user must meet the security requirements that are defined for a realm's authentication policy. At the realm level, you can specify security requirements based on various elements, such as the user's source IP address or the possession of a client-side certificate. If the user meets the requirements specified by the realm's authentication policy, the gateway forwards the user's credentials to the appropriate authentication server. If this server successfully authenticates the user, then the gateway evaluates the role-mapping rules defined for the realm to determine which roles to assign to the user.

The following is a generalized example of configuring a Pulse Connect Secure gateway for the Universal App.

Click
Users > User Roles
and then either select an existing role (preferred) or create a new role.

If creating a new role, specify a name and optional description for the role, for example: Universal App Role, Windows Universal VPN Role.

To use certificate authentication at the role level, click
Restrictions > Certificate
on the role's General tab, and add the required certificate information.

To sign in, enable certificate authentication by clicking "Only allow users with a client-side certificate signed by Certification Authority".

NOTE: One typical method of installing the client certificate on the Windows device is to send the certificate as an attachment to the Windows user. The certificate must be installed on the Windows device before the user can connect. The user is prompted to select the certificate during the initial Pulse VPN connection process. There are other mechanisms for transferring the certificate to the client, including Pulse Connect Secure's onboarding functionality and third-party MDM systems.

Define the client certificate, click **Add**, and then click **Save Changes**.

For complete information on certificate authentication, see the chapter entitled "Understanding Digital Certificate Security" in the Pulse Connect Secure Administrator's Guide, which can be found at the Pulse Secure techpubs site.

Set the options on the role's Web and Files tables as required.

Click
Users > User Realms
and then create a new realm or select an existing realm. Configure and save your options on the General and the Authentication Policy tabs.

On the Role Mapping tab, click **New Rule** to create a new role mapping rule.

One option for a role mapping rule is to create a custom expression that leverages the user-agent string to identify a Universal App. The Pulse Secure Universal App for Windows user-agent string has a form like this:

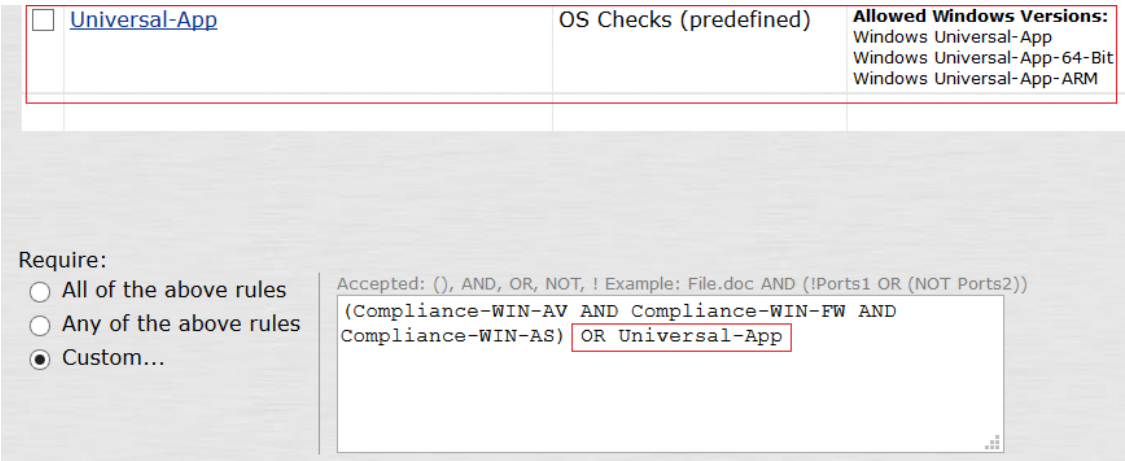
```
Pulse-Secure/8.1.0.0 (Windows UAP; ARM) PulseVpn/5.2.1.0
```

You can use all or part of the string in a custom expression that uses the userAgent variable. For example:

userAgent = '*Windows UAP*'

Select the role that you created earlier for the Universal App users, add it to the Selected Roles list, and then click **Save Changes**.

Note: End users will not be able to pass any Host Checker restriction (other than the Windows Universal OS Check and the Statement of Health (SoH)) in a realm or role. One workaround is to modify your Host Checker policy to add an “OR” that allows Windows Universal Apps to pass. See the screen shot below for an example of the “OR Universal-App” syntax required.



The Pulse Secure Universal App for Windows (version 5.2.8 and later) supports “Statement of Health” (SoH) Host Checker restrictions. The SoH setting can be used to enforce certain connectivity restrictions based on the posture and health of an endpoint. System administrators can configure restrictions based on certain conditions, for example, whether antivirus, antispyware and/or a software firewall is enabled. Currently, the Windows OS itself does **not** support checks for whether antivirus/antispyware is *up-to-date* and whether OS auto-update is enabled. See the screen shot of the administrative console, below, for details on how to configure the options that are supported.

Pulse Policy Secure Configuration

The Pulse Secure Universal App for Windows (version 5.2.7 and later) supports Source IP Enforcement via a Pulse Policy Secure (PPS) gateway. Source IP Enforcement allows a Pulse Policy Secure gateway to communicate with an "Infranet Enforcer" (i.e., a firewall) to permit the Windows device to communicate through the firewall. To use this feature, the Universal App simply must connect to a PPS gateway, authenticate and (optionally) pass the Host OS Check and Statement of Health (SoH). Once authenticated and once the Host Checker policy is passed, the PPS gateway can communicate with the Infranet Enforcer to open the appropriate firewall port for the endpoint Windows device. Periodic Host Checker enforcement can be configured to ensure that the port can later be closed if the endpoint device changes in a manner that should cause a cessation of firewall transit for the endpoint device.

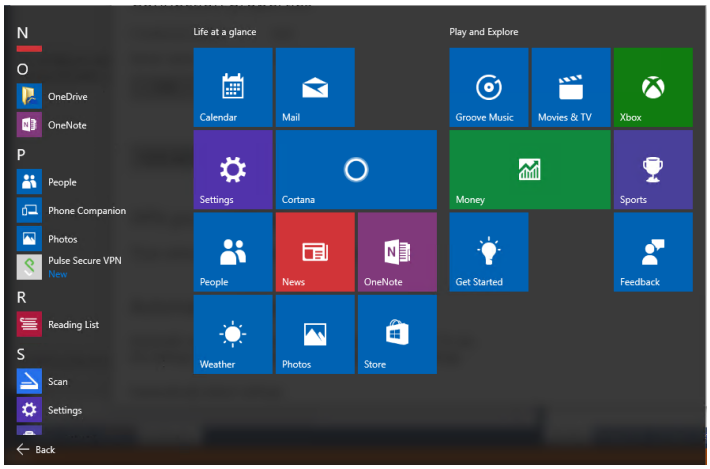
For information on configuring a PPS gateway to enable Source IP Enforcement, see the "Understanding Infranet Enforcer Source IP Security Policies" section of the Pulse Policy Secure Complete Software Guide.

