StoreFront 1811
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StoreFront 1811

December 12, 2018

StoreFront 1811 is the latest Current Release version of StoreFront. This documentation reflects features and configurations in this latest release.

StoreFront is an enterprise app store that aggregates applications and desktops from Citrix Virtual Apps and Desktops sites into a single easy to use store for users. StoreFront is an integral component of Citrix Virtual Apps and Desktops (formerly XenApp and XenDesktop) but can be used with several versions of XenApp and XenDesktop.

Earlier releases

For documentation on previous releases, see:

- StoreFront 3.16
- StoreFront 3.15
- StoreFront 3.14
- StoreFront 3.13
- StoreFront 3.12
- StoreFront 3.11
- Earlier StoreFront versions

The product lifecycle strategy for Citrix Virtual Apps and Desktops Current Releases (CR) and Long Term Service Releases (LTSR) is described in Lifecycle Milestones. Additional Lifecycle Information for StoreFront is provided inCTX200356.

Note:

Upgrades to the latest Current Release version of StoreFront from earlier unsupported versions is not supported. If you are using Current Releases you must ensure that you are on a supported StoreFront Current Release version at all times.

Citrix product name and version number changes

If you’ve been a Citrix customer or partner for a while, you’ll notice new names in our products and in this product documentation. If you’re new to this Citrix product, you might see different names for a product or component. The new product and component names stem from the expanding Citrix portfolio and cloud strategy.

To learn about how recent name changes affect StoreFront, see New product names.

In this release, product and component version numbers are displayed in a new format. To learn about how this changes affect StoreFront, see New product and component version numbers.
What’s new

January 8, 2019

StoreFront 1811

StoreFront 1811 includes the following new features. For information about bug fixes, see Fixed issues.

Unified user experience

StoreFront supports both the classic and unified user experiences. At this release the unified experience has been updated to align it more closely with Citrix Workspace, and to extend its functionality. For more information see Citrix Receiver unified user experience.

Note:
The unified experience is only supported on Internet Explorer 11. See Internet Explorer support.

Before

After
If you have customized the unified experience, your customizations are preserved when you upgrade to this version of StoreFront. Check that the appearance of your customizations is still suitable with the new unified experience. We recommend that you make users aware of the changes to the unified experience which the upgrade introduces, described in Citrix Receiver unified user experience.

Support for FAS logon evidence and launch disposition data

StoreFront supports passing logon evidence and launch disposition data to Federated Authentication Service (FAS) for evaluation:

- StoreFront can now capture logon evidence, and supply it to the FAS for validation when users attempt to launch VDAs. This allows customers to use FAS plug-ins to verify that authentication occurred at a trusted identity provider (IdP).
- StoreFront can now supply launch ‘disposition’ data to FAS when VDAs are launched. This allows customers to provide access disposition data, which plug-ins on the FAS server can convert into role and security context for identity evaluation.

For more information on how these features can be used, see Citrix Federated Authentication Service Logon Evidence Overview.

StoreFront Authentication SDK

The StoreFront Authentication SDK has been updated to support improvements in collection of Federated Authentication Service (FAS) logon evidence.

The StoreFront Authentication SDK documentation is now available on Citrix Developer Documentation https://developer-docs.citrix.com/.
StoreFront 1811

**StoreFront PowerShell SDK**

The StoreFront PowerShell SDK has been updated to support improvements in collection of Federated Authentication Service (FAS) logon evidence. The object representing the Authentication service, returned by Get-STFAuthenticationService, has a property “AuthenticationOptions”. This has a new property “CollectFasEvidence” which is false by default. This must be enabled to use the new logon evidence feature.

The StoreFront PowerShell SDK documentation is republished as version 1811 on Citrix Developer Documentation [https://developer-docs.citrix.com/](https://developer-docs.citrix.com/).

**New product names**

If you’ve been a Citrix customer or partner for a while, you’ll notice new names in our products and in this product documentation. If you’re new to this Citrix product, you might see different names for a product or component. The new product and component names stem from the expanding Citrix portfolio and cloud strategy.

Implementing this transition in our products and their documentation is an ongoing process.

- In-product content might still contain former names. For example, you might see instances of earlier names in console text, messages, and directory/file names.
- It is possible that some items (such as commands and MSIs) might continue to retain their former names to prevent breaking existing customer scripts.
- Related product documentation and other resources (such as videos and blog posts) that are linked from this product’s documentation might still contain former names.

Your patience during this transition is appreciated. For more detail about our new names, see [https://www.citrix.com/about/citrix-product-guide/](https://www.citrix.com/about/citrix-product-guide/).

**New product and component version numbers**

In this release, the StoreFront version number is displayed in the management console user interface in the same numeric format as Citrix Virtual App and Desktops (1811). The file version continues to use the 3.x format (3.17). For a full description of this format, see New product and component version numbers.

**Deprecation of TLS versions**

The deprecation of StoreFront support for TLS 1.0 and 1.1 protocols was announced at StoreFront 3.14 and XenApp and XenDesktop 7.17, see CTX23226.
Customers can now also upgrade to Citrix Workspace app, which supports the TLS 1.2 protocol.

At StoreFront 1811, Citrix further recommends disabling TLS 1.0 and 1.1 support in the Web Server hosting StoreFront. You should enforce this via group policy objects, which create the necessary registry settings on the StoreFront server to disable older protocols like TLS 1.0 and TLS 1.1. See also the Microsoft TLS/SSL Settings reference topic.

**Internet Explorer support**

Microsoft have dropped support for older versions of Internet Explorer. See the [Microsoft end-of-support announcement](#). As a consequence, we only support accessing stores through Citrix Receiver for Web sites using Internet Explorer 11. See [System requirements](#).

**Fixed issues**

December 12, 2018

The following issues have been fixed since version 3.16:

- When you zoom the browser to 125%, the custom logo might disappear. [LC9018]
- When you select a configured Site during the setup of XenDesktop, a default store might be created in StoreFront that uses the default Authentication Service. If you remove this store, users of Citrix Receiver for Windows cannot add any other store and this error message appears: “A protocol error occurred while communicating with the Authentication Service.” [LC9404]
- The session prelaunch might not work after you configure Resource Filtering by Keywords. [LC9642]
- When you log on to StoreFront and refresh the Citrix Receiver for Web page, the timeout dialog box might be suppressed. [LD0214]

**Known issues**

January 18, 2019

The following issues are known to exist in this release.

- Subscription propagation between members of a StoreFront Server group fails when TLS 1.0 is disabled in Windows and Windows Server is using .NET 4.5 Framework server. By default, .NET 4.5 Framework uses TLS 1.0 only. A workaround for this issue is to upgrade .NET Framework on the server to 4.7 or later (which use TLS 1.2 by default). [STF-2413]
• Server group joining does not work if TLS 1.0 is disabled on a server running .NET Framework 4.6.1 or earlier. To work around this issue, upgrade to .NET 4.6.2 Framework or higher. [STF-687]

• There is a known third-party issue with smart card authentication and Microsoft Edge. To work around this issue, use Internet Explorer. [DNA-47809]

• Workspace control reconnects to only one app session instead of all the apps in the workspace. This issue is seen if using Chrome to access the Receiver for Web site. To work around this issue, click Connect on each disconnected app. [DNA-25140, DNA-22561]

• If a time-out exception occurs during a StoreFront upgrade from the Citrix Virtual Apps and Desktops installer, then before restarting the upgrade:
  – Check the Citrix Virtual Apps and Desktops Hardware requirements and the StoreFront System requirements are met.
  – Restart the virtual machine hosting the install. [STF-3379]

• Uninstalling StoreFront on Windows Server 2019 can result in the PowerShell console (PowerShell.exe) no longer running on the server. The symptoms are that Powershell.exe opens briefly then vanishes immediately and cannot be used. Powershell_ISE.exe is unaffected and can still be used to run Powershell scripts.

This issue occurs with all StoreFront versions but only when StoreFront is uninstalled on Windows Server 2019.

Workaround: to restore Powershell.exe to working order on Windows Server 2019 after StoreFront uninstallation, add the following line:

<configuration>
  <configSections>
    <section name="uri" type="System.Configuration.UriSection, System, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089"/>
  </configSections>
</configuration>

For example:

```
<configuration>
  <configSections>
    <section name="uri" type="System.Configuration.UriSection , System, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089"/>
  </configSections>
</configuration>
```

[STF-2585]
Third party notices

August 23, 2018

StoreFront might include third party software licensed under the terms defined in the following document:

StoreFront Third Party Notices (PDF Download)

System requirements

December 19, 2018

Note:
Learn about product name changes in What’s new.

When planning your installation, Citrix recommends that you allow at least an additional 2 GB of RAM for StoreFront over and above the requirements of any other products installed on the server. The subscription store service requires a minimum of 5 MB disk space, plus approximately 8 MB for every 1000 application subscriptions. All other hardware specifications must meet the minimum requirements for the installed operating system.

Note:
Upgrading to the latest current release from an older current release that is now End of Life is not supported. For more information see CTX200356.

Citrix has tested and provides support for StoreFront installations on the following platforms:

- Windows Server 2019 Datacenter and Standard editions
- Windows Server 2016 Datacenter and Standard editions
- Windows Server 2012 R2 Datacenter and Standard editions

Upgrading the operating system version on a server running StoreFront is not supported. Citrix recommends that you install StoreFront on a new installation of the operating system. All the servers in a multiple server deployment must run the same operating system version with the same locale settings. StoreFront server groups containing mixtures of operating system versions and locales are not supported. While a server group can contain a maximum of six servers, from a capacity perspective based on simulations, there is no advantage of server groups containing more than three servers. All servers in a server group must reside in the same location.

Microsoft Internet Information Services (IIS) and Microsoft .NET Framework are required on the server. If either of these prerequisites is installed but not enabled, the StoreFront installer enables them before installing the product. Windows PowerShell and Microsoft Management Console, which are both
default components of Windows Server, must be installed on the web server before you can install StoreFront. The relative path to StoreFront in IIS must be the same on all the servers in a group.

The StoreFront installer will add the IIS features it requires. If you pre-install these features, below is the required list:

On all platforms:

- Web-Static-Content
- Web-Default-Doc
- Web-Http-Errors
- Web-Http-Redirect
- Web-Http-Logging
- Web-Mgmt-Console
- Web-Scripting-Tools
- Web-Windows-Auth
- Web-Basic-Auth
- Web-AppInit
- Web-Asp-Net45
- Net-Wcf-Tcp-PortSharing45

StoreFront uses the following ports for communications. Ensure your firewalls and other network devices permit access to these ports.

- TCP ports 80 and 443 are used for HTTP and HTTPS communications, respectively, and must be accessible from both inside and outside the corporate network.
- TCP port 808 is used for communications between StoreFront servers and must be accessible from inside the corporate network.
- A TCP port randomly selected from all unreserved ports is used for communications between the StoreFront servers in a server group. When you install StoreFront, a Windows Firewall rule is configured enabling access to the StoreFront executable. However, since the port is assigned randomly, you must ensure that any firewalls or other devices on your internal network do not block traffic to any of the unassigned TCP ports.
- TCP port 8008 is used by Citrix Workspace app for HTML5 or supported Citrix Receiver versions, where enabled, for communications from local users on the internal network to the servers providing their desktops and applications.

StoreFront supports both pure IPv6 networks and dual-stack IPv4/IPv6 environments.

**Infrastructure requirements**

Citrix has tested and provides support for StoreFront when used with the following Citrix product versions.
Citrix server requirements

StoreFront stores aggregate desktops and applications from the following products.

- Citrix Virtual Apps and Desktops 7 1811
- Citrix Virtual Apps and Desktops 7 1808
- XenApp and XenDesktop 7.18
- XenApp and XenDesktop 7.17
- XenApp and XenDesktop 7.16
- XenApp and XenDesktop 7.15 LTSR
- XenApp and XenDesktop 7.14
- XenApp and XenDesktop 7.6 LTSR

Citrix Gateway requirements

The following versions of Citrix Gateway (formerly NetScaler Gateway) can be used to provide access to StoreFront for users on public networks.

- Citrix Gateway 12.1
- NetScaler Gateway 12.0
- NetScaler Gateway 11.x
- NetScaler Gateway 10.5

Citrix Workspace app for HTML5 requirements

If you plan to enable users to access desktops and applications using Citrix Workspace app for HTML5 (formerly Citrix Receiver for HTML5) running on Receiver for Web sites, the following additional requirements apply.

For internal network connections, Citrix Workspace app for HTML5 enables access to desktops and applications provided by the following products.

- Citrix Virtual Apps and Desktops 7 1811
- Citrix Virtual Apps and Desktops 7 1808
- XenApp and XenDesktop 7.18
- XenApp and XenDesktop 7.17
- XenApp and XenDesktop 7.16
- XenApp and XenDesktop 7.15 LTSR
- XenApp and XenDesktop 7.14
- XenApp and XenDesktop 7.6 LTSR
For remote users outside the corporate network, Citrix Workspace app for HTML5 enables access to desktops and applications through the following versions of Citrix Gateway (formerly NetScaler Gateway).

- Citrix Gateway 12.1
- NetScaler Gateway 12.0
- NetScaler Gateway 11.x

For users connecting through Citrix Gateway, Citrix Workspace app for HTML5 enables access to desktops and applications provided by the following products.

- Citrix Virtual Apps and Desktops 7 1811
- Citrix Virtual Apps and Desktops 7 1808
- XenApp and XenDesktop 7.18
- XenApp and XenDesktop 7.17
- XenApp and XenDesktop 7.16
- XenApp and XenDesktop 7.15 LTSR
- XenApp and XenDesktop 7.14
- XenApp and XenDesktop 7.6 LTSR

**User device requirements**

StoreFront provides a number of different options for users to access their desktops and applications. Citrix Workspace app users can either access stores through Citrix Workspace app, or use a web browser to log on to a Citrix Receiver for Web site for the store. For users who cannot install Citrix Workspace app, but have an HTML5-compatible web browser, you can provide access to desktops and applications directly within the web browser by enabling Citrix Workspace app for HTML5 on your Citrix Receiver for Web site.

Users with non-domain-joined desktop appliances access their desktops through their web browsers, which are configured to access Desktop Appliance sites. In the case of domain-joined desktop appliances and repurposed PCs running the Citrix Desktop Lock, along with older Citrix clients that cannot be upgraded, users must connect through the XenApp Services URL for the store.

If you plan to deliver offline applications to users, the Offline Plug-in is required in addition to Citrix Workspace app for Windows. If you want to deliver Microsoft Application Virtualization (App-V) sequences to users, a supported version of the Microsoft Application Virtualization Desktop Client is also required. For more information, see Managing Streamed Applications. Users cannot access offline applications or App-V sequences through Citrix Receiver for Web sites.

It is assumed that all user devices meet the minimum hardware requirements for the installed operating system.
Requirements for Citrix Workspace app-enabled stores

The following Citrix Workspace app (and Citrix Receiver) versions can be used to access StoreFront stores from both internal network connections and through Citrix Gateway. Connections through Citrix Gateway can be made using both the NetScaler Gateway Plug-in and/or clientless access. See Support for the unified Citrix Receiver experience.

Citrix Workspace app

- Citrix Workspace app for Android
- Citrix Workspace app for Chrome
- Citrix Workspace app for HTML5
- Citrix Workspace app for iOS
- Citrix Workspace app for Linux
- Citrix Workspace app for Mac
- Citrix Workspace app for Windows
- Citrix Workspace app for Windows (Store)

Citrix Receiver

- Citrix Receiver for Android 3.13.x
- Citrix Receiver for Chrome 2.x
- Citrix Receiver for HTML5 2.x
- Citrix Receiver for iOS 7.x
- Citrix Receiver for Linux 13.x
- Citrix Receiver for Mac 12.x
- Citrix Receiver for Windows 4.x

Requirements for access to stores through Citrix Receiver for Web sites

The following Citrix Workspace app, operating system, and web browser combinations are recommended for users to access Citrix Receiver for Web sites from both internal network connections and through Citrix Gateway. Connections through Citrix Gateway can be made using both the NetScaler Gateway Plug-in and clientless access.

Unless otherwise stated, the latest browser versions are recommended.

- Citrix Receiver for Windows 4.9 and later, and Citrix Workspace app 1808 for Windows and later.
  - Windows 10 (32-bit and 64-bit editions)
    * Microsoft Edge
    * Internet Explorer 11
* Google Chrome
* Mozilla Firefox

- Windows 8.1 (32-bit and 64-bit editions)
  * Internet Explorer 11 (32-bit mode)
  * Google Chrome
  * Mozilla Firefox
- Windows 8 (32-bit and 64-bit editions)
  * Internet Explorer 11 (32-bit mode)
  * Google Chrome
  * Mozilla Firefox
- Windows 7 Service Pack 1 (32-bit and 64-bit editions)
  * Internet Explorer 11
  * Google Chrome
  * Mozilla Firefox
- Windows Embedded Standard 7 Service Pack 1 or Windows Thin PC
  * Internet Explorer 11

• Citrix Receiver for Mac 12.0, and Citrix Workspace app 1808 for Mac and later.
  - Mac OS X 10.13 High Sierra
    * Safari 11
    * Google Chrome
    * Mozilla Firefox
  - Mac OS X 10.12 Sierra
    * Safari 11
    * Google Chrome
    * Mozilla Firefox
  - Mac OS X 10.11 El Capitan
    * Safari 9
    * Google Chrome
    * Mozilla Firefox
  - Mac OS X 10.10 Yosemite
    * Safari 8
    * Google Chrome
    * Mozilla Firefox
  - Mac OS X 10.9 Mavericks
    * Safari 7
    * Google Chrome
    * Mozilla Firefox

• Citrix Receiver for Linux 13.x
  - Ubuntu 12.04 (32-bit) and 14.04 LTS (32-bit)
Requirements for access to desktops and applications through Citrix Workspace app for HTML5

The following operating systems and web browsers are recommended for users to access desktops and applications using Citrix Workspace app for HTML5 running on Receiver for Web sites. Both internal network connections and connections through Citrix Gateway are supported. However, for connections from the internal network, Citrix Workspace app for HTML5 only enables access to resources provided by specific products. Additionally, specific versions of Citrix Gateway are required to enable connections from outside the corporate network. For more information, see Infrastructure requirements.

Unless otherwise stated, the latest browser versions are recommended.

- **Browsers**
  - Microsoft Edge
  - Internet Explorer 11
  - Safari 11
  - Google Chrome
  - Mozilla Firefox

- **Operating systems**
  - Windows 10 (32-bit and 64-bit editions)
  - Windows 8.1 (32-bit and 64-bit editions)
  - Windows 8 (32-bit and 64-bit editions)
  - Windows 7 Service Pack 1 (32-bit and 64-bit editions)
  - Windows Vista Service Pack 2 (32-bit and 64-bit editions)
  - Windows Embedded XP
  - Mac OS X 10.13 High Sierra
  - Mac OS X 10.12 Sierra
  - Mac OS X 10.10 Yosemite
  - Mac OS X 10.9 Mavericks
  - Mac OS X 10.8 Mountain Lion
  - Google Chrome OS 48
  - Google Chrome OS 47
  - Ubuntu 16.04 (32-bit)
  - Ubuntu 12.04 (32-bit)
**Requirements for access to stores through Desktop Appliance sites**

The following Citrix Receiver (now Citrix Workspace app), operating system, and web browser combinations are recommended for users to access Desktop Appliance sites from the internal network. Connections through Citrix Gateway are not supported.

- Citrix Receiver for Windows 4.9 and later, and Citrix Workspace app 1808 for Windows and later.
  - Windows 8.1 (32-bit and 64-bit editions)
    * Internet Explorer 11 (32-bit mode)
  - Windows 8 (32-bit and 64-bit editions)
    * Internet Explorer 10 (32-bit mode)
  - Windows 7 Service Pack 1 (32-bit and 64-bit editions), Windows Embedded Standard 7 Service Pack 1, or Windows Thin PC
    * Internet Explorer 9 (32-bit mode)
    * Internet Explorer 8 (32-bit mode)
  - Windows Embedded XP
    * Internet Explorer 8 (32-bit mode)

**Requirements for access to stores through XenApp Services URLs**

All the versions of Citrix Receiver listed above can be used to access StoreFront stores with reduced functionality through XenApp Services URLs. Connections through Citrix Gateway, where supported, can be made using both the NetScaler Gateway Plug-in and clientless access.

**Smart card requirements**

**Requirement for using Citrix Receiver for Windows 4.x, and Citrix Workspace app 1808 for Windows and later, with smart cards**

Citrix tests for compatibility with the U.S. Government Dept. Of Defense Common Access Card (CAC), U.S. National Institute of Standards and Technology Personal Identity Verification (NIST PIV) cards, and some USB smart card tokens. You can use contact card readers that comply with the USB Chip/Smart Card Interface Devices (CCID) specification and are classified by the German Zentraler Kreditausschuss (ZKA) as Class 1 smart card readers. ZKA Class 1 contact card readers require that users insert their smart cards into the reader. Other types of smart card readers, including Class 2 readers (which have keypads for entering PINs), contactless readers, and virtual smart cards based on Trusted Platform Module (TPM) chips, are not supported.

For Windows devices, smart card support is based on Microsoft Personal Computer/Smart Card (PC/SC) standard specifications. As a minimum requirement, smart cards and card readers must be supported by the operating system and have received Windows Hardware Certification.
For more information about Citrix-compatible smart cards and middleware, see Smart cards in the Citrix Virtual Apps and Desktops documentation, and http://www.citrix.com/ready.

Requirements for authentication through Citrix Gateway

The following versions of Citrix Gateway can be used to provide access to StoreFront for users on public networks authenticating with smart cards.

- Citrix Gateway 12.1
- NetScaler Gateway 12.0
- NetScaler Gateway 11.x
- NetScaler Gateway 10.5

Plan your StoreFront deployment

August 16, 2018

Note:

Learn about product name changes in What's new.

StoreFront employs Microsoft .NET technology running on Microsoft Internet Information Services (IIS) to provide enterprise app stores that aggregate resources and make them available to users. StoreFront integrates with your XenDesktop, XenApp, and App Controller deployments, providing users with a single, self-service access point for their desktops and applications.

StoreFront comprises the following core components:

- The authentication service authenticates users to Microsoft Active Directory, ensuring that users do not need to log on again to access their desktops and applications. For more information, see User authentication.
- Stores enumerate and aggregate desktops and applications from XenDesktop, XenApp, and App Controller. Users access stores through Citrix Receiver, Citrix Receiver for Web sites, Desktop Appliance sites, and XenApp Services URLs. For more information, see User access options.
- The subscription store service records details of users’ application subscriptions and updates their devices to ensure a consistent roaming experience. For more information about enhancing the experience for your users, see Optimize the user experience.

StoreFront can be configured either on a single server or as a multiple server deployment. Multiple server deployments not only provide additional capacity, but also greater availability. The modular architecture of StoreFront ensures that configuration information and details of users’ application subscriptions are stored on and replicated between all the servers in a server group. This means that if a StoreFront server becomes unavailable for any reason, users can continue to access their stores...
using the remaining servers. Meanwhile, the configuration and subscription data on the failed server are automatically updated when it reconnects to the server group. Subscription data is updated when the server comes back online but you must propagate configuration changes if any were missed by the server while offline. In the event of a hardware failure that requires replacement of the server, you can install StoreFront on a new server and add it to the existing server group. The new server is automatically configured and updated with users’ application subscriptions when it joins the server group.

The figure shows a typical StoreFront deployment.

**Load balancing**

For multiple server deployments, external load balancing through, for example, NetScaler or Windows Network Load Balancing is required. Configure the load balancing environment for failover between servers to provide a fault-tolerant deployment. For more information about load balancing with NetScaler, see Load Balancing. For more information about Windows Network Load Balancing, see [http://technet.microsoft.com/en-us/library/hh831698.aspx](http://technet.microsoft.microsoft.com/en-us/library/hh831698.aspx).

Active load balancing of requests sent from StoreFront to XenDesktop sites and XenApp farms is recommended for deployments with thousands of users or where high loads occur, such as when a large number of users log on over a short period of time. Use a load balancer with built-in XML monitors.
and session persistency, such as NetScaler.

If you deploy SSL-terminating load balancer or if you need to troubleshoot, you can use the PowerShell cmdlet Set-STFWebReceiverCommunication.

Syntax:

```
```

The valid values are:

- **On** - This is the default value for new Citrix Receiver for Web sites. Citrix Receiver for Web uses the schema (HTTPS or HTTP) and port number from the base URL but replaces the host with the loopback IP address to communicate with StoreFront Services. This works for single server deployments and deployments with a non SSL-terminating load balancer.
- **OnUsingHttp** - Citrix Receiver for Web uses HTTP and the loopback IP address to communicate with StoreFront Services. If you are using an SSL-terminating load balancer, select this value. You must also specify the HTTP port if it is not the default port 80.
- **Off** - This turns off loopback and Citrix Receiver for Web uses the StoreFront base URL to communicate with StoreFront Services. If you perform an in-place upgrade, this is the default value to avoid disruption to your existing deployment.

For example, if you are using an SSL-terminating load balancer, your IIS is configured to use port 81 for HTTP and the path of your Citrix Receiver for Web site is /Citrix/StoreWeb, you can run the following command to configure the Citrix Receiver for Web site:

```
$wr = Get-STFWebReceiverService -VirtualPath /Citrix/StoreWeb
Set-STFWebReceiverCommunication -WebReceiverService $wr -Loopback OnUsingHttp -LoopbackPortUsingHttp 81
```

**Note:**

Switch off loopback to use any web proxy tool like Fiddler to capture the network traffic between Citrix Receiver for Web and StoreFront Services.

**Active Directory considerations**

For single server deployments you can install StoreFront on a non-domain-joined server (but certain functionality will be unavailable); otherwise, StoreFront servers must reside either within the Active Directory domain containing your users’ accounts or within a domain that has a trust relationship with the user accounts domain unless you enable delegation of authentication to the XenApp and XenDesktop sites or farms. All the StoreFront servers in a group must reside within the same domain.
User connections

In a production environment, Citrix recommends using HTTPS to secure communications between StoreFront and users’ devices. To use HTTPS, StoreFront requires that the IIS instance hosting the authentication service and associated stores is configured for HTTPS. In the absence of the appropriate IIS configuration, StoreFront uses HTTP for communications. You can change from HTTP to HTTPS at any time, provided the appropriate IIS configuration is in place.

If you plan to enable access to StoreFront from outside the corporate network, NetScaler Gateway is required to provide secure connections for remote users. Deploy NetScaler Gateway outside the corporate network, with firewalls separating NetScaler Gateway from both the public and internal networks. Ensure that NetScaler Gateway is able to access the Active Directory forest containing the StoreFront servers.

Multiple Internet Information Services (IIS) websites

StoreFront enables you to deploy different Stores in different IIS websites per Windows server so that each store can have a different host name and certificate binding.

Start by creating two websites, in addition to the default web site. After creating multiple websites in IIS, use the PowerShell SDK to create a StoreFront deployment in each of those IIS websites. For more information about creating websites in IIS, see How to set up your first IIS Website.

Note:
The StoreFront and PowerShell consoles cannot be open at the same time. Always close the StoreFront management console before using the PowerShell console to administer your StoreFront configuration. Likewise, close all instances of PowerShell before opening the StoreFront console.

Example: To create two IIS website deployments—one for applications and one for desktop

1. `Add-STFDeployment -SiteID 1 -HostBaseURL "https://www.storefront.app.com"`
2. `Add-STFDeployment -SiteID 2 -HostBaseURL "https://www.storefront.desktop.com"`

StoreFront disables the management console when it detects multiple sites and displays a message to that effect.

For more information, see Before installing and configuring.
Scalability

The number of Citrix Receiver users supported by a StoreFront server group depends on the hardware you use and on the level of user activity. Based on simulated activity where users log on, enumerate 100 published applications, and start one resource, expect a single StoreFront server with the minimum recommended specification of two virtual CPUs running on an underlying dual Intel Xeon L5520 2.27 Ghz processor server to enable up to 30,000 user connections per hour.

Expect a server group with two similarly configured servers in the group to enable up to 60,000 user connections per hour; three nodes up to 90,000 connections per hour; four nodes up to 120,000 connections per hour; five nodes up to 150,000 connections per hour; six nodes up to 175,000 connections per hour.

The throughput of a single StoreFront server can also be increased by assigning more virtual CPUs to the system, with four virtual CPUs enabling up to 55,000 user connections per hour and eight virtual CPUs enabling 80,000 connections per hour.

The minimum recommended memory allocation for each server is 4GB. When using Citrix Receiver for Web, assign an additional 700 bytes per resource, per user in addition to the base memory allocation. As with using Web Receiver, when using Citrix Receiver, design environments to allow an extra 700 bytes per resource, per user on top of the base 4 GB memory requirements for this version of StoreFront.

As your usage patterns might be different than those simulated above, your servers might support more or fewer numbers of users connections per hour.

Important: All servers in a server group must reside in the same location. StoreFront server groups containing mixtures of operating system versions and locales are not supported.

Timeout considerations

Occasionally, network issues or other problems can occur between a StoreFront store and the servers that it contacts, causing delays or failures for users. You can use the timeout settings for a store to tune this behavior. If you specify a short timeout setting, StoreFront quickly abandons a server and tries another one. This is useful if, for example, you have configured multiple servers for failover purposes.

If you specify a longer timeout, StoreFront waits longer for a response from a single server. This is beneficial in environments where network or server reliability is uncertain and delays are common.

Citrix Receiver for Web also has a timeout setting, which controls how long a Citrix Receiver for Web site waits for a response from the store. Set this timeout setting to a value at least as long as the store timeout. A longer timeout setting allows for better fault tolerance, but users might experience long delays. A shorter timeout setting reduces delays for users, but they might experience more failures.
For information about setting timeouts, see Communication time-out duration and server retry attempts and Communication time-out duration and retry attempts.

User access options

November 8, 2018

Four different methods are available for users to access StoreFront stores.

- **Citrix Receiver** - Users with compatible versions of Citrix Receiver can access StoreFront stores within the Citrix Receiver user interface. Accessing stores within Citrix Receiver provides the best user experience and the greatest functionality.
- **Citrix Receiver for Web sites** - Users with compatible web browsers can access StoreFront stores by browsing to Citrix Receiver for Web sites. By default, users also require a compatible version of Citrix Receiver to access their desktops and applications. However, you can configure your Citrix Receiver for Web sites to enable users with HTML5-compatible browsers to access their resources without installing Citrix Receiver. When you create a new store, a Citrix Receiver for Web site is created for the store by default.
- **Desktop Appliance sites** - Users with non-domain-joined desktop appliances can access their desktops through the web browsers on their appliances, which are configured to access Desktop Appliance sites in full-screen mode. When you create a new store for a XenDesktop deployment using Citrix Studio, a Desktop Appliance site is created for the store by default.
- **XenApp Services URLs** - Users of domain-joined desktop appliances and repurposed PCs running the Citrix Desktop Lock, along with users who have older Citrix clients that cannot be upgraded, can access stores using the XenApp Services URL for the store. When you create a new store, the XenApp Services URL is enabled by default.

The figure shows the options for users to access StoreFront stores:
Accessing stores from within the Citrix Receiver user interface provides the best user experience and the greatest functionality. For the Citrix Receiver versions that can be used to access stores in this way, see System Requirements.

Citrix Receiver uses internal and external URLs as beacon points. By attempting to contact these beacon points, Citrix Receiver can determine whether users are connected to local or public networks. When a user accesses a desktop or application, the location information is passed to the server providing the resource so that appropriate connection details can be returned to Citrix Receiver. This enables Citrix Receiver to ensure that users are not prompted to log on again when they access a desktop or application. For more information, see Configure beacon points.