Client Configuration

The Pulse Secure Universal App for Windows is available from the Microsoft Store.

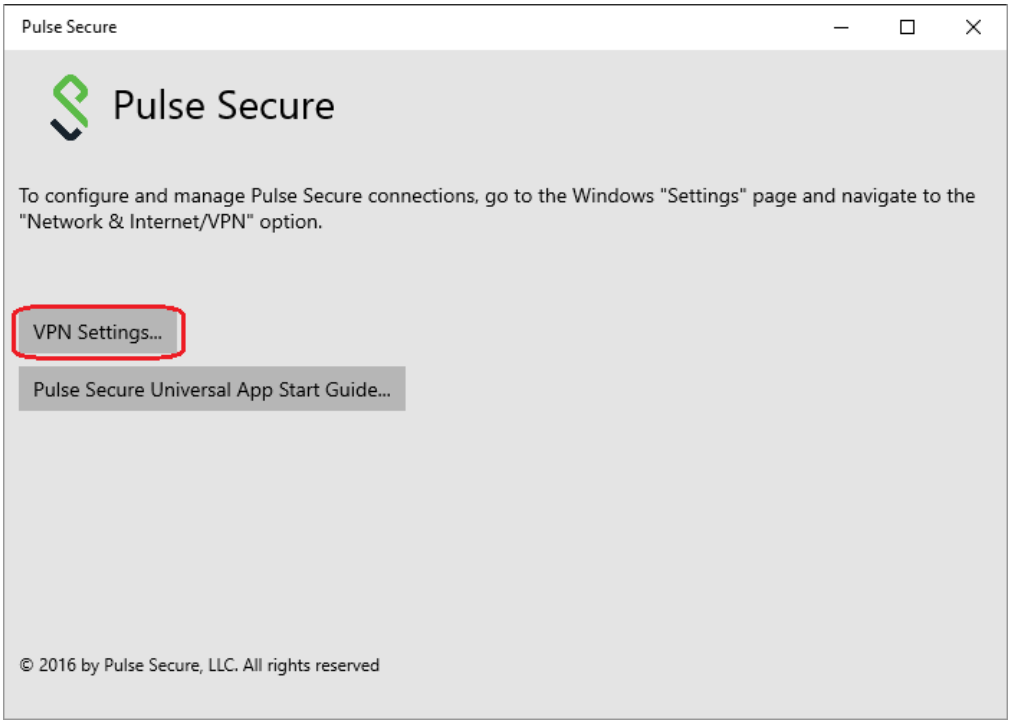
Figure 3 shows the Universal App after it has been installed on a Windows device.

Figure 3: Apps List



You can create, manage, and delete Pulse Connect Secure connections by using the Windows 10 **Settings** screen (launched from the Windows **Start** menu).

Figure 4: Pulse Secure VPN Main Page



PCS connections appear as VPN connections in the Networks list.

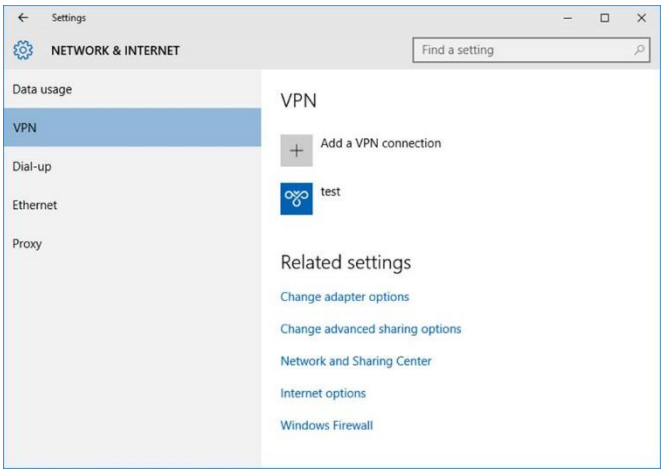
Creating a VPN Connection

To create a Pulse Secure client VPN connection on a Windows 10 (or later) device:

Tap **Settings**, then tap **Network & Internet**, and then tap **VPN**. The device displays a list of existing VPN connections.

Figure 5 shows the Windows dialog where you configure the connection.

Figure 5: Manually Adding a Pulse Connection



To create a new connection, tap the plus (+). The Add Profile screen appears.

Tap the VPN Provider box to expand it, and then tap Pulse Secure client VPN to select it.

In the Server name or IP address box, specify the target for this connection.

You can identify the server using the server IP address, the hostname, or a URL that optionally specifies the port the connection uses and the specific sign-in page. To specify a URL, use the following format:

https://hostname[:port][/][sign-in page]

The brackets indicate options. Also, if you specify a specific sign-in page, make sure that the name you specify matches what is defined on the Pulse Connect Secure gateway. (Authentication > Signing in > Sign-in pages.)

Enter the Profile name. The Profile name appears in the VPN list that you can change as per your requirement.

Tap Advanced options to set the following:

- Clear sign-in info – clears any automatically saved authentication credentials.
- Auto proxy - you can specify auto proxy settings for connecting to the Pulse Connect Secure server through a proxy server.
- Manual Proxy – you can specify manual proxy settings for connecting to the Pulse Connect Secure server through a proxy server.

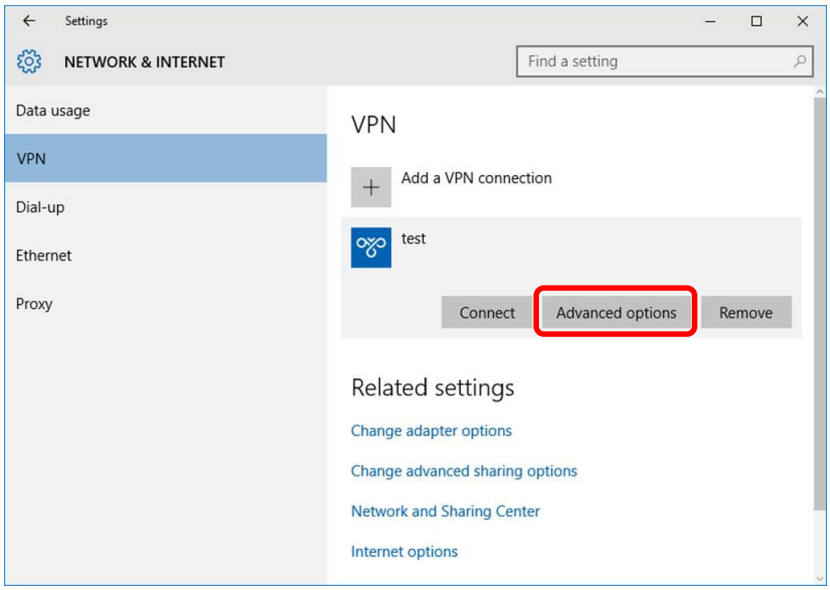
After the user saves the new connection, it appears in the VPN list. The user can tap the connection to initiate a VPN connection. When a VPN connection is active, a small lock icon appears next to the WiFi status icon.