After installation, Citrix Receiver must be configured with connection details for the stores providing users’ desktops and applications. You can make the configuration process easier for your users by providing them with the required information in one of the following ways.

**Important:**

By default, Citrix Receiver requires HTTPS connections to stores. If StoreFront is not configured for HTTPS, users must carry out additional configuration steps to use HTTP connections. Citrix strongly recommends that you do not enable unsecured user connections to StoreFront in a production environment. For more information, see Configure and install using command-line parameters in the Citrix Receiver for Windows documentation.
Provisioning files

You can provide users with provisioning files containing connection details for their stores. After installing Citrix Receiver, users open the .cr file to automatically configure accounts for the stores. By default, Citrix Receiver for Web sites offer users a provisioning file for the single store for which the site is configured. You could instruct your users to visit the Receiver for Web sites for the stores they want to access and download provisioning files from those sites. Alternatively, for a greater level of control, you can use the Citrix StoreFront management console to generate provisioning files containing connection details for one or more stores. You can then distribute these files to the appropriate users. For more information, see Export store provisioning files for users.

Auto-generated setup URLs

For users running Mac OS, you can use the Citrix Receiver for Mac Setup URL Generator to create a URL containing connection details for a store. After installing Citrix Receiver, users click on the URL to configure an account for the store automatically. Enter details of your deployment into the tool and generate a URL that you can distribute to your users.

Manual configuration

More advanced users can create new accounts by entering store URLs into Citrix Receiver. For more information, see the Citrix Receiver documentation.

Email-based account discovery

Users who install Citrix Receiver on a device for the first time can set up accounts by entering their email addresses, provided that they download Citrix Receiver from the Citrix website or a Citrix Receiver download page hosted within your internal network. You configure Service Location (SRV) locator resource records for NetScaler Gateway or StoreFront on your Microsoft Active Directory Domain Name System (DNS) server. Users do not need to know the access details for their stores, instead they enter their email addresses during the Citrix Receiver initial configuration process. Citrix Receiver contacts the DNS server for the domain specified in the email address and obtains the details you added to the SRV resource record. Users are then presented with a list of stores that they can access through Citrix Receiver.

Configure email-based account discovery

Configure email-based account discovery to enable users who install Citrix Receiver on a device for the first time to set up their accounts by entering their email addresses. Provided that they download
Citrix Receiver from the Citrix website or a Citrix Receiver download page hosted within your internal network, users do not need to know the access details for their stores when they install and configure Citrix Receiver. Email-based account discovery is available if Citrix Receiver is downloaded from any other location, such as a Receiver for Website. Note that ReceiverWeb.exe or ReceiverWeb.dmg downloaded from Citrix Receiver for Web does not prompt users to configure a store. Users can still use Add Account and enter their email address.

During the initial configuration process, Citrix Receiver prompts users to enter either an email address or a store URL. When a user enters an email address, Citrix Receiver contacts the Microsoft Active Directory Domain Name System (DNS) server for the domain specified in the email address to obtain a list of available stores from which the user can select.

To enable Citrix Receiver to locate available stores on the basis of users’ email addresses, you configure Service Location (SRV) locator resource records for NetScaler Gateway or StoreFront on your DNS server. As a fallback, you can also deploy StoreFront on a server named “discoverReceiver.domain,” where domain is the domain containing your users’ email accounts. If no SRV record is found in the specified domain, Citrix Receiver searches for a machine named “discoverReceiver” to identify a StoreFront server.

You must install a valid server certificate on the NetScaler Gateway appliance or StoreFront server to enable email-based account discovery. The full chain to the root certificate must also be valid. For the best user experience, install a certificate with a Subject or Subject Alternative Name entry of discoverReceiver.domain, where domain is the domain containing your users’ email accounts. Although you can use a wildcard certificate for the domain containing your users’ email accounts, you must first ensure that the deployment of such certificates is permitted by your corporate security policy. Other certificates for the domain containing your users’ email accounts can also be used, but users will see a certificate warning dialog box when Citrix Receiver first connects to the StoreFront server. Email-based account discovery cannot be used with any other certificate identities.

To enable email-based account discovery for users connecting from outside the corporate network, you must also configure NetScaler Gateway with the StoreFront connection details. For more information, see Connecting to StoreFront by Using Email-Based Discovery.

### Add an SRV record to your DNS server

1. On the Windows Start screen, click Administrative Tools and, in the Administrative Tools folder, click DNS.

2. In the left pane of DNS Manager, select your domain in the forward or reverse lookup zones. Right-click the domain and select Other New Records.

3. In the Resource Record Type dialog box, select Service Location (SRV) and then click Create Record.
4. In the **New Resource Record** dialog box, enter in the **Service** box the host value `_citrixreceiver_`.

5. Enter in the **Protocol** box the value `_tcp_`.

6. In the **Host offering this service** box, specify the fully qualified domain name (FQDN) and port for your NetScaler Gateway appliance (to support both local and remote users) or StoreFront server (to support local users only) in the form `servername.domain:port`.

   If your environment includes both internal and external DNS servers, you can add a SRV record specifying the StoreFront server FQDN on your internal DNS server and another record on your external server specifying the NetScaler Gateway FQDN. With this configuration, local users are provided with the StoreFront details, while remote users receive NetScaler Gateway connection information.

7. If you configured an SRV record for your NetScaler Gateway appliance, add the StoreFront connection details to NetScaler Gateway in a session profile or global setting.

**Citrix Receiver for Web sites**

Users with compatible web browsers can access StoreFront stores by browsing to Citrix Receiver for Websites. When you create a new store, a Citrix Receiver for Web site is automatically created for the store. The default configuration for Citrix Receiver for Web sites requires that users install a compatible version of Citrix Receiver to access their desktops and applications. For more information about the Citrix Receiver and web browser combinations that can be used to access Citrix Receiver for Web sites, see [User device requirements](#).

By default, when a user accesses a Citrix Receiver for Web site from a computer running Windows or Mac OS X, the site attempts to determine whether Citrix Receiver is installed on the user’s device. If Citrix Receiver cannot be detected, the user is prompted to download and install the appropriate Citrix Receiver for their platform. The default download location is the Citrix website, but you can also copy the installation files to the StoreFront server and provide users with these local files instead. Storing the Citrix Receiver installation files locally enables you to configure the site to offer users with older clients the option to upgrade to the version on the server. For more information about configuring deployment of Citrix Receiver for Windows and Citrix Receiver for Mac, see [Configure Citrix Receiver for Web sites](#).

**Citrix Receiver for HTML5**

Citrix Receiver for HTML5 is a component of StoreFront that is integrated by default with Citrix Receiver for Web sites. You can enable Citrix Receiver for HTML5 on your Citrix Receiver for Web sites so that users who cannot install Citrix Receiver can still access their resources. With Citrix Receiver for HTML5, users can access desktops and applications directly within HTML5-compatible web browsers without
needing to install Citrix Receiver. When a site is created, Citrix Receiver for HTML5 is disabled by default. For more information about enabling Citrix Receiver for HTML5, see citrix-receiver-download-page-template.html.

To access their desktops and applications using Citrix Receiver for HTML5, users must access the Citrix Receiver for Web site with an HTML5-compatible browser. For more information about the operating systems and web browsers that can be used with Citrix Receiver for HTML5, see User device requirements.

Citrix Receiver for HTML5 can be used by both users on the internal network and remote users connecting through NetScaler Gateway. For connections from the internal network, Citrix Receiver for HTML5 only supports access to desktops and applications provided by a subset of the products supported by Citrix Receiver for Web sites. Users connecting through NetScaler Gateway can access resources provided by a wider range of products if you chose Citrix Receiver for HTML5 as an option when configuring StoreFront. Specific versions of NetScaler Gateway are required for use with Citrix Receiver for HTML5. For more information, see Infrastructure requirements.

For local users on the internal network, access through Citrix Receiver for HTML5 to resources provided by XenDesktop and XenApp is disabled by default. To enable local access to desktops and applications using Citrix Receiver for HTML5, you must enable the ICA WebSockets connections policy on your XenDesktop and XenApp servers. Ensure your firewalls and other network devices permit access to the Citrix Receiver for HTML5 port specified in the policy. For more information, see WebSockets policy settings.

By default, Citrix Receiver for HTML5 starts desktops and applications in a new browser tab. However, when users start resources from shortcuts using Citrix Receiver for HTML5, the desktop or application replaces the Citrix Receiver for Web site in the existing browser tab rather than appearing in a new tab. You can configure Citrix Receiver for HTML5 so that resources are always started in the same tab as the Receiver for Web site. For more information, see Configure Citrix Receiver for HTML5 use of browser tabs.

Resource shortcuts

You can generate URLs that provide access to desktops and applications available through Citrix Receiver for Web sites. Embed these links on websites hosted on the internal network to provide users with rapid access to resources. Users click on a link and are redirected to the Receiver for Web site, where they log on if they have not already done so. The Citrix Receiver for Web site automatically starts the resource. In the case of applications, users are also subscribed to the application if they have not subscribed previously. For more information about generating resource shortcuts, see Configure Citrix Receiver for Web sites.

As with all desktops and applications accessed from Citrix Receiver for Web sites, users must either have installed Citrix Receiver or be able to use Citrix Receiver for HTML5 to access resources through
shortcuts. The method used by a Citrix Receiver for Web site depends on the site configuration, on whether Citrix Receiver can be detected on users’ devices, and on whether an HTML5-compatible browser is used. For security reasons, Internet Explorer users may be prompted to confirm that they want to start resources accessed through shortcuts. Instruct your users to add the Receiver for Web site to the Local intranet or Trusted sites zones in Internet Explorer to avoid this extra step. By default, both workspace control and automatic desktop starts are disabled when users access Citrix Receiver for Web sites through shortcuts.

When you create an application shortcut, ensure that no other applications available from the Citrix Receiver for Web site have the same name. Shortcuts cannot distinguish between multiple instances of an application with the same name. Similarly, if you make multiple instances of a desktop from a single desktop group available from the Citrix Receiver for Web site, you cannot create separate shortcuts for each instance. Shortcuts cannot pass command-line parameters to applications.

To create application shortcuts, you configure StoreFront with the URLs of the internal websites that will host the shortcuts. When a user clicks on an application shortcut on a website, StoreFront checks that website against the list of URLs you entered to ensure that the request originates from a trusted website. However, for users connecting through NetScaler Gateway, websites hosting shortcuts are not validated because the URLs are not passed to StoreFront. To ensure that remote users can only access application shortcuts on trusted internal websites, configure NetScaler Gateway to restrict user access to only those specific sites. For more information, see http://support.citrix.com/article/CTX123610.

Customize your sites

Citrix Receiver for Web sites provide a mechanism for customizing the user interface. You can customize strings, the cascading style sheet, and the JavaScript files. You can also add a custom pre-logon or post-logon screen, and add language packs.

Important considerations

Users accessing stores through a Citrix Receiver for Web site benefit from many of the features available with store access within Citrix Receiver, such as application synchronization. When you decide whether to use Citrix Receiver for Web sites to provide users with to access your stores, consider the following restrictions.

- Only a single store can be accessed through each Citrix Receiver for Web site.
- Citrix Receiver for Web sites cannot initiate Secure Sockets Layer (SSL) virtual private network (VPN) connections. Users logging on through NetScaler Gateway without a VPN connection cannot access web applications for which App Controller requires that such a connection is used.
• Subscribed applications are not available on the Windows Start screen when accessing a store through a Citrix Receiver for Web site.
• File type association between local documents and hosted applications accessed through Citrix Receiver for Web sites is not available.
• Offline applications cannot be accessed through Citrix Receiver for Web sites.
• Citrix Receiver for Web sites do not support Citrix Online products integrated into stores. Citrix Online products must be delivered with App Controller or made available as hosted applications to enable access through Citrix Receiver for Web sites.
• Citrix Receiver for HTML5 can be used over HTTPS connections if the VDA is XenApp 7.6 or XenDesktop 7.6 and has SSL enabled or if the user is connecting using NetScaler Gateway.
• To use Citrix Receiver for HTML5 with Mozilla Firefox over HTTPS connections, users must type about:config in the Firefox address bar and set the network.websocket.allowInsecureFromHTTPS preference to true.

Desktop Appliance sites

Users with non-domain-joined desktop appliances can access their desktops through Desktop Appliance sites. Non-domain-joined in this context means devices that are not joined to a domain within the Microsoft Active Directory forest containing the StoreFront servers.

When you create a new store for a XenDesktop deployment using Citrix Studio, a Desktop Appliance site is created for the store by default. Desktop Appliance sites are only created by default when StoreFront is installed and configured as part of a XenDesktop installation. You can create Desktop Appliance sites manually using Windows PowerShell commands. For more information, see Configure Desktop Appliance sites.

Desktop Appliance sites provide a user experience that is similar to logging on to a local desktop. The web browsers on desktop appliances are configured to start in full-screen mode displaying the logon screen for a Desktop Appliance site. When a user logs on to a site, by default, the first desktop (in alphabetical order) available to the user in the store for which the site is configured starts automatically. If you provide users with access to multiple desktops in a store, you can configure the Desktop Appliance site to display the available desktops so users can choose which one to access. For more information, see Configure Desktop Appliance sites.

When a user’s desktop starts, it is displayed in full-screen mode, obscuring the web browser. The user is automatically logged out from the Desktop Appliance site. When the user logs off from the desktop, the web browser, displaying the Desktop Appliance site logon screen, is visible again. A message is displayed when a desktop is started, providing a link for the user to click to restart the desktop if it cannot be accessed. To enable this functionality, you must configure the Delivery Group to enable users to restart their desktops. For more information, see Delivery groups.

To provide access to desktops, a compatible version of Citrix Receiver is required on the desktop appli-
ance. Typically, XenDesktop-compatible appliance vendors integrate Citrix Receiver into their products. For Windows appliances, the Citrix Desktop Lock must also be installed and configured with the URL for your Desktop Appliance site. If Internet Explorer is used, the Desktop Appliance site must be added to the Local intranet or Trusted sites zones. For more information about the Citrix Desktop Lock, see Prevent user access to the local desktop.

Important considerations

Desktop Appliance sites are intended for local users on the internal network accessing desktops from non-domain-joined desktop appliances. When you decide whether to use Desktop Appliance sites to provide users with access to your stores, consider the following restrictions.

- If you plan to deploy domain-joined desktop appliances and repurposed PCs, do not configure them to access stores through Desktop Appliance sites. Though you can configure Citrix Receiver with the XenApp Services URL for the store, we recommend the new Desktop Lock for both domain-joined and nondomain-joined use cases. For more information, see Citrix Receiver Desktop Lock.
- Desktop Appliance sites do not support connections from remote users outside the corporate network. Users logging on to NetScaler Gateway cannot access Desktop Appliance sites.

XenApp Services URLs

Users with older Citrix clients that cannot be upgraded can access stores by configuring their clients with the XenApp Services URL for a store. You can also enable access to your stores through XenApp Services URLs from domain-joined desktop appliances and repurposed PCs running the Citrix Desktop Lock. Domain-joined in this context means devices that are joined to a domain within the Microsoft Active Directory forest containing the StoreFront servers.

StoreFront supports pass-through authentication with proximity cards through Citrix Receiver to XenApp Services URLs. Citrix Ready partner products use the Citrix Fast Connect API to streamline user logons through Citrix Receiver for Windows to connect to stores using the XenApp Services URL. Users authenticate to workstations using proximity cards and are rapidly connected to desktops and applications provided by XenDesktop and XenApp. For more information, see the most recent Citrix Receiver for Windows documentation.

When you create a new store, the XenApp Services URL for the store is enabled by default. The XenApp Services URL for a store has the form http[s]://serveraddress/Citrix/storename/PNAgent/config.xml, where serveraddress is the fully qualified domain name of the server or load balancing environment for your StoreFront deployment and storename is the name specified for the store when it was created. This allows Citrix Receivers that can only use the PNAgent protocol to connect to Storefront. For the clients that can be used to access stores through XenApp Services URLs, see User device requirements.
Important considerations

XenApp Services URLs are intended to support users who cannot upgrade to Citrix Receiver and for scenarios where alternative access methods are not available. When you decide whether to use XenApp Services URLs to provide users with access to your stores, consider the following restrictions.

- You cannot modify the XenApp Services URL for a store.
- You cannot modify XenApp Services URL settings by editing the configuration file, config.xml.
- XenApp Services URLs support explicit, domain pass-through, smart card authentication, and pass-through with smart card authentication. Explicit authentication is enabled by default. Only one authentication method can be configured for each XenApp Services URL and only one URL is available per store. If you need to enable multiple authentication methods, you must create separate stores, each with a XenApp Services URL, for each authentication method. Your users must then connect to the appropriate store for their method of authentication. For more information, see XML-based authentication.
- Workspace control is enabled by default for XenApp Services URLs and cannot be configured or disabled.
- User requests to change their passwords are routed to the domain controller directly through the XenDesktop and XenApp servers providing desktops and applications for the store, bypassing the StoreFront authentication service.

User authentication

November 13, 2018

StoreFront supports a number of different authentication methods for users accessing stores; although, not all are available depending on the user access method and their network location. For security reasons, some authentication methods are disabled by default when you create your first store. For more information about enabling and disabling user authentication methods, see Create and configure the authentication service.

User name and password

Users enter their credentials and are authenticated when they access their stores. Explicit authentication is enabled by default. All user access methods support explicit authentication.

When a user employs NetScaler Gateway to access Citrix Receiver for Web, NetScaler Gateway handles the logon and password change at expiration. Users can make elective password changes with the Citrix Receiver for Web UI. After an elective password change, the NetScaler Gateway session terminates and the user must log on again. Citrix Receiver for Linux users can change only expired passwords.
SAML authentication

Users authenticate to a SAML Identity Provider and are automatically logged on when they access their stores. StoreFront can support SAML authentication directly within the corporate network, without the need to go through NetScaler.

SAML (Security Assertion Markup Language) is an open standard used by identity and authentication products such as Microsoft AD FS (Active Directory Federation Services). With the integration of SAML authentication through StoreFront, administrators can allow users to, for example, log on once to their corporate network and then get single sign-on to their published apps.

Requirements:

- Implementation of the Citrix Federated Authentication Service.
- SAML 2.0-compliant identity providers (IDPs):
  - Microsoft AD FS v4.0 (Windows Server 2016) using SAML bindings only (not WS-Federation bindings). For more information, see Microsoft AD FS 2016 Deployment and Microsoft AD 2016 FS Operations.
  - Microsoft AD FS v3.0 (Windows Server 2012 R2)
  - NetScaler Gateway (configured as an IDP)
- Configure SAML authentication in StoreFront using the StoreFront management console in a new deployment (see Create a new deployment), or in an existing deployment (see Configure the authentication service). You can also configure SAML authentication using PowerShell cmdlets, see StoreFront SDK.
- Citrix Receiver for Windows (4.6 and higher) or Citrix Receiver for Web.

Using SAML authentication with NetScaler is currently supported with Receiver for Web sites.

Domain pass-through

Users authenticate to their domain-joined Windows computers, and their credentials are used to log them on automatically when they access their stores.

When you install StoreFront, domain pass-through authentication is disabled by default. You can enable domain pass-through authentication for users connecting to stores through Citrix Receiver and XenApp Services URLs. Citrix Receiver for Web sites support domain pass-through authentication for Internet Explorer, Edge, Mozilla Firefox, and Google Chrome on domain-joined Windows client machines.

To enable domain pass-through authentication

1. Install Citrix Receiver for Windows or the Online Plug-in for Windows on user devices. Ensure that pass-through authentication is enabled.
2. In the Citrix Receiver for Web site node in the administration console, enable domain pass-through authentication.

3. Configure SSON on Citrix Receiver for Windows, described in Configure domain pass-through authentication. Citrix Receiver for HTML5 does not support domain pass-through authentication.

4. Windows’ default behavior is “Automatic logon only in the Intranet zone.” For Internet Explorer, Mozilla Firefox and Google Chrome, either configure your Citrix Receiver for Web sites as Intranet sites using the Internet Options, or enable automatic logon for the Trusted zone. For Edge you must configure your Citrix Receiver for Web sites as Intranet sites.

5. For Mozilla Firefox, modify the browser advanced settings to trust the Citrix Receiver for Windows URI.

   Warning: Editing the advanced settings incorrectly can cause serious problems. Make edits at your own risk.

   a) Start Firefox, enter `about:config` in the address field and select “I accept the risk!”
   b) Type `ntlm` to the search box.
   c) Double-click on “network.automatic-ntlm-auth.trusted-uris” and type the Citrix Receiver for Windows site URL to the pop-up dialog.
   d) Click **OK**.

**Pass-through from NetScaler Gateway**

Users authenticate to NetScaler Gateway and are automatically logged on when they access their stores. Pass-through from NetScaler Gateway authentication is enabled by default when you first configure remote access to a store. Users can connect through NetScaler Gateway to stores using Citrix Receiver or Citrix Receiver for Web sites. Desktop Appliance sites do not support connections through NetScaler Gateway. For more information about configuring StoreFront for NetScaler Gateway, see Add a NetScaler Gateway connection.

StoreFront supports pass-through with the following NetScaler Gateway authentication methods.

- **Security token.** Users log on to NetScaler Gateway using passcodes that are derived from tokens generated by security tokens combined, in some cases, with personal identification numbers. If you enable pass-through authentication by security token only, ensure that the resources you make available do not require additional or alternative forms of authentication, such as users’ Microsoft Active Directory domain credentials.

- **Domain and security token.** Users logging on to NetScaler Gateway are required to enter both their domain credentials and security token passcodes.
• **Client certificate.** Users log on to NetScaler Gateway and are authenticated based on the attributes of the client certificate presented to NetScaler Gateway. Configure client certificate authentication to enable users to log on to NetScaler Gateway using smart cards. Client certificate authentication can also be used with other authentication types to provide double-source authentication.

StoreFront uses the NetScaler Gateway authentication service to provide pass-through authentication for remote users so that they only need to enter their credentials once. However, by default, pass-through authentication is only enabled for users logging on to NetScaler Gateway with a password. To configure pass-through authentication from NetScaler Gateway to StoreFront for smart card users, delegate credential validation to NetScaler Gateway. For more information, see Create and configure the authentication service.

Users can connect to stores within Citrix Receiver with pass-through authentication through a Secure Sockets Layer (SSL) virtual private network (VPN) tunnel using the NetScaler Gateway Plug-in. Remote users who cannot install the NetScaler Gateway Plug-in can use clientless access to connect to stores within Citrix Receiver with pass-through authentication. To use clientless access to connect to stores, users require a version of Citrix Receiver that supports clientless access.

Additionally, you can enable clientless access with pass-through authentication to Citrix Receiver for Web sites. To do this, configure NetScaler Gateway to act as a secure remote proxy. Users log on to NetScaler Gateway directly and use the Citrix Receiver for Web site to access their applications without needing to authenticate again.

Users connecting with clientless access to App Controller resources can only access external software-as-a-service (SaaS) applications. To access internal web applications, remote users must use the NetScaler Gateway Plug-in.

If you configure double-source authentication to NetScaler Gateway for remote users accessing stores from within Citrix Receiver, you must create two authentication policies on NetScaler Gateway. Configure RADIUS (Remote Authentication Dial-In User Service) as the primary authentication method and LDAP (Lightweight Directory Access Protocol) as the secondary method. Modify the credential index to use the secondary authentication method in the session profile so that LDAP credentials are passed to StoreFront. When you add the NetScaler Gateway appliance to your StoreFront configuration, set the Logon type to Domain and security token. For more information, see http://support.citrix.com/article/CTX125364.

To enable multidomain authentication through NetScaler Gateway to StoreFront, set SSO Name Attribute to userPrincipalName in the NetScaler Gateway LDAP authentication policy for each domain. You can require users to specify a domain on the NetScaler Gateway logon page so that the appropriate LDAP policy to use can be determined. When you configure the NetScaler Gateway session profiles for connections to StoreFront, do not specify a single sign-on domain. You must configure trust relationships between each of the domains. Ensure that you allow users to log on to StoreFront from any domain by not restricting access to explicitly trusted domains only.
Where supported by your NetScaler Gateway deployment, you can use SmartAccess to control user access to XenDesktop and XenApp resources on the basis of NetScaler Gateway session policies. For more information about SmartAccess, see How SmartAccess works for XenApp and XenDesktop.

Smart cards

Users authenticate using smart cards and PINs when they access their stores. When you install StoreFront, smart card authentication is disabled by default. Smart card authentication can be enabled for users connecting to stores through Citrix Receiver, Citrix Receiver for Web, Desktop Appliance sites, and XenApp Services URLs.

Use smart card authentication to streamline the logon process for your users while also enhancing the security of user access to your infrastructure. Access to the internal corporate network is protected by certificate-based two-factor authentication using public key infrastructure. Private keys are protected by hardware controls and never leave the smart card. Your users get the convenience of accessing their desktops and applications from a range of corporate devices using their smart cards and PINs.

You can use smart cards for user authentication through StoreFront to desktops and applications provided by XenDesktop and XenApp. Smart card users logging on to StoreFront can also access applications provided by App Controller. However, users must authenticate again to access App Controller web applications that use client certificate authentication.

To enable smart card authentication, users’ accounts must be configured either within the Microsoft Active Directory domain containing the StoreFront servers or within a domain that has a direct two-way trust relationship with the StoreFront server domain. Multi-forest deployments involving two-way trusts are supported.

The configuration of smart card authentication with StoreFront depends on the user devices, the clients installed, and whether the devices are domain-joined. In this context, domain-joined means devices that are joined to a domain within the Active Directory forest containing the StoreFront servers.

Use smart cards with Citrix Receiver for Windows

Users with devices running Citrix Receiver for Windows can authenticate using smart cards, either directly or through NetScaler Gateway. Both domain-joined and non-domain-joined devices can be used, although the user experience is slightly different.

The figure shows the options for smart card authentication through Citrix Receiver for Windows.
For local users with domain-joined devices, you can configure smart card authentication so that users are only prompted for their credentials once. Users log on to their devices using their smart cards and PINs and, with the appropriate configuration in place, are not prompted for their PINs again. Users are silently authenticated to StoreFront and also when they access their desktops and applications. To achieve this, you configure Citrix Receiver for Windows for pass-through authentication and enable domain pass-through authentication to StoreFront.

Users log on to their devices and then authenticate to Citrix Receiver for Windows using their PINs. There is no further PIN prompts when they try to start apps and desktops.

Because users of non-domain-joined devices log on to Citrix Receiver for Windows directly, you can enable users to fall back to explicit authentication. If you configure both smart card and explicit authentication, users are initially prompted to log on using their smart cards and PINs but have the option to select explicit authentication if they experience any issues with their smart cards.

Users connecting through NetScaler Gateway must log on using their smart cards and PINs at least twice to access their desktops and applications. This applies to both domain-joined and non-domain-joined devices. Users authenticate using their smart cards and PINs, and, with the appropriate configuration in place, are only prompted to enter their PINs again when they access their desktops and ap-
To achieve this, you enable pass-through with NetScaler Gateway authentication to StoreFront and delegate credential validation to NetScaler Gateway. Then, create an additional NetScaler Gateway virtual server through which you route user connections to resources. In the case of domain-joined devices, you must also configure Citrix Receiver for Windows for pass-through authentication.

**Note:**

If you are using Citrix Receiver for Windows 4.5 or later, you can set up a second vServer and use the optimal gateway routing feature to remove the need for PIN prompts when starting apps and desktops.

Users can log on to NetScaler Gateway using either their smart cards and PINs, or with explicit credentials. This enables you to provide users with the option to fall back to explicit authentication for NetScaler Gateway logons. Configure pass-through authentication from NetScaler Gateway to StoreFront and delegate credential validation to NetScaler Gateway for smart card users so that users are silently authenticated to StoreFront.

### Use smart cards with Desktop Appliance sites

Non-domain-joined Windows desktop appliances can be configured to enable users to log on to their desktops using smart cards. The Citrix Desktop Lock is required on the appliance and Internet Explorer must be used to access the Desktop Appliance site.

The figure shows smart card authentication from a non-domain-joined desktop appliance.

When users access their desktop appliances, Internet Explorer starts in full-screen mode displaying the logon screen for a Desktop Appliance site. Users authenticate to the site using their smart cards and PINs. If the Desktop Appliance site is configured for pass-through authentication, users are automatically authenticated when they access their desktops and applications. Users are not prompted for their PINs again. Without pass-through authentication, users must enter their PINs a second time when they start a desktop or application.

You can enable users to fall back to explicit authentication if they experience any issues with their smart cards. To do this, you configure the Desktop Appliance site for both smart card and explicit authentication.
authentication. In this configuration, smart card authentication is considered to be primary access method so users are prompted for their PINs first. However, the site also provides a link that enables users to log on with explicit credentials instead.

**Use smart cards with XenApp Services URLs**

Users of domain-joined desktop appliances and repurposed PCs running the Citrix Desktop Lock can authenticate using smart cards. Unlike other access methods, pass-through of smart card credentials is automatically enabled when smart card authentication is configured for a XenApp Services URL.

The figure shows smart card authentication from a domain-joined device running the Citrix Desktop Lock.

Users log on to their devices using their smart cards and PINs. The Citrix Desktop Lock then silently authenticates users to StoreFront through the XenApp Services URL. Users are automatically authenticated when they access their desktops and applications, and are not prompted for their PINs again.

**Use smart cards with Citrix Receiver for Web**

You can enable smart card authentication to Citrix Receiver for Web from the StoreFront Administration Console.

1. Select the Citrix Receiver for Web node in the left panel.
2. Select the site you want to use smart card authentication.
3. Select the Choose Authentication Methods task in the right panel.
4. Check the Smart card checkbox in the popup dialog screen and click OK.

If you enable pass-through with smart card authentication to XenDesktop and XenApp for Citrix Receiver for Windows users with domain-joined devices who do not access stores through NetScaler...
Gateway, this setting applies to all users of the store. To enable both domain pass-through and pass-through with smart card authentication to desktops and applications, you must create separate stores for each authentication method. Your users must then connect to the appropriate store for their method of authentication.

If you enable pass-through with smart card authentication to XenDesktop and XenApp for Citrix Receiver for Windows users with domain-joined devices accessing stores through NetScaler Gateway, this setting applies to all users of the store. To enable pass-through authentication for some users and require others to log on to their desktops and applications, you must create separate stores for each group of users. Then, direct your users to the appropriate store for their method of authentication.

**Use smart cards with Citrix Receiver for iOS and Android**

Users with devices running Citrix Receiver for iOS and Citrix Receiver for Android can authenticate using smart cards, either directly or through NetScaler Gateway. Non-domain-joined devices can be used.

In the case of devices on the local network, the minimum number of logon prompts that users can receive is two. When users authenticate to StoreFront or initially create the store, they are prompted for the smart card PIN. With the appropriate configuration in place, users are prompted to enter their PINs again only when they access their desktops and applications. To achieve this, you enable smart card authentication to StoreFront and install smart card drivers on the VDA.

With these Citrix Receivers, you have the option of specifying smart cards OR domain credentials. If you created a store to use smart cards and you want to connect to the same store using domain credentials, you must add a separate store without turning on smart cards.

Users connecting through NetScaler Gateway must log on using their smart cards and PINs at least twice to access their desktops and applications. Users authenticate using their smart cards and PINs, and, with the appropriate configuration in place, are only prompted to enter their PINs again when they access their desktops and applications. To achieve this, you enable pass-through with NetScaler Gateway authentication to StoreFront and delegate credential validation to NetScaler Gateway. Then,
create an additional NetScaler Gateway virtual server through which you route user connections to resources.