Modifying a VPN Connection

To modify a VPN connection:

Tap Settings, then tap Network & Internet, and then tap VPN. The device displays a list of existing VPN connections.

Figure 6: Modifying a VPN Connection



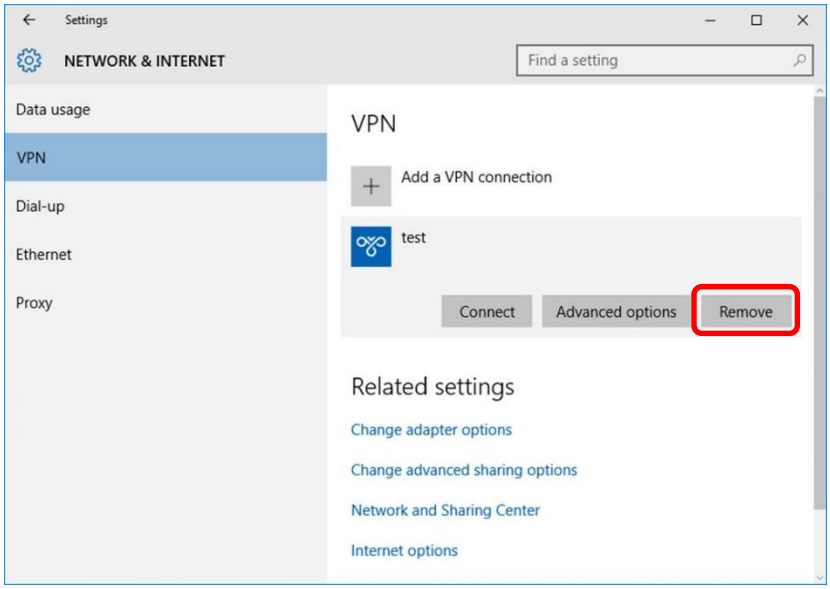
Select the connection that you want to modify. Click **Advanced options** and edit the connection settings.

Removing a VPN Connection

To remove a VPN connection:

Tap Settings, then tap Network & Internet, and then tap VPN. The device displays a list of existing VPN connections.

Figure 7: Removing a VPN Connection



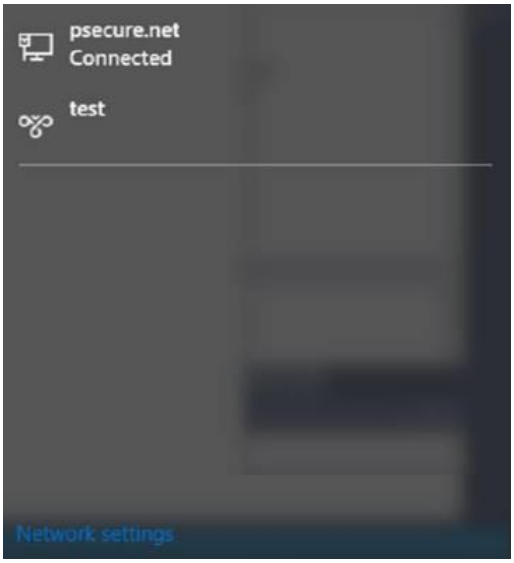
Select the connection that you want to remove and click **Remove**.

Starting and Stopping a VPN Connection on Windows 10

To start a VPN connection:

Tap the system tray network icon (Wired: , Wireless:).

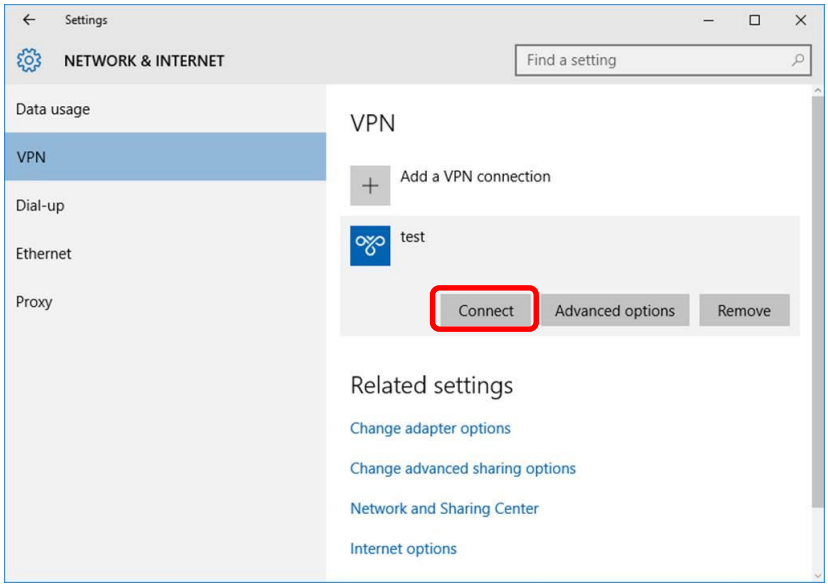
Figure 8: System Tray Network Icon



Select the VPN connection to open the VPN settings page.

In the Settings → Network & Internet → VPN page, click **Connect** to start the connection process.

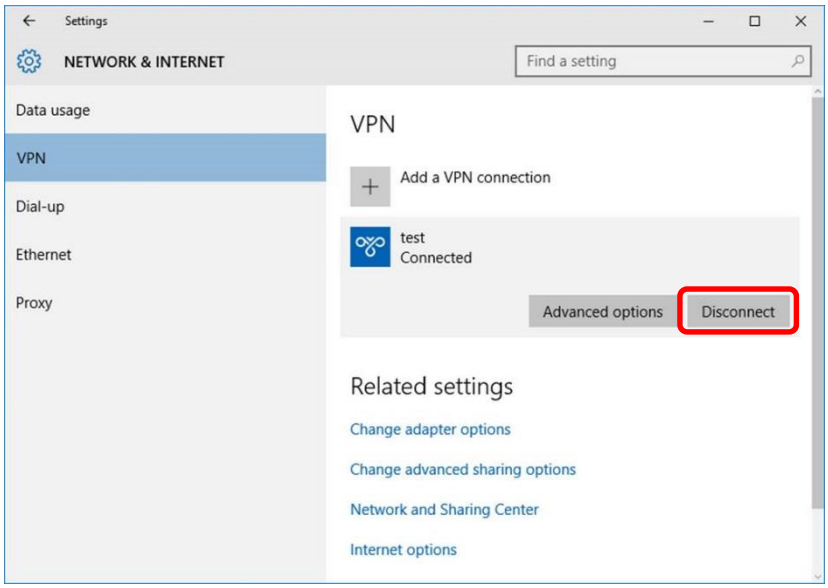
Figure 9: VPN Page



To stop a connection:

Select the connection from the list to see the expanded options.