Users can log on to NetScaler Gateway using either their smart cards and PINs or with explicit credentials, depending on how you specified the authentication for the connection. Configure pass-through authentication from NetScaler Gateway to StoreFront and delegate credential validation to NetScaler Gateway for smart card users so that users are silently authenticated to StoreFront. If you want to change the authentication method, you must delete and recreate the connection.

**Use smart cards with Citrix Receiver for Linux**

Users with devices running Citrix Receiver for Linux can authenticate using smart cards in a similar way to users of non-domain-joined Windows devices. Even if the user authenticates to the Linux device with a smart card, Citrix Receiver for Linux has no mechanism to acquire or reuse the PIN entered.

Configure the server side components for smart cards the same way you configure them for use with the Citrix Receiver for Windows. Refer to [Configure smart card authentication](#) and for instructions on using smart cards, see [Citrix Receiver for Linux](#).

The minimum number of logon prompts that users can receive is one. Users log on to their devices and then authenticate to Citrix Receiver for Linux using their smart cards and PINs. Users are not prompted to enter their PINs again when they access their desktops and applications. To achieve this, you enable smart card authentication to StoreFront.

Because users log on to Citrix Receiver for Linux directly, you can enable users to fall back to explicit authentication. If you configure both smart card and explicit authentication, users are initially prompted to log on using their smart cards and PINs but have the option to select explicit authentication if they experience any issues with their smart cards.

Users connecting through NetScaler Gateway must log on using their smart cards and PINs at least once to access their desktops and applications. Users authenticate using their smart cards and PINs and, with the appropriate configuration in place, are not prompted to enter their PINs again when they access their desktops and applications. To achieve this, you enable pass-through with NetScaler Gateway authentication to StoreFront and delegate credential validation to NetScaler Gateway. Then, create an additional NetScaler Gateway virtual server through which you route user connections to resources.

Users can log on to NetScaler Gateway using either their smart cards and PINs, or with explicit credentials. This enables you to provide users with the option to fall back to explicit authentication for NetScaler Gateway logons. Configure pass-through authentication from NetScaler Gateway to StoreFront and delegate credential validation to NetScaler Gateway for smart card users so that users are silently authenticated to StoreFront.

Smart cards for Citrix Receiver for Linux are not supported with the XenApp Services Support sites.
Once smart card support is enabled for both the server and Citrix Receiver, provided the application policy of the smart card certificates allow it, you can use smart cards for the following purposes:

- Smart card logon authentication. Use smart cards to authenticate users to Citrix XenApp and XenDesktop servers.
- Smart card application support. Enable smart card-aware published applications to access local smart card devices.

**Use smart cards with XenApp Services Support**

Users logging on to XenApp Services Support sites to start applications and desktops can authenticate using smart cards without depending on specific hardware, operating systems, and Citrix Receivers. When a user accesses a XenApp Services Support site and successfully enters a smart card and PIN, PNA determines the user identity, authenticates the user with StoreFront, and returns the available resources.

For pass-through and smart card authentication to work, you must enable Trust requests sent to the XML service.

Use an account with local administrator permissions on the Delivery Controller to start Windows PowerShell and, at a command prompt, enter the following commands to enable the Delivery Controller to trust XML requests sent from StoreFront. The following procedure applies to XenApp 7.5 through 7.8 and XenDesktop 7.0 through 7.8.

1. Load the Citrix cmdlets by typing `asnp Citrix*`. (including the period).
2. Type `Add-PSSnapin citrix.broker.admin.v2`.
3. Type `Set-BrokerSite -TrustRequestsSentToTheXmlServicePort $True`.

For information about configuring the XenApp Services Support smart card authentication method, see [Configure authentication for XenApp Services URLs](#).

**Important considerations**

Use of smart cards for user authentication with StoreFront is subject to the following requirements and restrictions.

- To use virtual private network (VPN) tunnels with smart card authentication, users must install the NetScaler Gateway Plug-in and log on through a web page, using their smart cards and PINs to authenticate at each step. Pass-through authentication to StoreFront with the NetScaler Gateway Plug-in is not available for smart card users.
• Multiple smart cards and multiple readers can be used on the same user device, but if you enable pass-through with smart card authentication, users must ensure that only one smart card is inserted when accessing a desktop or application.

• When a smart card is used within an application, such as for digital signing or encryption, users might see additional prompts to insert a smart card or enter a PIN. This can occur if more than one smart card has been inserted at the same time. It can also occur due to configuration settings - such as middleware settings like PIN caching that are typically configured using group policy. Users who are prompted to insert a smart card when the smart card is already in the reader must click Cancel. If users are prompted for a PIN, they must enter their PINs again.

• If you enable pass-through with smart card authentication to XenDesktop and XenApp for Citrix Receiver for Windows users with domain-joined devices who do not access stores through NetScaler Gateway, this setting applies to all users of the store. To enable both domain pass-through and pass-through with smart card authentication to desktops and applications, you must create separate stores for each authentication method. Your users must then connect to the appropriate store for their method of authentication.

• If you enable pass-through with smart card authentication to XenDesktop and XenApp for Citrix Receiver for Windows users with domain-joined devices accessing stores through NetScaler Gateway, this setting applies to all users of the store. To enable pass-through authentication for some users and require others to log on to their desktops and applications, you must create separate stores for each group of users. Then, direct your users to the appropriate store for their method of authentication.

• Only one authentication method can be configured for each XenApp Services URL and only one URL is available per store. If you need to enable other types of authentication in addition to smart card authentication, you must create separate stores, each with a XenApp Services URL, for each authentication method. Then, direct your users to the appropriate store for their method of authentication.

• When StoreFront is installed, the default configuration in Microsoft Internet Information Services (IIS) only requires that client certificates are presented for HTTPS connections to the certificate authentication URL of the StoreFront authentication service. IIS does not request client certificates for any other StoreFront URLs. This configuration enables you to provide smart card users with the option to fall back to explicit authentication if they experience any issues with their smart cards. Subject to the appropriate Windows policy settings, users can also remove their smart cards without needing to reauthenticate.

If you decide to configure IIS to require client certificates for HTTPS connections to all StoreFront URLs, the authentication service and stores must be collocated on the same server. You must use a client certificate that is valid for all the stores. With this IIS site configuration, smart card users cannot connect through NetScaler Gateway and cannot fall back to explicit authentication. Users must log on again if they remove their smart cards from their devices.
Optimize the user experience

August 16, 2018

StoreFront includes features designed to enhance the user experience. These features are configured by default when you create new stores and their associated Citrix Receiver for Web sites, Desktop Appliance sites, and XenApp Services URLs.

Workplace control

As users move between devices, workplace control ensures that the applications they are using follow them. Users can keep working with the same application instances across multiple devices rather than having to restart all their applications each time they log on to a new device. This enables, for example, clinicians in hospitals to save time as they move from workstation to workstation accessing patient data.

Workplace control is enabled by default for Citrix Receiver for Web sites and connections to stores through XenApp Services URLs. When users log on, they are automatically reconnected to any applications that they left running. For example, consider a user logging on to a store, either through the Citrix Receiver for Web site or the XenApp Services URL, and starting some applications. If the user then logs on to the same store using the same access method but on a different device, the running applications are automatically transferred to the new device. All the applications that the user starts from a particular store are automatically disconnected, but not shut down, when the user logs off from that store. In the case of Citrix Receiver for Web sites, the same browser must be used to log on, start the applications, and log off.

Workplace control for XenApp Services URLs cannot be configured or disabled. For more information about configuring workplace control for Citrix Receiver for Web sites, see Configure workplace control.

Use of workplace control on Citrix Receiver for Web sites is subject to the following requirements and restrictions.

- Workplace control is not available when Citrix Receiver for Web sites are accessed from hosted desktops and applications.
- For users accessing Citrix Receiver for Web sites from Windows devices, workplace control is only enabled if the site can detect that Citrix Receiver is installed on users’ devices or if Citrix Receiver for HTML5 is used to access resources.
- To reconnect to disconnected applications, users accessing Citrix Receiver for Web sites through Internet Explorer must add the site to the Local intranet or Trusted sites zones.
- If there is only one desktop available for a user on a Citrix Receiver for Web site that is configured to start single desktops automatically when the user logs on, that user’s applications are not reconnected, regardless of the workplace control configuration.
• Users must disconnect from their applications using the same browser that was originally used to start them. Resources started using a different browser or started locally from the desktop or Start menu using Citrix Receiver cannot be disconnected or shut down by Citrix Receiver for Web sites.

Content redirection

Where users have subscribed to the appropriate application, content redirection enables local files on users’ devices to be opened using subscribed applications. To enable redirection of local files, associate the application with the required file types in XenDesktop or XenApp. File type association is enabled by default for new stores. For more information, see Disable file type association.

User changed password

You can enable Citrix Receiver for Web site users logging on with Microsoft Active Directory domain credentials to change their passwords at any time. Alternatively, you can restrict password changes to users whose passwords have expired. This means you can ensure that users are never prevented from accessing their desktops and applications by an expired password.

If you enable Citrix Receiver for Web site users to change their passwords at any time, local users whose passwords are about to expire are shown a warning when they log on. By default, the notification period for a user is determined by the applicable Windows policy setting. Password expiry warnings are only displayed to users connecting from the internal network. For more information about enabling users to change their passwords, see Configure the authentication service.

Users logging on to Desktop Appliance sites can only change expired passwords, even if you enable users to change their passwords at any time. Desktop Appliance sites do not provide controls to enable users to change their passwords after they have logged on.

When you create the authentication service, the default configuration prevents Citrix Receiver for Web site users from changing their passwords, even if the passwords have expired. If you decide to enable this feature, ensure that the policies for the domains containing your servers do not prevent users from changing their passwords. StoreFront must be able to contact the domain controller to change users’ passwords.

Enabling users to change their passwords exposes sensitive security functions to anyone who can access any of the stores that use the authentication service. If your organization has a security policy that reserves user password change functions for internal use only, ensure that none of the stores are accessible from outside your corporate network.
Citrix Receiver for Web site desktop and application views

When both desktops and applications are available from a Citrix Receiver for Web site, the site displays separate desktop and application views by default. Users see the desktop view first when they log on to the site. Regardless of whether applications are also available from a Citrix Receiver for Web site, if only a single desktop is available for a user, the site starts that desktop automatically when the user logs on. You can configure which views appear for your sites and prevent Citrix Receiver for Web sites from automatically starting desktops for users. For more information, see Configure how resources are displayed for users.

The behavior of the views on Citrix Receiver for Web sites depends on the types of resources being delivered. For example, users must subscribe to applications before they appear in the application view, whereas all the desktops available to a user are automatically displayed in the desktop view. For this reason, users cannot remove desktops from the desktop view and cannot reorganize them by dragging and dropping the icons. When desktop restarts are enabled by the XenDesktop administrator, controls that enable users to restart their desktops are provided in the desktop view. If users have access to multiple instances of a desktop from a single desktop group, Citrix Receiver for Web sites differentiate the desktops for users by appending numerical suffixes to the desktop names.

For users connecting to stores within Citrix Receiver or through XenApp Services URLs, the way in which desktops and applications are displayed, and their behavior, is determined by the Citrix client being used.

Additional recommendations

When delivering applications with XenDesktop and XenApp, consider the following options to enhance the experience for users when they access their applications through your stores. For more information about delivering applications, see Create a Delivery Group application.

- Organize applications into folders to make it easier for users to find what they need when browsing through the available resources. The folders you create in XenDesktop and XenApp appear as categories in Citrix Receiver. You could, for example, group applications according to type or, alternatively, create folders for different user roles in your organization.
- Ensure that you include meaningful descriptions when you deliver applications, as these descriptions are visible to users in Citrix Receiver.
- You can specify that all users have a core set of applications that cannot be removed from the Citrix Receiver home screen by appending the string KEYWORDS:Mandatory to the application description. Users can still use the self-service UI to add more applications or remove nonmandatory applications.
- You can automatically subscribe all users of a store to an application by appending the string KEYWORDS:Auto to the description you provide when you deliver the application. When users
log on to the store, the application is automatically provisioned without users needing to manually subscribe.

• To automatically subscribe all users of a store to a web or software-as-a-service (SaaS) application managed by App Controller, select the App is available in Citrix Receiver to all users automatically check box when you configure the application settings.

• Advertise XenDesktop applications to users or make commonly used applications easier to find by listing them in the Featured list in Citrix Receiver. To do this, append the string `KEYWORDS: Featured` to the application description.

  Note:
  Multiple keywords must be separated by spaces only; for example, `KEYWORDS: Auto Featured`.

• By default, XenDesktop and XenApp hosted shared desktops are treated like other desktops by Citrix Receiver for Web sites. To change this behavior, append the string `KEYWORDS: TreatAsApp` to the desktop description. The desktop is displayed in the application views of Citrix Receiver for Web sites rather than the desktop views and users are required to subscribe before they can access the desktop. In addition, the desktop is not automatically started when the user logs on to the Citrix Receiver for Web site and is not accessed with the Desktop Viewer, even if the site is configured to do this for other desktops.

• For Windows users, you can specify that the locally installed version of an application should be used in preference to the equivalent delivered instance if both are available. To do this, append the string `KEYWORDS:prefer="application"` to the application description, where `application` is either one or more complete words in the name of the local application as given by the shortcut file name, or the absolute path including the executable file name to the local application from the \Start Menu folder. When a user subscribes to an application with this keyword, Citrix Receiver searches for the specified name or path on the user’s device to determine whether the application is already installed locally. If the application is found, Citrix Receiver subscribes the user to the delivered application, but does not create a shortcut. When the user starts the delivered application from Citrix Receiver, the locally installed instance runs instead. For more information, see Configuring application delivery.

• In XenApp and XenDesktop 7.17, when users launch a published application from within a published desktop, administrators can control whether the application is launched in that desktop session or as a published application in the same Delivery Group. Use a PowerShell cmdlet on the Broker Service and a policy setting in Citrix Receiver for Windows (vPrefer) to control this behavior. This feature works with Citrix Receiver for Windows launches of published apps only. It cannot be used to launch an app locally if the published app is launched through the StoreFront site in a web browser. In previous releases, “double-hop” application launch control required the use of the `KEYWORDS: Prefer` tag in Studio. The `KEYWORDS: Prefer` tag can still be used. If
both the KEYWORDS and the vPrefer method have been configured, vPrefer takes precedence.

For more information, see CTX232210, the Applications article in XenApp and XenDesktop, and the Citrix Receiver for Windows documentation.

StoreFront high availability and multi-site configuration

July 30, 2018

StoreFront includes a number of features that combine to enable load balancing and failover between the deployments providing resources for stores. You can also specify dedicated disaster recovery deployments for increased resiliency. These features enable you to configure StoreFront deployments distributed over multiple sites to provide high availability for your stores. For more information, see Set up highly available multi-site store configurations.

Resource aggregation

By default, StoreFront enumerates all the deployments providing desktops and applications for a store and treats all those resources as distinct. This means that if the same resource is available from several deployments, users see an icon for each resource, which might be confusing if the resources have the same name. When you set up highly available multi-site configurations, you can group XenDesktop and XenApp deployments that deliver the same desktop or application so that identical resources can be aggregated for users. Grouped deployments do not need to be identical, but resources must have the same name and path on each server to be aggregated.

When a desktop or application is available from multiple XenDesktop and XenApp deployments configured for a particular store, StoreFront aggregates all instances of that resource and presents users with a single icon. App Controller applications cannot be aggregated. When a user starts an aggregated resource, StoreFront determines the most appropriate instance of that resource for the user on the basis of server availability, whether the user already has an active session, and the ordering you specified in your configuration.

StoreFront dynamically monitors servers that fail to respond to requests on the basis that such servers are either overloaded or temporarily unavailable. Users are directed to resource instances on other servers until communications are re-established. Where supported by the servers providing the resources, StoreFront attempts to reuse existing sessions to deliver additional resources. If a user already has an active session on a deployment that also provides the requested resource, StoreFront reuses the session if it is compatible with that resource. Minimizing the number of sessions for each user reduces the time taken to start additional desktops or applications and can allow for more efficient use of product licenses.
After checking for availability and existing user sessions, StoreFront uses the ordering specified in your configuration to determine the deployment to which the user is connected. If multiple equivalent deployments are available to the user, you can specify that users are connected either to the first available deployment or randomly to any deployment in the list. Connecting users to the first available deployment enables you to minimize the number of deployments in use for the current number of users. Randomly connecting users provides a more even distribution of users across all the available deployments.

You can override the specified deployment ordering for individual XenDesktop and XenApp resources to define preferred deployments to which users are connected when they access a particular desktop or application. This enables you to, for example, specify that users are preferentially connected to a deployment specifically adapted to deliver a particular desktop or application, but use other deployments for other resources. To do this, append the string `KEYWORDS:Primary` to the description of the desktop or application on the preferred deployment and `KEYWORDS:Secondary` to the resource on other deployments. Where possible, users are connected to the deployment providing the primary resource, regardless of the deployment ordering specified in your configuration. Users are connected to deployments providing secondary resources when the preferred deployment is unavailable.

**Map users to resources**

By default, users accessing a store see an aggregate of all the resources available from all the deployments configured for that store. To provide different resources for different users, you can configure separate stores or even separate StoreFront deployments. However, when you set up highly available multi-site configurations, you can provide access to particular deployments on the basis of users’ membership of Microsoft Active Directory groups. This enables you to configure different experiences for different user groups through a single store.

For example, you can group common resources for all users on one deployment and finance applications for the Accounts department on another deployment. In such a configuration, a user who is not a member of the Accounts user group sees only the common resources when accessing the store. A member of the Accounts user group is presented with both the common resources and the finance applications.

Alternatively, you can create a deployment for power users that provides the same resources as your other deployments, but with faster and more powerful hardware. This enables you to provide an enhanced experience for business-critical users, such as your executive team. All users see the same desktops and applications when they log on to the store, but members of the Executives user group are preferentially connected to resources provided by the power user deployment.
Subscription synchronization

If you enable your users to access the same applications from similar stores in different StoreFront deployments, users’ application subscriptions must be synchronized between the server groups. Otherwise, users who subscribe to an application in a store on one StoreFront deployment might need to resubscribe to the application when they log on to a different server group. To provide a seamless experience for users moving between separate StoreFront deployments, you can configure periodic synchronization of users’ application subscriptions between stores in different server groups. Choose between regular synchronization at a specific interval or schedule synchronization to occur at particular times throughout the day. For more information, see Configure subscription synchronization.

Dedicated disaster recovery resources

You can configure specific disaster recovery deployments that are not used unless all other deployments are unavailable. Typically, disaster recovery deployments are not collocated with the main deployments, provide only a subset of the resources that are normally available, and might offer a degraded user experience. When you specify that a deployment is to be used for disaster recovery, the deployment will not be used for load balancing or failover. Users cannot access desktops and applications provided by disaster recovery deployments unless all the other deployments for which the disaster recovery deployments are configured become unavailable.

When access to any other deployment is re-established, users cannot start more disaster recovery resources, even if they are already using such a resource. Users running disaster recovery resources are not disconnected from those resources when access to other deployments is restored. However, they cannot start disaster recovery resources again once they have exited these resources. Similarly, StoreFront does not attempt to reuse existing sessions with disaster recovery deployments if any other deployments have subsequently become available.

Optimal NetScaler Gateway routing

If you have configured separate NetScaler Gateway appliances for your deployments, StoreFront enables you to define the optimal appliance for users to access each of the deployments providing resources for a store. For example, if you create a store that aggregates resources from two geographical locations, each with a NetScaler Gateway appliance, users connecting through an appliance in one location can start a desktop or application in the other location. However, by default, the connection to the resource is then routed through the appliance to which the user originally connected and must therefore traverse the corporate WAN.

To improve the user experience and reduce network traffic over the WAN, you can specify the optimal NetScaler Gateway appliance for each of your deployments. With this configuration, user connections
to resources are automatically routed through the appliance local to the deployment providing the resources, regardless of the location of the appliance through which the user accesses the store.

Optimal NetScaler Gateway routing can also be used in the special case where local users on the internal network are required to log on to NetScaler Gateway for endpoint analysis. With this configuration, users connect to the store through the NetScaler Gateway appliance, but there is no need to route the connection to the resource through the appliance as the user is on the internal network. In this case, you enable optimal routing, but do not specify an appliance for the deployment, so user connections to desktops and applications are routed directly and not through NetScaler Gateway. Note that you must also configure a specific internal virtual server IP address for the NetScaler Gateway appliance. Additionally, specify an inaccessible internal beacon point so that Citrix Receiver is always prompted to connect to NetScaler Gateway, regardless of the user’s network location.

**NetScaler Gateway global server load balancing**

StoreFront supports NetScaler Gateway deployments configured for global server load balancing with multiple appliances configured with a single fully qualified domain name (FQDN). For user authentication and to route user connections through the appropriate appliance, StoreFront must be able to distinguish between the appliances. Because the appliance FQDN cannot be used as a unique identifier in a global server load balancing configuration, you must configure StoreFront with unique IP addresses for each of the appliances. Typically, this is the IP address of the NetScaler Gateway virtual server.

For information about load balancing, see [Load balancing with NetScaler](LoadbalancingwithNetScaler).

**Important considerations**

When you decide whether to set up highly available multi-site configurations for your stores, consider the following requirements and restrictions.

- Desktops and applications must have the same name and path on each server to be aggregated. In addition, the properties of aggregated resources, such as names and icons, must be the same. If this is not the case, users could see the properties of their resources change when Citrix Receiver enumerates the available resources.
- Assigned desktops, both pre-assigned and assigned-on-first-use, should not be aggregated. Ensure that Delivery Groups providing such desktops do not have the same name and path in sites that you configure for aggregation.
- App Controller applications cannot be aggregated.
- If you configure synchronization of users' application subscriptions between stores on separate StoreFront deployments, the stores must have the same name in each server group. In addi-
tion, both server groups must reside within the Active Directory domain containing your users’
accounts or within a domain that has a trust relationship with the user accounts domain.
• StoreFront only provides access to backup deployments for disaster recovery when all the pri-
mary sites in the equivalent deployment set are unavailable. If a backup deployment is shared
between multiple equivalent deployment sets, all the primary sites in each of the sets must be
unavailable before users can access the disaster recovery resources.

Install, set up, upgrade, and uninstall

November 20, 2018

Note:
Learn about product name changes in What’s new.

Before installing and configuring

To install and configure StoreFront, complete the following steps in order:

1. If you plan to use StoreFront to deliver XenDesktop and XenApp resources to users, ensure that
the StoreFront server is joined to either the Microsoft Active Directory domain containing your
users’ accounts or a domain that has a trust relationship with the user accounts domain.

   Important:
   • For single server deployments you can install StoreFront on a non-domain-joined
     server.
   • StoreFront cannot be installed on a domain controller.

2. If not already present, StoreFront requires Microsoft .NET Framework, which can be down-
loaded from Microsoft. You must have Microsoft .NET installed before you can install StoreFront.

3. Optionally, if you plan to configure a multiple server StoreFront deployment, set up a load bal-
ancing environment for your StoreFront servers.

   To use NetScaler for load balancing, you define a virtual server to proxy your StoreFront servers.
   For more information on configuring NetScaler for load balancing, see Load balancing with
   NetScaler.

   a) Ensure that load balancing is enabled on your NetScaler appliance.

   b) For each StoreFront server, create individual HTTP or TLS load balancing services, as ap-
      propriate, using the StoreFront monitor type.
c) Configure the services to insert the client IP address into the X-Forwarded-For HTTP header of requests forwarded to StoreFront, overriding any global policies.

StoreFront requires users’ IP addresses to establish connections to their resources.

d) Create a virtual server and bind the services to the virtual server.

e) On the virtual server, configure persistence using the cookie insert method if you have the latest Citrix Receivers installed on all platforms and you have no need to support Android; otherwise, configure persistence on the basis of source IP address. Ensure the Time To Live (TTL) is sufficient to enable users to stay logged on to the server as long as required.

Persistence ensures that only the initial user connection is load balanced, after which subsequent requests from that user are directed to the same StoreFront server.

4. Optionally, enable the following features.

- .NET Framework Features > .NET Framework, ASP.NET

Optional, enable the following roles and their dependencies on the StoreFront server.

- Web Server (IIS) > Web Server > Common HTTP Features > Default Document, HTTP Errors, Static Content, HTTP Redirection
- Web Server (IIS) > Web Server > Health and Diagnostics > HTTP Logging

The StoreFront installer checks that all the features and server roles above are enabled.

5. Install StoreFront.

If you intend the server to be part of a server group, both the StoreFront installation location and IIS website settings, physical path and site IDs must be consistent across them.

6. Optionally, configure Microsoft Internet Information Services (IIS) for HTTPS if you plan to use HTTPS to secure communications between StoreFront and users’ devices.

HTTPS is required for smart card authentication. By default, Citrix Receiver requires HTTPS connections to stores. You can change from HTTP to HTTPS at any time after installing StoreFront, provided the appropriate IIS configuration is in place.

To configure IIS for HTTPS, use the Internet Information Services (IIS) Manager console on the StoreFront server to create a server certificate signed by your domain certification authority. Then, add HTTPS binding to the default website. For more information about creating a server certificate in IIS, see https://docs.microsoft.com/en-us/previous-versions/windows/it-pro/windows-server-2012-R2-and-2012/hh831637(v=ws.11)#create-certificate-wizard. For more information about adding HTTPS binding to an IIS site, see https://docs.microsoft.com/en-us/previous-versions/orphan-topics/ws.11/hh831632(v=ws.11).
7. Ensure your firewalls and other network devices permit access to TCP port 80 or 443, as appropriate, from both inside and outside the corporate network. In addition, ensure that any firewalls or other devices on your internal network do not block traffic to any of the unassigned TCP ports.

When you install StoreFront, a Windows Firewall rule is configured enabling access to the StoreFront executable through a TCP port randomly selected from all unreserved ports. This port is used for communications between the StoreFront servers in a server group.

8. If you plan to use multiple Internet Information Services (IIS) websites, after creating the websites in IIS, use the PowerShell SDK to create a StoreFront deployment in each of those IIS websites. For more information, see Multiple Internet Information Services (IIS) websites.

   Note: StoreFront disables the management console when it detects multiple sites and displays a message to that effect.

9. Use the Citrix StoreFront management console to configure your server.

Install StoreFront

Important

To avoid potential errors and data loss when installing StoreFront, ensure all applications are closed and no other tasks or operations are running on the target system.

1. Download the installer from the download page.

2. Log on to the StoreFront server using an account with local administrator permissions.

3. Ensure that the required Microsoft .NET Framework is installed on the server.

4. Browse the download package, locate CitrixStoreFront-x64.exe, and run the file as an administrator.

5. Read and accept the license agreement, and click Next.

6. If the Review prerequisites page appears, click Next.

7. On the Ready to install page, check the prerequisites and StoreFront components that are listed for installation and click Install.

   Before the components are installed, the following roles are enabled if they are not already configured on the server.

   • Web Server (IIS) > Web Server > Common HTTP Features > Default Document, HTTP Errors, Static Content, HTTP Redirection
   • Web Server (IIS) > Web Server > Health and Diagnostics > HTTP Logging
   • Web Server (IIS) > Web Server > Security > Request Filtering, Windows Authentication
The following features are also enabled if they are not already configured.

- .NET Framework Features > .NET Framework, ASP.NET

8. When the installation is complete, click Finish. The Citrix StoreFront management console starts automatically. You can also open StoreFront from the Start screen.

9. In the Citrix Storefront management console, click Create a new deployment.
   a) Specify the URL of the StoreFront server in the Base URL box.
   b) On the Store Name page, specify a name for your store, and click Next.

On the Delivery Controllers page, list the infrastructure – the details of the XenApp or XenDesktop services - that is providing the resources you want to make available in the store. You can enter a “dummy” server here; however, no apps will display in the store.

1. Set the Transport type and the Port. You can specify HTTP and port 443 and click OK. Alternatively, copy settings from an existing Web Interface or StoreFront deployment.

2. On the Remote Access page, select None. If you are using NetScaler Gateway, select No VPN Tunnel and enter your gateway details.

3. On the Remote Access page, select Create. Once the store has been created, click Finish.
Your store is now available for users to access through the Citrix Receiver for Web site, which enables users to access their desktops and apps through a webpage.

The URL for users to access the Citrix Receiver for Web site for the new store is displayed. For example: example.net/Citrix/MarketingWeb/. Log on and you will access the new user interface in Citrix Receiver.

**CEIP**

If you participate in the Citrix Customer Experience Improvement Program (CEIP), anonymous statistics and usage information are sent to Citrix to improve the quality and performance of Citrix products.

By default, you are automatically enrolled in CEIP when you install StoreFront. The first upload of data occurs approximately seven days after you install StoreFront. You can change this default in a registry setting. If you change the registry setting before installing StoreFront, that value will be used. If you change the registry setting before upgrading StoreFront, that value will be used.

**Warning:**

Editing the registry incorrectly can cause serious problems that may require you to reinstall your operating system. Citrix cannot guarantee that problems resulting from the incorrect use of Registry Editor can be solved. Use Registry Editor at your own risk. Be sure to back up the registry before you edit it.

Registry setting that controls automatic upload of analytics (default = 1):


By default, the **Enabled** property is hidden in the registry. When it remains unspecified, the automatic upload feature is enabled.

Using PowerShell, the following cmdlet disables enrollment in CEIP:

```powershell
New-ItemProperty -Path HKLM:\SOFTWARE\Citrix\Telemetry\CEIP -Name Enabled -PropertyType DWORD -Value 0
```

**Note:**
The registry setting controls the automatic upload of anonymous statistics and usage information for all components on the same server. For example, if you have installed StoreFront on the same server as the Delivery Controller and decide to opt out of CEIP using the registry setting, the opt out applies to both components.

**CEIP data collected from StoreFront**

The following table gives examples of the type of anonymous information collected. The data does not contain any details that identify you as a customer.

<table>
<thead>
<tr>
<th>Data</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>StoreFront version</td>
<td>String denoting the installed version of Storefront. For example, “3.8.0.0”</td>
</tr>
<tr>
<td>Stores count</td>
<td>A counter for the number of Stores in the deployment.</td>
</tr>
<tr>
<td>Server Count in server group</td>
<td>A counter for the number of Servers in the Server group.</td>
</tr>
<tr>
<td>Delivery Controller Count per store</td>
<td>List of numeric values indicating the number of Delivery Controllers available for each Store in the Deployment.</td>
</tr>
<tr>
<td>HTTPS enabled</td>
<td>String denoting whether https is enabled for the deployment. “True” or “False”.</td>
</tr>
<tr>
<td>Classic experience enabled for Citrix Receiver</td>
<td>List of Booleans denoting whether “Classic Experience” is enabled for each Web Receiver. TRUE or FALSE for each Web Receiver.</td>
</tr>
</tbody>
</table>
To install StoreFront at a command prompt

1. Log on to the StoreFront server using an account with local administrator permissions.
2. Ensure that all of the requirements for installation of StoreFront are met before installing StoreFront. Refer to Before installing and configuring for details.
3. Browse your installation media or download package, locate CitrixStoreFront-x64.exe, and copy the file to a temporary location on the server.
4. At a command prompt, navigate to the folder containing the installation file and type the following command.

```
CitrixStoreFront-x64.exe [-silent] [-INSTALLDIR installationlocation] [-WINDOWS_CLIENT filelocation\filename.exe] [-MAC_CLIENT filelocation\filename.dmg]
```

Use the -silent argument to perform a silent installation of StoreFront and all the prerequisites. By default, StoreFront is installed at C:\Program Files\Citrix\Receiver StoreFront. However, you can specify a different installation location using the -INSTALLDIR argument, where installationlocation is the directory in which to install StoreFront. Note that if you intend the server to be part of a server group, both the StoreFront installation location and IIS website settings, physical path and site IDs must be consistent across them.