Figure 10: VPN Disconnect Option



Click **Disconnect** to terminate the connection.

Status and Diagnostics

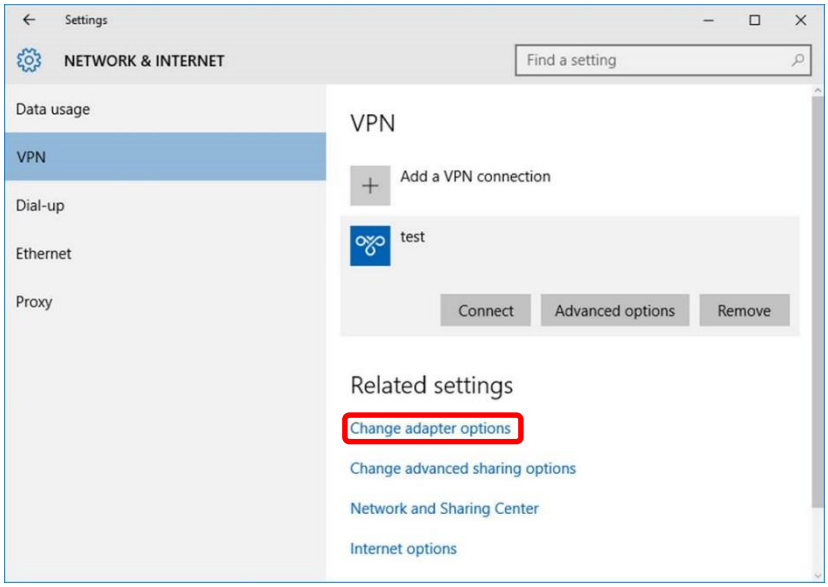
Connection Status

To view the VPN connection status:

Go to the VPN settings page.

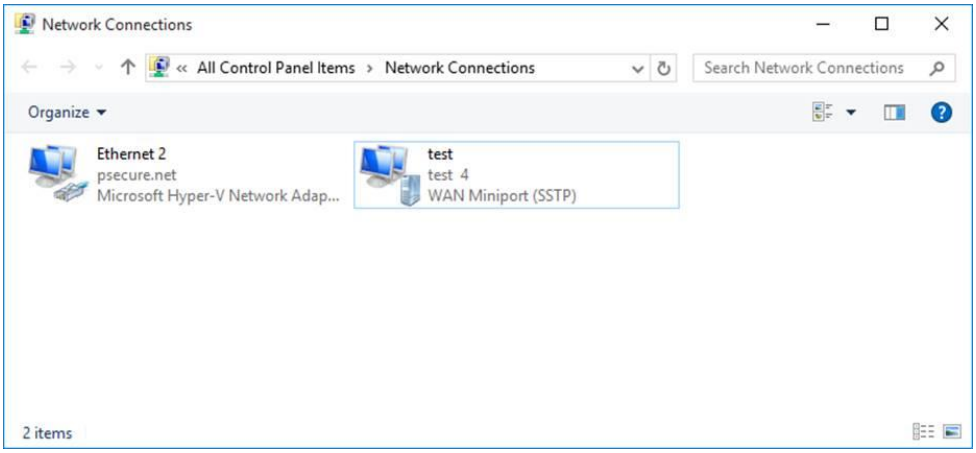
Tap **Change Adapters options** under Related Settings.

Figure 11: Change Adapter Options



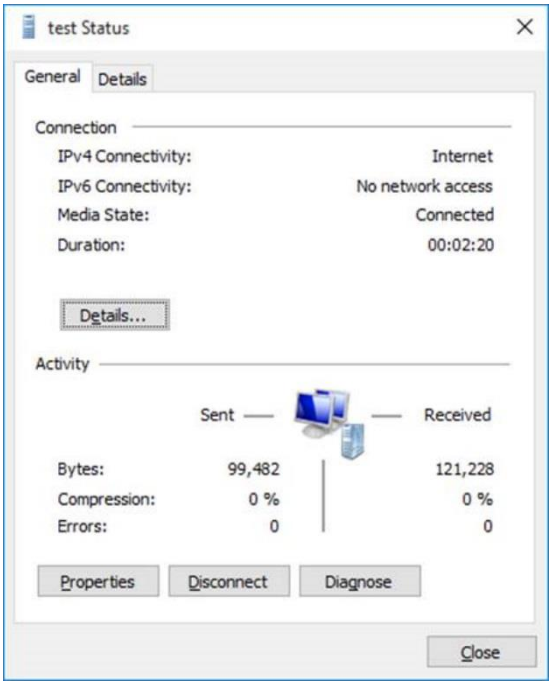
Double-click on the connected connection.

Figure 12: Network Connections



The status window shows the connection status.

Figure 13: VPN Status Window



Event Viewer

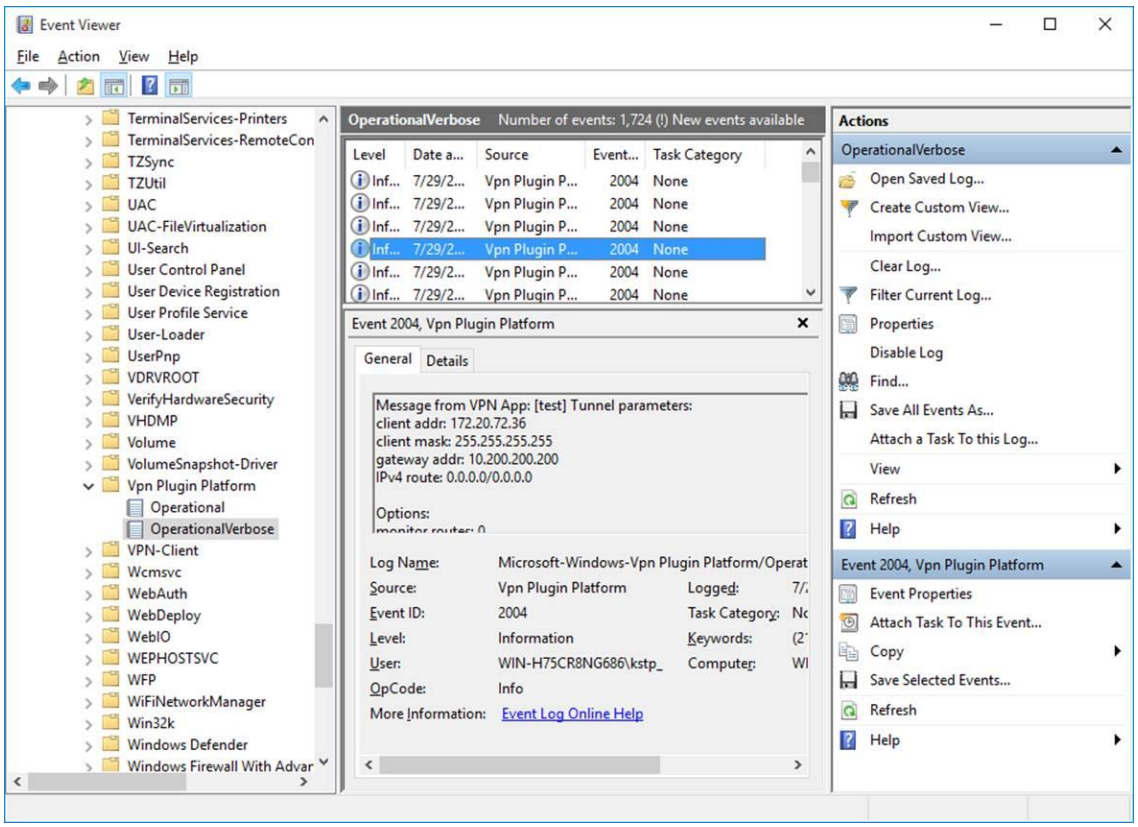
To view the VPN event log:

Right-click the start icon and tap the Event viewer selection.

Browse to Applications and Service Logs → Windows → VPN Plugin Platform → operationalVerbose.

Under Actions, select Enable log as the operationalVerbose events are disabled by default.

Figure 14: Event Viewer Window



NOTE: You must run as 'Administrator' to enable the event log.

Appendix A

Managing Certificates

A certificate is a confirmation of your identity and is issued by a certification authority. It contains information used to protect data or to establish secure network connections.

A Certificate Store is a system area where certificate are stored.

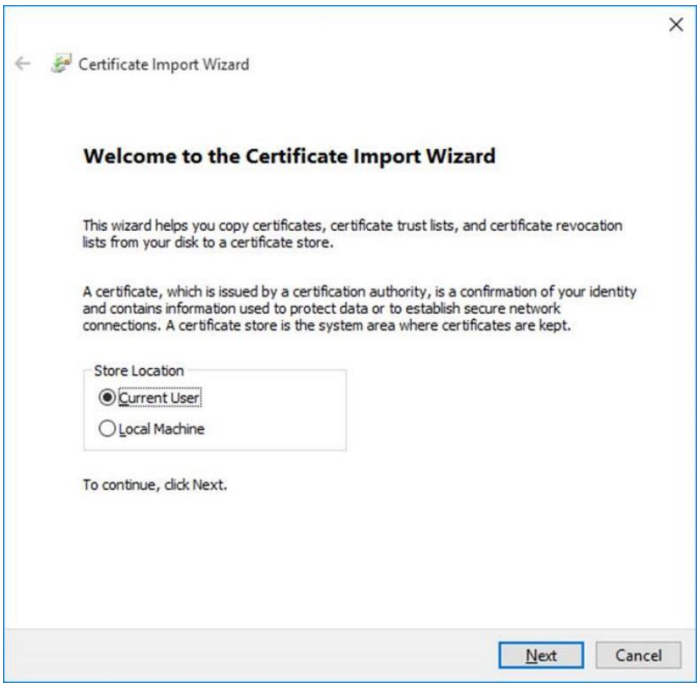
Install User Certificate

To manually install a user certificate:

Double-click on the certificate from within Windows Explorer to start the certificate import wizard.

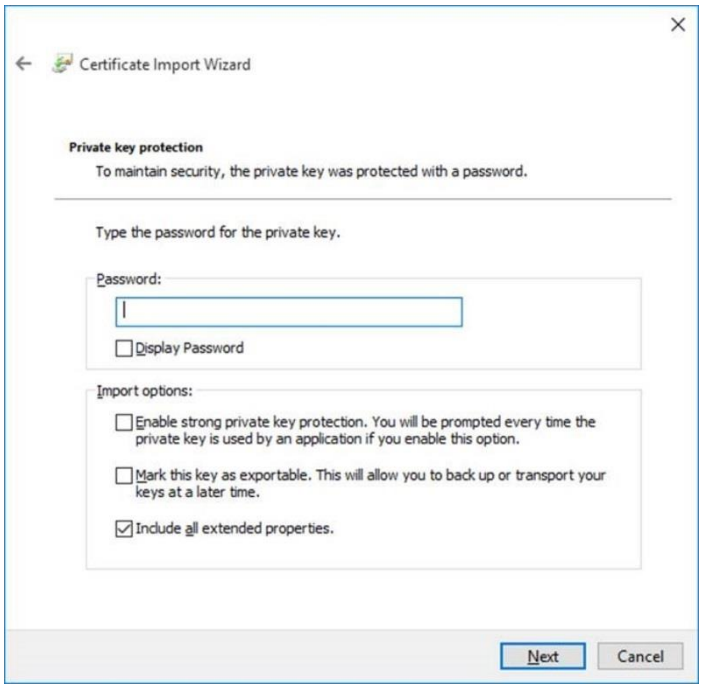
Select Current User and click **Next**.

Figure 15: Certificate Import Wizard



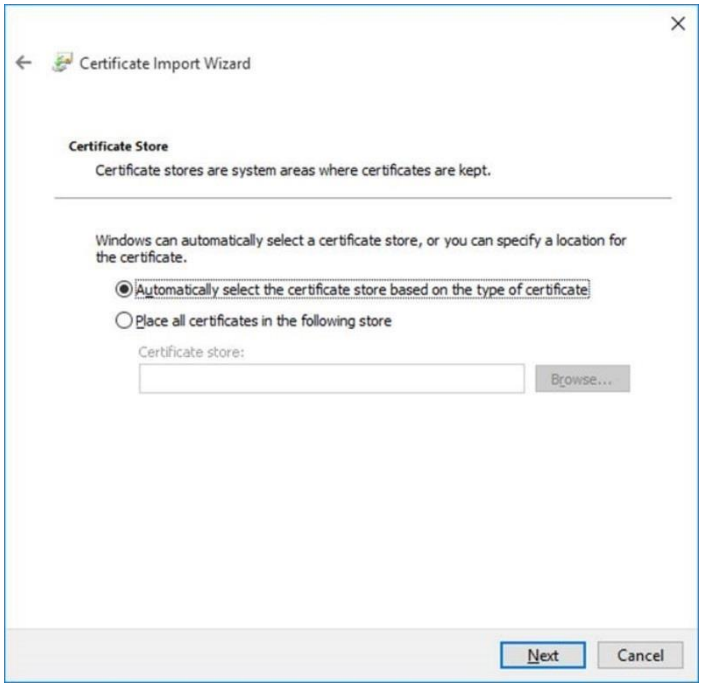
Enter your user certificate password.

Figure 16: Private Key Protection Page



Keep the default setting, and click **Next**.