By default, if a Citrix Receiver for Web site cannot detect Citrix Receiver on a Windows or Mac OS X device, the user is prompted to download and install the appropriate Citrix Receiver for
their platform from the Citrix website. You can modify this behavior so that users download the Citrix Receiver installation files from the StoreFront server instead. For more information, see Configure how resources are displayed for users.

If you plan to make this configuration change, specify the `-WINDOWS_CLIENT` and `-MAC_CLIENT` arguments to copy Citrix Receiver for Windows and Citrix Receiver for Mac installation files, respectively, to the appropriate location in your StoreFront deployment. Replace `filelocation` with the directory containing the installation file that you want to copy and `filename` with the name of the Citrix Receiver installation file. Citrix Receiver for Windows and Citrix Receiver for Mac installation files are included on your StoreFront installation media or download package.

Upgrade StoreFront

Note:

If you have customized the unified experience, your customizations are preserved when you upgrade to this version of StoreFront. Check that the appearance of your customizations is still suitable with the new unified experience. We recommend that you make users aware of the changes to the unified experience which the upgrade introduces, described in Citrix Receiver unified user experience.

To upgrade existing 3.x deployments to this version of StoreFront, run the installation file for this version of StoreFront.

Upgrading to the latest current release from an older current release that is now End of Life is not supported. For more information see CTX200356.

Once the upgrade process is started, it cannot be rolled back. If the upgrade is interrupted or cannot be completed, the existing configuration is removed but StoreFront is not installed. Before starting to upgrade, you must disconnect users from the StoreFront deployment and prevent users from accessing the servers while the upgrade is in progress. This ensures that all StoreFront files are accessible by the installer during the upgrade. If any files cannot be accessed by the installer, they cannot be replaced and so the upgrade will fail, resulting in the removal of the existing StoreFront configuration. StoreFront does not support multiple server deployments containing different product versions, so all servers in a group must be updated to the upgraded version before granting access to the deployment. Concurrent upgrade is not supported for multiple server deployments, servers must be upgraded sequentially. Citrix recommends that you back up your data before upgrading.

Uninstalling StoreFront removes the authentication service, stores, users’ application subscriptions, Citrix Receiver for Web sites, Desktop Appliance sites, and XenApp Services URLs. This means that if you decide to uninstall StoreFront, you must manually recreate your services, stores, and sites when you reinstall StoreFront. Upgrading also enables you to preserve your StoreFront configuration and
leaves users’ application subscription data intact so that users do not need to resubscribe to all of their applications.

Upgrading the operating system version on a server running StoreFront is not supported. Citrix recommends that you install StoreFront on a new installation of the operating system.

Important:
Before you start the upgrade:
- Close all other applications on the StoreFront server.
- Close all command line and PowerShell windows.

To upgrade existing StoreFront 3.x to this version of StoreFront

1. Disable access to the deployment through the load balancing environment. Disabling the load balancing URL prevents users from connecting to the deployment during the upgrade process.
2. Back up all the servers in the server group.
3. Remove one of the servers from the existing server group.
4. Restart the server you removed.
   Note that you can use a parallel load balancer to check the new server group as you build it. The variant that maximizes availability and further minimizes risk involves removing and upgrading only one server from the original server group. You can then build the new group out of new machines rather than machines taken out of the original server group.
5. Upgrade the server you removed using an admin account with no other installations running and a minimum of other applications.
6. Check that the server you removed has upgraded successfully.
7. Remove another one of the servers in the existing server group from the load balancer.
8. Restart the server you removed for the same reasons noted in Step 1.
9. Uninstall the currently installed version of StoreFront and install the new version of StoreFront.
10. Join the newly installed server into a new server group consisting of all the upgraded servers and the freshly installed servers, and check they are functioning correctly.
11. Repeat Steps 3–10 until the new server group has sufficient capacity to take over from the old server group, point the load balancer at the new server group, and check that it is functioning correctly.
12. Repeat Steps 3–10 for the remaining servers, adding each one to the load balancer after each successful upgrade.

Note:
- If you want to maximize availability, you can maintain access to the original server group during the upgrade process until the new server group becomes available. To do this;
1. Skip Step 1.
2. Modify Step 11 to include disabling access to the original server group using the load balancer. Export subscription data from the original server group and import it into the new server group. Enable access to the new server group using the load balancer.

This ensures that any subscription changes made by users after Step 3 and before Step 11 are available in the new server group.

- You can further maximize availability by removing only one server from the original server group and upgrading it, and then building the new server group using new servers rather than servers removed from the original server group. When the new server group is in production, you can retire the old servers.
- Save backups of the web.config file in a different location from the default IIS directory of the store. Do not save backups in, for example, `C:\inetpub\wwwroot\citrix\<storename>`. Saving backups in the same location as the default IIS directory of the store can interfere with the upgrade of StoreFront.

**Configure StoreFront**

When the Citrix StoreFront management console first starts, two options are available.

- **Create a new deployment.** Configure the first server in a new StoreFront deployment. Single-server deployments are ideal for evaluating StoreFront or for small production deployments. Once you have configured your first StoreFront server, you can add more servers to the group at any time to increase the capacity of your deployment.
- **Join existing server group.** Add another server to an existing StoreFront deployment. Select this option to rapidly increase the capacity of your StoreFront deployment. External load balancing is required for multiple server deployments. To add a new server, you will need access to an existing server in the deployment.

**Uninstall StoreFront**

In addition to the product itself, uninstalling StoreFront removes the authentication service, stores, Citrix Receiver for Web sites, Desktop Appliance sites, and XenApp Services URLs, and their associated configurations. The subscription store service containing users’ application subscription data is also deleted. In single-server deployments, this means that details of users’ application subscriptions are lost. However, in multiple server deployments these data are retained on other servers in the group. Prerequisites enabled by the StoreFront installer, such as the .NET Framework features and the Web Server (IIS) role services, are not removed from the server when StoreFront is uninstalled.

1. Log on to the StoreFront server using an account with local administrator permissions.
2. On the Windows Start screen or Apps screen, locate the Citrix StoreFront tile. Right-click the tile and click Uninstall.

3. In the Programs and Features dialog box, select Citrix StoreFront and click Uninstall to remove all StoreFront components from the server.

4. In the Uninstall Citrix StoreFront dialog box, click Yes. When the uninstallation is complete, click OK.

Create a new deployment

November 5, 2018

1. If the Citrix StoreFront management console is not already open after installation of StoreFront, on the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.

2. In the results pane of the Citrix StoreFront management console, click Create a new deployment.

3. Specify the URL of the StoreFront server or the load balancing environment for a multiple server deployment in the Base URL box.

   If you have not yet set up your load balancing environment, enter the server URL. You can modify the base URL for your deployment at any time.

   You can change from HTTP to HTTPS at any time using the Change Base URL task in the StoreFront management console, provided that Microsoft Internet Information Services (IIS) is configured for HTTPS.

4. Click Next to set up the authentication service, which authenticates users to Microsoft Active Directory.

   To use HTTPS to secure communications between StoreFront and users’ devices, you must configure Microsoft Internet Information Services (IIS) for HTTPS. In the absence of the appropriate IIS configuration, StoreFront uses HTTP for communications.

   By default, Citrix Receiver requires HTTPS connections to stores. If StoreFront is not configured for HTTPS, users must carry out additional configuration steps to use HTTP connections. HTTPS is required for smart card authentication. You can change from HTTP to HTTPS at any time after configuring StoreFront, provided the appropriate IIS configuration is in place. For more information, see Configure server groups.

   You can change from HTTP to HTTPS at any time using the Change Base URL task in the StoreFront management console, provided that Microsoft Internet Information Services (IIS) is configured for HTTPS.
5. On the Store Name page, specify a name for your store, whether you want to allow only unauthenticated (anonymous) users access to the store, and click Next.

StoreFront stores aggregate desktops and applications, making them available to users. Store names appear in Citrix Receiver under users’ accounts, so choose a name that gives users information about the content of the store.

6. On the Controllers page, list the infrastructure providing the resources that you want to make available in the store. To add desktops and applications to the store, follow the appropriate described in Add XenDesktop and XenApp resources to the store. You can configure stores to provide resources from any mixture of XenDesktop and XenApp deployments. Repeat the procedures, as necessary, to add all the deployments providing resources for the store.

7. When you have added all the required resources to the store, on the Controllers page, click Next.

8. On the Remote Access page, specify whether and how users connecting from public networks can access the internal resources.

   • To make the store available to users on public networks, check the Enable remote access box. If you leave this box unchecked, only local users on the internal network are able to access the store.
   • To make only resources delivered through the store available through NetScaler Gateway, select Allow users to access only resources delivered through StoreFront (No VPN tunnel).
   • To make the store and all other resources on the internal network available through a Secure Sockets Layer (SSL) virtual private network (VPN) tunnel, select Allows users to access all resources on internal network (Full VPN tunnel). Users might require the NetScaler Gateway Plug-in to establish the VPN tunnel.

If you configure remote access to the store through NetScaler Gateway, the pass-through from NetScaler Gateway authentication method is automatically enabled. Users authenticate to NetScaler Gateway and are automatically logged on when they access their stores.

9. If you enabled remote access, list the NetScaler Gateway deployments through which users can access the store. To add a NetScaler Gateway deployment, follow the appropriate procedure described in Provide remote access to the store through a NetScaler Gateway appliance. Repeat the procedures, as necessary, to add further deployments.

10. When you have added all your NetScaler Gateway deployments, select from the NetScaler Gateway appliances list the deployments through which users can access the store. If you enable access through multiple deployments, specify the default deployment to be used to access the store. Click Next.

11. On the Authentication Methods page, select the methods your users will use to authenticate to the store and click Next. You can select from the following methods:
• **Username and password**: Users enter their credentials and are authenticated when they access their stores.
• **SAML Authentication**: Users authenticate to an Identity Provider and are automatically logged on when they access their stores.
• **Domain passthrough**: Users authenticate to their domain-joined Windows computers and their credentials are used to log them on automatically when they access their stores.
• **Smart card**: Users authenticate using smart cards and PINs when they access their stores.
• **HTTP basic**: Users authenticate with the StoreFront server’s IIS web server.
• **Passthrough through NetScaler Gateway**: Users authenticate to NetScaler Gateway and are automatically logged on when they access their stores. This is automatically checked when the remote access is enabled.

12. On the **XenApp Services URL** page, configure the XenApp Service URL for users who use PNAgent to access the applications and desktops.

13. After creating the store, further options become available in the Citrix StoreFront management console. For more information, see the various management articles.

Your store is now available for users to access with Citrix Receiver, which must be configured with access details for the store. There are a number of ways in which you can provide these details to users to make the configuration process easier for them. For more information, see **User access options**.

Alternatively, users can access the store through the Citrix Receiver for Web site, which enables users to access their desktops and applications through a webpage. The URL for users to access the Citrix Receiver for Web site for the new store is displayed when you create the store.

When you create a new store, the XenApp Services URL is enabled by default. Users of domain-joined desktop appliances and repurposed PCs running the Citrix Desktop Lock, along with users who have older Citrix clients that cannot be upgraded, can access stores directly using the XenApp Services URL for the store. The XenApp Services URL has the form http[s]://serveraddress/Citrix/storename/PNAgent/config.xml, where serveraddress is the fully qualified domain name of the server or load balancing environment for your StoreFront deployment and storename is the name you specified for the store in Step 5.

You can quickly add more servers to your deployment by selecting the option to join an existing server group when installing further instances of StoreFront.

### Add XenDesktop and XenApp resources to the store

Complete the following steps to make desktops and applications provided by XenApp and XenDesktop available in the store that you create as part of the initial configuration of your StoreFront server. It is assumed that you have completed Steps 1 to 6 in the “Create a new deployment” procedure at the top of this article.

1. On the Controllers page of the StoreFront console Create Store UI, click Add.
2. In the Add Controllers dialog box, specify a name that will help you to identify the deployment and indicate whether the resources that you want to make available in the store are provided by XenDesktop, XenApp, or XenMobile.

3. Add the names or IP addresses of your servers to the Servers list. Specify multiple servers to enable fault tolerance, listing the entries in order of priority to set the failover sequence. For XenDesktop sites, give details of Controllers. In the case of XenApp farms, list servers running the Citrix XML Service.

4. Select from the Transport type list the type of connections for StoreFront to use for communications with the servers.
   - To send data over unencrypted connections, select HTTP. If you select this option, you must make your own arrangements to secure connections between StoreFront and your servers.
   - To send data over secure HTTP connections using Transport Layer Security (TLS), select HTTPS. If you select this option for XenDesktop and XenApp servers, ensure that the Citrix XML Service is set to share its port with Microsoft Internet Information Services (IIS) and that IIS is configured to support HTTPS.
   - To send data over secure connections to XenApp servers using the SSL Relay to perform host authentication and data encryption, select SSL Relay.
     Note: If you are using HTTPS or the SSL Relay to secure connections between StoreFront and your servers, ensure that the names you specify in the Servers list match exactly (including the case) the names on the certificates for those servers.

5. Specify the port for StoreFront to use for connections to the servers. The default port is 80 for connections using HTTP and the SSL Relay, and 443 for HTTPS connections. In the case of XenDesktop and XenApp servers, the specified port must be the port used by the Citrix XML Service.

6. If you are using the SSL Relay to secure connections between StoreFront and XenApp servers, specify the TCP port of the SSL Relay in the SSL Relay port box. The default port is 443. Ensure that all the servers running the SSL Relay are configured to monitor the same port.

You can configure stores to provide resources from any mixture of XenDesktop, XenApp, and XenMobile deployments. To add further XenDesktop sites or XenApp farms, repeat the procedure above. When you have added all the required resources to the store, return to Step 7 in the “Create a new deployment” procedure at the top of this article.

**Provide remote access to the store through a NetScaler Gateway appliance**

Complete the following steps to configure remote access through a NetScaler Gateway appliance to the store that you create as part of the initial configuration of your StoreFront server. It is assumed that you have completed Steps 1 to 9 in the “Create a new deployment” procedure at the top of this article.

2. In the Add NetScaler Gateway Appliance dialog box, specify a name for the appliance that will help users to identify it.

   Users see the display name you specify in Citrix Receiver, so include relevant information in the name to help users decide whether to use that appliance. For example, you can include the geographical location in the display names for your NetScaler Gateway deployments so that users can easily identify the most convenient deployment for their location.

3. Enter the URL of the virtual server or user logon point (for Access Gateway 5.0) for your appliance. Specify the product version used in your deployment.

   For information about creating a single Fully Qualified Domain Name (FQDN) to access a store internally and externally, see Create a single Fully Qualified Domain Name (FQDN) to access a store internally and externally.

4. If you are adding an Access Gateway 5.0 appliance, select from the Deployment mode list Appliance. Otherwise, specify the subnet IP address of the NetScaler Gateway appliance, if necessary.

   The subnet address is the IP address that NetScaler Gateway uses to represent the user device when communicating with servers on the internal network. This can also be the mapped IP address of the NetScaler Gateway appliance. Where specified, StoreFront uses the subnet IP address to verify that incoming requests originate from a trusted device.

5. If you are adding an appliance running NetScaler Gateway, select from the Logon type list the authentication method you configured on the appliance for Citrix Receiver users.

   The information you provide about the configuration of your NetScaler Gateway appliance is added to the provisioning file for the store. This enables Citrix Receiver to send the appropriate connection request when contacting the appliance for the first time.

   - If users are required to enter their Microsoft Active Directory domain credentials, select Domain.
   - If users are required to enter a tokencode obtained from a security token, select Security token.
   - If users are required to enter both their domain credentials and a tokencode obtained from a security token, select Domain and security token.
   - If users are required to enter a one-time password sent by text message, select SMS authentication.
   - If users are required to present a smart card and enter a PIN, select Smart card.