Figure 17: Certificate Store Page



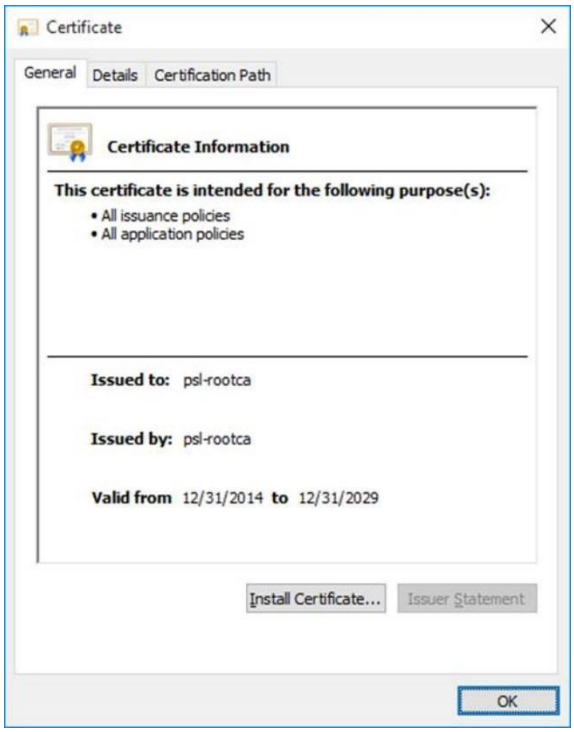
Install SA Trusted Server Certificate

To manually install an SA trusted server certificate:

Launch Windows Explorer and double-click on the certificate file to trust.

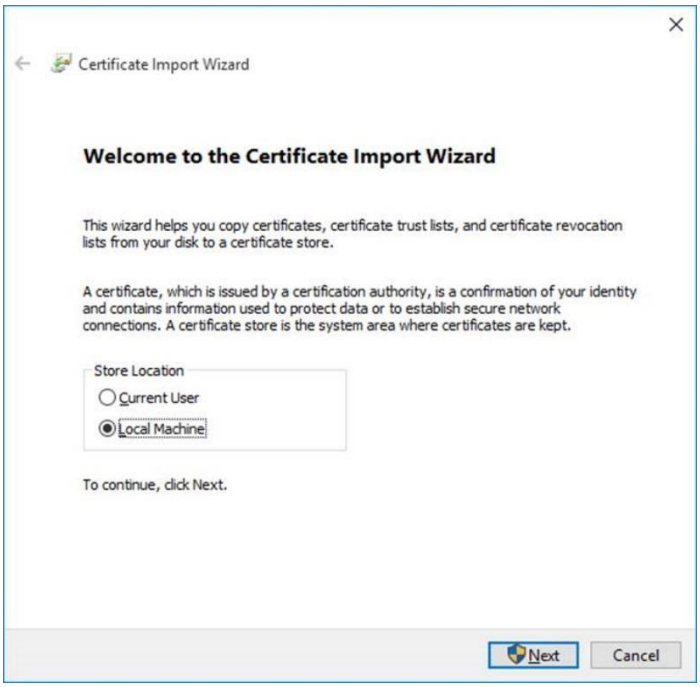
Tap **Install Certificate**.

Figure 18: Certificate Information Page



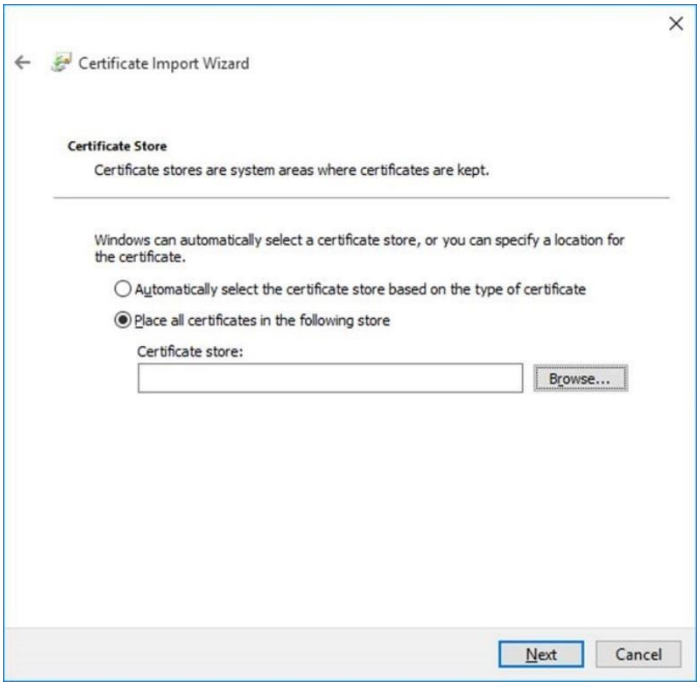
Select the Local Machine option and click **Next**.

Figure 19: Certificate Import Wizard



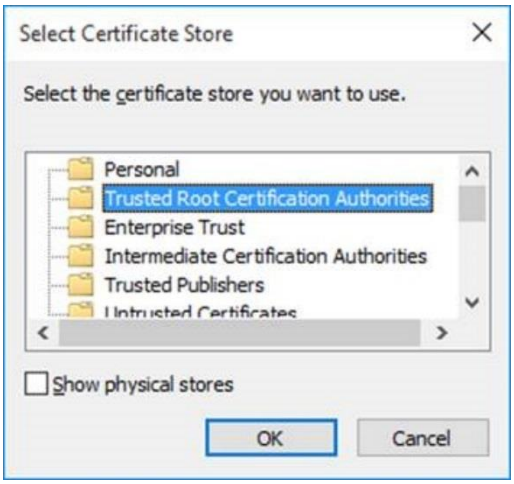
Select the Place all certificates in the following store option and click **Next**.

Figure 20: Certificate Store Page



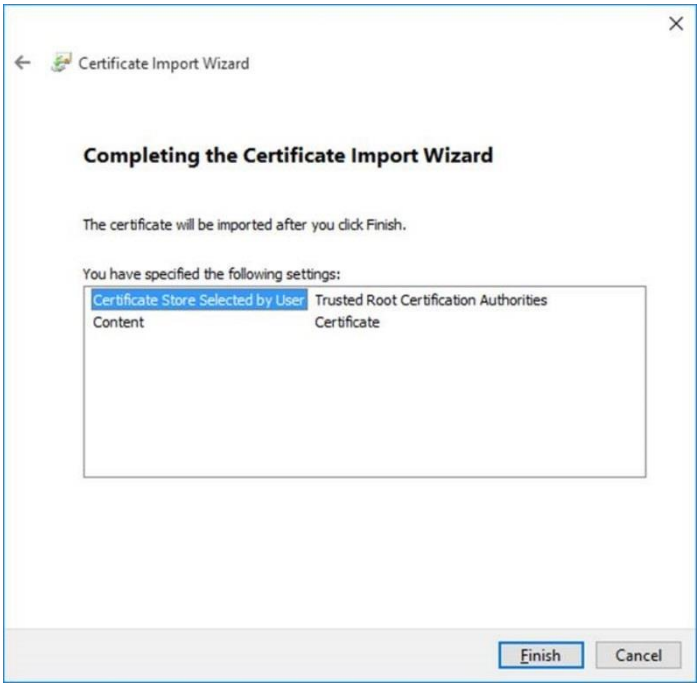
Select the Trusted Root Certificate Authorities option and click **OK**.

Figure 21: Certificate Store Selection Page



In the Certificate Import page, Click **Finish**.

Figure 22: Certificate Import Wizard



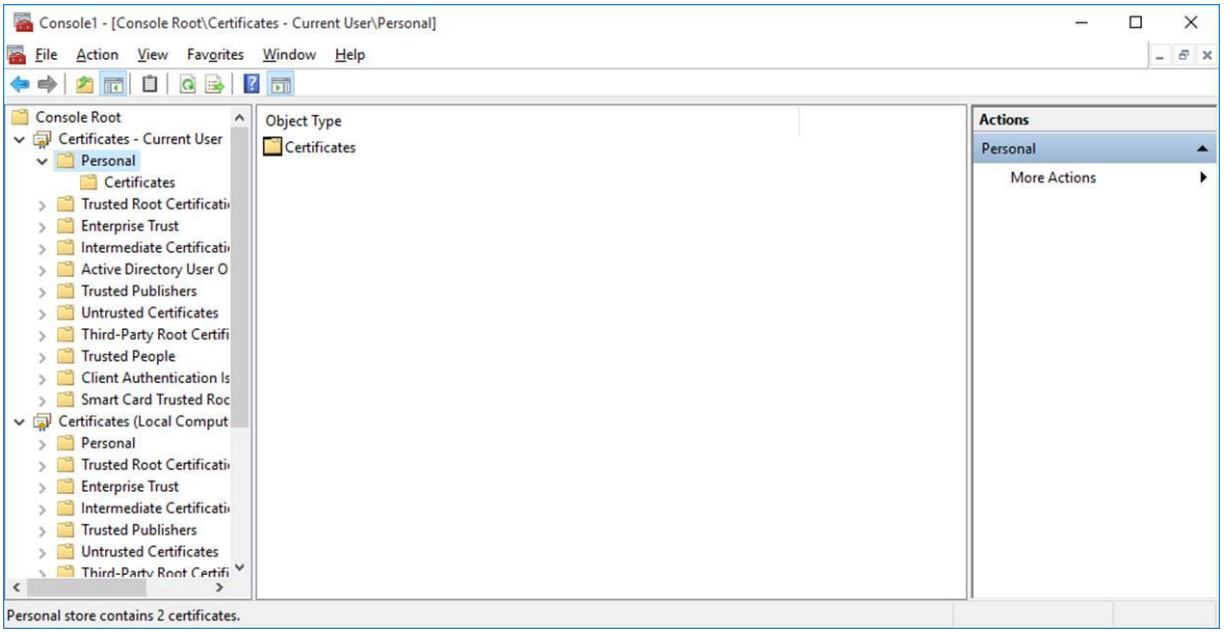
View Certificate Stores

To view the user or local machine certificate stores:

Run **mmc** and add certificates snap-in

Select the Current User or Local Computer option.

Figure 23: View Certificate Stores



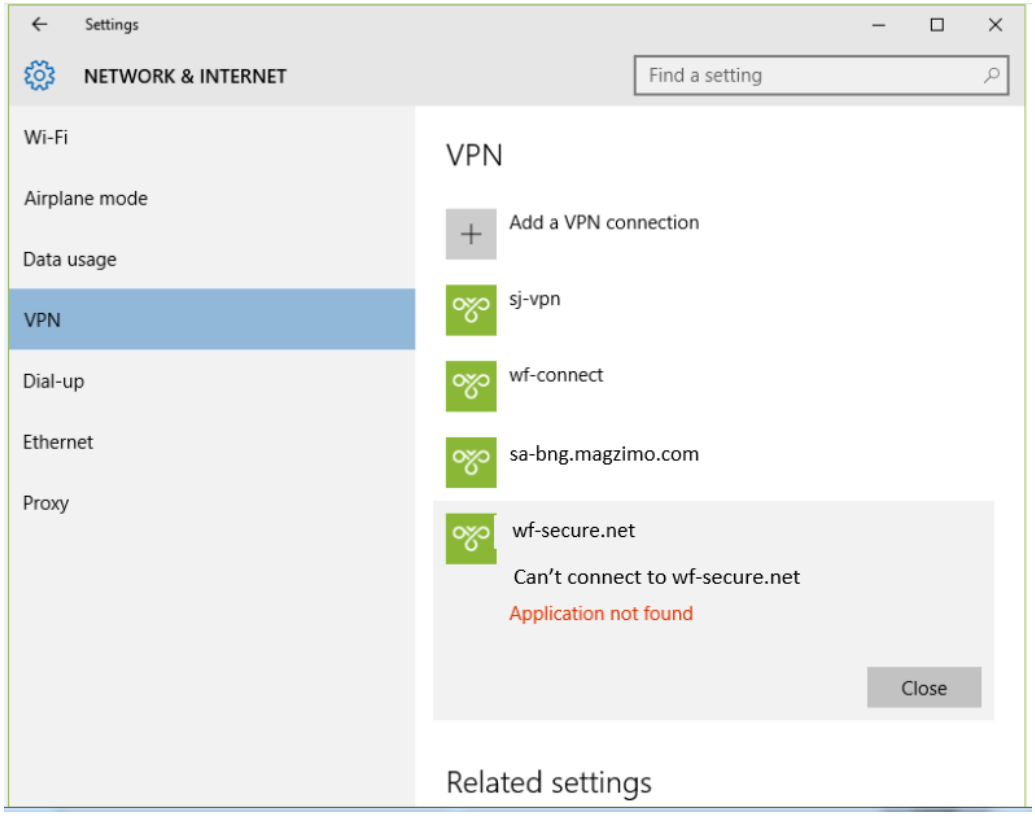
Appendix B

Upgrading Pulse Secure Windows 8.1 Inbox Connections to Windows 10

After installing Windows 10 update, perform the following steps to upgrade Pulse Secure Windows 8.1 inbox connections to Windows 10.

Tap Settings, then tap Network & Internet, and then tap VPN. The device displays a list of existing VPN connections.

Figure 24: Network & Internet → VPN Page – VPN Connections

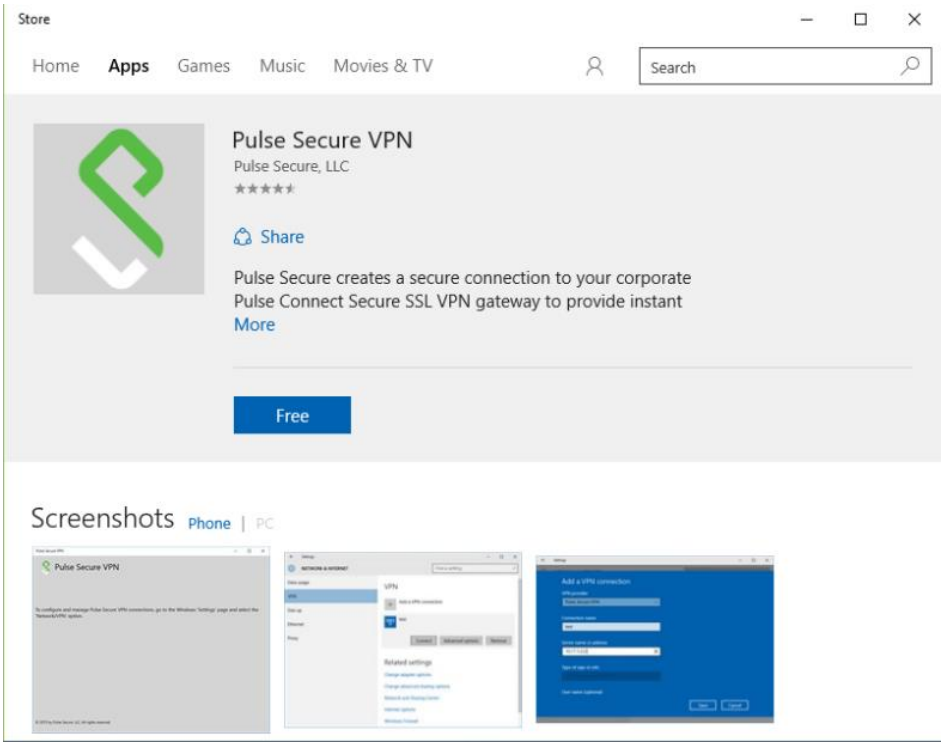


Select an existing VPN connection.

From the VPN settings page, click **Connect** to start the connection. This will fail with the error 'Application not found', but will automatically launch the Pulse Secure App Windows Store installation screen.

From the Store installation page, tap the **Free** button to start installation of the new Pulse Secure Windows 10 app.

Figure 25: Install App – Free Button



After the installation of Windows 10 app, restart the connection.

Appendix C

Windows PowerShell Script Examples

You can create, manage, and remove Pulse connections on the Windows 10 endpoint by using Windows PowerShell scripts. PowerShell is a command-line shell and scripting language for system administration. To configure Pulse connections, you should have a working knowledge of PowerShell. For detailed information on PowerShell, see the Microsoft Tech Net library.

Windows PowerShell commands are called cmdlets. To manage Pulse connections, you use the VPN Client cmdlets. For detailed information on the VPN Client cmdlets, see the VPN Client section of the Microsoft Tech Net library.

NOTE: PowerShell scripts must be signed to run on client computers that have a default PowerShell configuration. For more information, see the Microsoft Tech Net library.

NOTE: You use Windows PowerShell scripts to administer Pulse Secure Universal App for Windows connections. Pulse Secure desktop client connections do not respond to PowerShell scripts.

The following PowerShell script examples show how to use the most common PowerShell VPN cmdlets to create and manage Pulse connection configurations. Most PowerShell VPN cmdlets require that you specify the Application ID. For the Pulse Universal App, the application ID is 951D7986.PulseSecureVPN_qzpvqh70t9a4p. For a complete list of cmdlet options, see the VPN Client section of the Microsoft Tech Net library.

NOTE: All connections are HTTPS and use a server certificate, therefore you must install the server root CA to connect.

Add Pulse connection that uses split tunneling

This script creates a Pulse VPN connection named PulseCxn1 that connects to a Pulse server with an IP address of 10.17.1.216.

```
$xml = "<pulse-schema></pulse-schema>"
$sourceXml=New-Object System.Xml.XmlDocument
$sourceXml.LoadXml($xml)
Add-VpnConnection -Name “PulseCxn1” -ServerAddress “10.17.1.216” -
SplitTunneling -PluginApplicationID “951D7986.PulseSecureVPN_qzpvqh70t9a4p”
-CustomConfiguration $sourceXml
```

NOTE: Some VPN Client cmdlet options are not applicable to creating Pulse connections. The following Add-VpnConnection options cause an error if you use them when creating a Pulse connection:

- -AuthenticationMethod
- -EncryptionLevel

- -L2tpPsk
- -MachineCertificateEKUFilter
- -MachineCertificateIssuerFilter
- -UseWinlogonCredential

Add Pulse connection that saves the user credentials

The -RememberCredentials option applies to smart cards and certificate PINs, and to usernames and passwords.

```
$xml = "<pulse-schema></pulse-schema>"
$sourceXml=New-Object System.Xml.XmlDocument
$sourceXml.LoadXml($xml)
```

```
Add-VpnConnection -Name “PulseCxn2” -ServerAddress “10.17.1.217” -
RememberCredential -PluginApplicationID
“951D7986.PulseSecureVPN_qzpvqh70t9a4p” -CustomConfiguration $sourceXml
```

Add Pulse connection that uses a specified role and realm

This script’s pulse-schema statement includes schema options that specify the realm and role that are used for this connection. If there are multiple realms or roles available to the user, and you do not specify the preferred values, then the user is prompted for selections.

```
$xml = "<pulse-
schema><preferredRealm>Users</preferredRealm><preferredRole>TestRole</prefe
rredRole></pulse-schema>"
$sourceXml=New-Object System.Xml.XmlDocument
$sourceXml.LoadXml($xml)
Add-VpnConnection -Name “PulseCxn3” -ServerAddress “10.17.1.216” -
SplitTunneling -RememberCredential -PluginApplicationID
“951D7986.PulseSecureVPN_qzpvqh70t9a4p” -CustomConfiguration $sourceXml
```

Delete Pulse Connection

To delete a Pulse connection, use the following command:

```
Remove-VpnConnection -Name <connection_name>
```

Get Pulse connection information

To see the properties of a Pulse connection, use the following command:

```
Get-VpnConnection -Name <connection_name>
```

Start Pulse connection on application launch

You can associate a Pulse connection with an application. When the user starts that application, the specified Pulse VPN connection is initiated.

```
Add-VpnConnectionTriggerApplication -ConnectionName "PulseCxn1" [-
ApplicationID] <String[]>
```

Schema Options

The following table lists options that you can use in your Pulse connection PowerShell scripts.

Option	Description
"preferredRealm"	Specify the preferred connection realm. The user must be a member of the specified authentication realm.
"preferredRole"	Specify the preferred role. The user must eligible for the role according to the role mapping rules in effect for the realm.
“optimizeForLowCostNetwork”	true/false Specifies that the connection uses a wired connection if one is available.
“isSingleSignOnCredential”	true/false Specifies that the credentials be used to access resources that require authentication after the tunnel is established.

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