   If you configure smart card authentication with a secondary authentication method to which users can fall back if they experience any issues with their smart cards, select the secondary authentication method from the Smart card fallback list.
6. Complete the NetScaler Gateway authentication service URL in the Callback URL box. StoreFront automatically appends the standard portion of the URL. Click Next.

Enter the internally accessible URL of the appliance. StoreFront contacts the NetScaler Gateway authentication service to verify that requests received from NetScaler Gateway originate from that appliance.

7. If you are making resources provided by XenDesktop or XenApp available in the store, list on the Secure Ticket Authority (STA) page URLs for servers running the STA. Add URLs for multiple STAs to enable fault tolerance, listing the servers in order of priority to set the failover sequence.

The STA is hosted on XenDesktop and XenApp servers and issues session tickets in response to connection requests. These session tickets form the basis of authentication and authorization for access to XenDesktop and XenApp resources.

8. If you want XenDesktop and XenApp to keep disconnected sessions open while Citrix Receiver attempts to reconnect automatically, select the Enable session reliability check box. If you configured multiple STAs and want to ensure that session reliability is always available, select the Request tickets from two STAs, where available checkbox.

When the Request tickets from two STAs, where available check box is selected, StoreFront obtains session tickets from two different STAs so that user sessions are not interrupted if one STA becomes unavailable during the course of the session. If, for any reason, StoreFront is unable to contact two STAs, it falls back to using a single STA.

9. Click Create to add your NetScaler Gateway deployment to the list on the Remote Access page.

To add further deployments, repeat the procedure above. To configure remote access to the store through an Access Gateway 5.0 cluster, follow the steps in Provide remote access to the store through an Access Gateway 5.0 cluster. When you have added all your NetScaler Gateway deployments, return to Step 10 in the “Create a new deployment” procedure at the top of this article.

**Provide remote access to the store through an Access Gateway 5.0 cluster**

Complete the following steps to configure remote access through an Access Gateway 5.0 cluster to the store that you create as part of the initial configuration of your StoreFront server. It is assumed that you have completed Steps 1 to 9 in the “Create a new deployment” procedure at the top of this article.


2. In the Add NetScaler Gateway Appliance dialog box, specify a name for the cluster that will help users to identify it.

   Users see the display name you specify in Citrix Receiver, so include relevant information in the name to help users decide whether to use that cluster. For example, you can include the
geographical location in the display names for your NetScaler Gateway deployments so that users can easily identify the most convenient deployment for their location.

3. Enter the URL of the user logon point for your cluster and select from the Version list 5.x.

4. From the Deployment model list, select Access Controller and click Next.

5. On the Appliances page, list the IP addresses or fully qualified domain names (FQDNs) of the appliances in the cluster and click Next.

6. On the Enable Silent Authentication page, list URLs for the authentication service running on the Access Controller servers. Add URLs for multiple servers to enable fault tolerance, listing the servers in order of priority to set the failover sequence. Click Next.

StoreFront uses the authentication service to authenticate remote users so that they do not need to re-enter their credentials when accessing stores.

7. If you are making resources provided by XenDesktop and XenApp available in the store, list on the Secure Ticket Authority (STA) page URLs for servers running the STA. Add URLs for multiple STAs to enable fault tolerance, listing the servers in order of priority to set the failover sequence.

The STA is hosted on XenDesktop and XenApp servers and issues session tickets in response to connection requests. These session tickets form the basis of authentication and authorization for access to XenDesktop and XenApp resources.

8. If you want XenDesktop and XenApp to keep disconnected sessions open while Citrix Receiver attempts to reconnect automatically, select the Enable session reliability check box. If you configured multiple STAs and want to ensure that session reliability is always available, select the Request tickets from two STAs, where available check box.

When the Request tickets from two STAs, where available check box is selected, StoreFront obtains session tickets from two different STAs so that user sessions are not interrupted if one STA becomes unavailable during the course of the session. If, for any reason, StoreFront is unable to contact two STAs, it falls back to using a single STA.

9. Click Create to add your NetScaler Gateway deployment to the list on the Remote Access page.

To add further clusters, repeat the procedure above. To configure remote access to the store through NetScaler Gateway or a single Access Gateway 5.0 appliance, follow the steps in Provide remote access to the store through a NetScaler Gateway appliance. When you have added all your NetScaler Gateway deployments, return to Step 10 in the “Create a new deployment” procedure at the top of this article.

Join an existing server group

July 30, 2018
Before installing StoreFront, ensure that the server you are adding to the group is running the same operating system version with the same locale settings as the other servers in the group. StoreFront server groups containing mixtures of operating system versions and locales are not supported. While a server group can contain a maximum of five servers, from a capacity perspective based on simulations, there is no advantage of server groups containing more than three servers. In addition, ensure that the relative path to StoreFront in IIS on the server you are adding is the same as on the other servers in the group.

**Important:**
When you add a new server to a server group, StoreFront service accounts are added as members of the local administrators group on the new server. These services require local administrator permissions to join and synchronize with the server group. If you use Group Policy to prevent addition of new members to the local administrator group or if you restrict the permissions of the local administrator group on your servers, StoreFront cannot join a server group.

1. If the Citrix StoreFront management console is not already open after installation of StoreFront, on the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. In the results pane of the Citrix StoreFront management console, click **Join existing server group**.
3. Log on to a server in the StoreFront deployment that you wish to join and open the Citrix StoreFront management console. Select the Server Group node in the left pane of the console and, in the Actions pane, click **Add Server**. Make a note of the authorization code that is displayed.
4. Return to the new server and, in the Join Server Group dialog box, specify the name of the existing server in the Authorizing server box. Enter the authorization code obtained from that server and click **Join**.

Once joined to the group, the configuration of the new server is updated to match the configuration of the existing server. All the other servers in the group are updated with details of the new server.

To manage a multiple server deployment, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Any configuration changes you make must be propagated to the other servers in the group to ensure a consistent configuration across the deployment.

**Remove a server from an existing server group**

If a StoreFront server was a member of a server group and has been removed, you must run the **Clear-DSConfiguration** PowerShell cmdlet to reset the StoreFront server to a factory default state. After you run the **Clear-DSConfiguration** cmdlet on the disconnected server, you can add the server back to an existing server group or to a different newly created server group.
Open the StoreFront administration console on the primary StoreFront server that you use to manage your entire server group.

Select the server group node on the left pane and choose another server to remove.

Remove the selected server from the server group.

In the Actions pane, propagate changes from the server you used to disconnect one of your server group members. Any other remaining server group members are now aware that a server has been removed from the group. Until you reset the disconnected server to a factory default state, it is not aware that it is no longer a member of the group.

Close the administration console on the disconnected server.

Open a PowerShell session on your disconnected server after it has been removed from the group and import the StoreFront PowerShell modules using:

```powershell
& "$Env:PROGRAMFILES\Citrix\Receiver\StoreFront\Scripts\ImportModules.ps1"
```

Run the `Clear-DSConfiguration` command, which resets the server to default settings.

Open the StoreFront administration console and the disconnected server is reset and ready to be added to another server group.

---

**Migrate Web Interface features to StoreFront**

November 8, 2018

**Note:**

Learn about product name changes in What's new.

Many of the Web Interface customizations have equivalents in StoreFront by using JavaScript tweaks, Citrix published APIs, or the StoreFront management console.

The table contains an overview of the customizations and basic information about how to achieve them.

**Folder locations**

- For script customizations, append the examples to the script.js file found in
  
  `C:\inetpub\wwwroot\Citrix\StoreNameWeb\custom`

- For style customization, append the example to the style.css file found in
  
  `C:\inetpub\wwwroot\Citrix\StoreNameWeb\custom`

- For dynamic content, add the dynamic context to a text file in
  
  `C:\inetpub\wwwroot\Citrix\StoreNameWeb\customweb`
• If you have a multiserver deployment, you can replicate any changes to other servers from the StoreFront administration console or by using PowerShell.

**Note:**
Web Interface enabled individual users to customize various settings. Currently, StoreFront does not have this ability, and while it is possible to add more extensive customization to support it, that is not the focus of this article.

<table>
<thead>
<tr>
<th>Web Interface Feature</th>
<th>StoreFront Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customization with the Management Console</strong></td>
<td></td>
</tr>
<tr>
<td>Layout-low graphics, Layout-full graphics, Allow users to choose</td>
<td>Not applicable. StoreFront auto detects and adjusts the UI to device screen.</td>
</tr>
<tr>
<td>Enable search, Disable search</td>
<td>Search is enabled by default. <strong>To disable the search boxes on the desktop/web UI,</strong> add the following style to style.css: <em>search-container { display: none; }</em>. <strong>To disable the search boxes on the phone UI,</strong> add the following style to style.css: <em><strong>searchBtnPhone { display: none; }</strong></em></td>
</tr>
<tr>
<td>Enable refresh</td>
<td>Enabled by default (browser refresh).</td>
</tr>
<tr>
<td>Web Interface Feature</td>
<td>StoreFront Equivalent</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Enable return to last folder</td>
<td>Not enabled by default. To remember the current folder, and return to it on load, add the following to script.js: `CTXS.Extensions.afterDisplayHomeScreen = function () { // check if view was saved last time CTXS.ExtensionAPI.localStorageGetItem(&quot;view&quot;, function (view) { // if view was saved, change to it CTXS.ExtensionAPI.changeView(view); } if (view == &quot;store&quot;) { // if view is store, see if folder was saved CTXS.ExtensionAPI.localStorageGetItem(&quot;folder&quot;, function(folder) { if (folder != &quot;) { // if folder was saved, change to it CTXS.ExtensionAPI.navigateToFolder(folder); } } ); } } ); } // set up monitoring of folder CTXS.Extensions.onFolderChange = function(folder){ CTXS.ExtensionAPI.localStorageSetItem(&quot;folder&quot;, folder); } ); // set up monitoring of view CTXS.Extensions.onViewChange = function(newview){ // don't retain search or appinfo views // instead, remember parent view. if (!newview == &quot;appinfo&quot;)&amp;&amp; (newview != &quot;search&quot;) { CTXS.ExtensionAPI.localStorageSetItem( &quot;view&quot;, newview); } } ); } ); }</td>
</tr>
</tbody>
</table>

Enable hints  
Citrix Receiver makes very limited use of tooltips, as it is targeting touch and non-touch devices. You can add tooltips by custom script.
<table>
<thead>
<tr>
<th>Web Interface Feature</th>
<th>StoreFront Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Icon view, Tree view, Details view, List view, Group view, Set Default view, (Low graphics) Icon view, (Low graphics) List view, (Low graphics) Default view</td>
<td>Citrix Receiver has a different UI so these choices do not apply. You can use the StoreFront management console to configure views. For more information see, Specify different views for applications and desktops.</td>
</tr>
<tr>
<td>Single tab UI, Tabbed UI (App tab, Desktop tab, Content tab, (Tab order))</td>
<td>The Citrix Receiver UI is tabbed by default, with apps and content in one tab and desktops in the other. There is also an optional Favorite tab.</td>
</tr>
<tr>
<td>Header logo, Text color, Header background color, Header background image</td>
<td>Equivalents for colors and logos using the StoreFront administration console. Click Customize Website Appearance in the StoreFront administration console Actions pane and make your customizations on the screen that displays. You can set the header to a background image using a style customization. For example .theme-header-bgcolor { background-image: url('spirals.png'); }</td>
</tr>
<tr>
<td>Web Interface Feature</td>
<td>StoreFront Equivalent</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Pre-logon welcome message (Pre-locale)</td>
<td>By default, there is no separate pre-logon screen. This example script adds a click-through message box:</td>
</tr>
<tr>
<td>(Title, Text, Hyperlink, Button label)</td>
<td>var doneClickThrough = false; // Before web login CTXS.Extensions. beforeLogon = function (callback){ doneClickThrough = true; CTXS.ExtensionAPI.showMessage({ messageTitle: &quot;Welcome!&quot;, messageText: &quot;Only for &lt;a href=&quot;<a href="http://www.WWc.com">http://www.WWc.com</a>&quot; target=&quot;_blank&quot; &gt;WWCo Employees&quot;, okButtonText: &quot;Accept&quot;, okAction: callback }); } // Before main screen (for native clients)CTXS.Extensions. beforeDisplayHomeScreen = function (callback){ if (!doneClickThrough){ CTXS.ExtensionAPI.showMessage({ messageTitle: &quot;Welcome!&quot;, messageText: &quot;Only for WWCo Employees&quot;, okButtonText: &quot;Accept&quot;, okAction: callback }); } else { callback(); } }</td>
</tr>
<tr>
<td>Web Interface Feature</td>
<td>StoreFront Equivalent</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Logon screen title, Logon screen message, Logon screen system message</td>
<td>There are four areas for customization on the logon screen(s): top and bottom of screen (header and footer), and top and bottom of the logon box itself: <code>.customAuthHeader</code>, <code>.customAuthFooter</code>. <code>.customAuthTop</code>, <code>.customAuthBottom</code> { text-align: center; color: white; font-size: 16px; } . Example script (static content): <code>\$('.'customAuthHeader').html(&quot;Welcome to ACME&quot;)</code>; . Example script (dynamic content): <code>function setDynamicContent(txtFile, element) { CTXS.ExtensionAPI.proxyRequest({ url: &quot;customweb/&quot;+txtFile, success: function(txt){ \$('element').html(txt); } }); } setDynamicContent(&quot;Message.txt&quot;, &quot;.customAuthTop&quot;);</code>. <strong>Note</strong>: Do not explicitly include dynamic content in the script, or put it in the <code>custom</code> directory, because changes made here force all clients to reload the UI. Put dynamic content in the <code>customweb</code> directory.</td>
</tr>
<tr>
<td>Application screen welcome message, Application screen system message</td>
<td>See the examples for CustomAuth welcome screen above. See examples for dynamic content above. Use <code>##customTop</code> rather than <code>.customAuthTop</code> to place content on the home screen.</td>
</tr>
<tr>
<td>Footer text (all screens)</td>
<td>Example script: <code>##customBottom { text-align: center; color: white; font-size: 16px; }</code> <strong>Example static content using a script</strong>: <code>**\$('\##customBottom').html(&quot;Welcome to ACME&quot;)**;</code></td>
</tr>
</tbody>
</table>

**Features with no direct equivalent**
<table>
<thead>
<tr>
<th>Web Interface Feature</th>
<th>StoreFront Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logon screen without headers, Logon screen with headers (including messages)</td>
<td>There is no direct equivalent in StoreFront. However, you can create custom headers. See Logon Screen Title above.</td>
</tr>
<tr>
<td>User settings</td>
<td>By default, there are no user settings. You can add menus and buttons from JavaScript.</td>
</tr>
</tbody>
</table>

**Deep Customizations (code)**

<table>
<thead>
<tr>
<th></th>
<th>Equivalent or better APIs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentication customizations</td>
<td>Equivalent or better APIs.</td>
</tr>
<tr>
<td>JSP/ASP source access</td>
<td>There are no equivalent APIs on StoreFront, because the UI is not rendered in the same way. There are many JavaScript APIs to enable customization of the UI.</td>
</tr>
</tbody>
</table>

**Configure server groups**

August 16, 2018

Note:

Learn about product name changes in What’s new.

The tasks below enable you to modify settings for multiple-server StoreFront deployments. To manage a multiple-server deployment, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of
the other servers in the deployment. Any configuration changes you make must be propagated to the other servers in the group to ensure a consistent configuration across the deployment.

You must configure servers comprising a StoreFront server group identically in terms of both StoreFront installation location and IIS website settings, such as physical path and site IDs.

**Add a server to a server group**

Use the Add Server task to obtain an authorization code to enable you to join a newly installed StoreFront server to your existing deployment. For more information about adding new servers to existing StoreFront deployments, see Join an existing server group. See the Scalability section of Plan your Storefront deployment to assess how many servers you need in your group.

**Remove servers from a server group**

Use the Remove Server task to delete servers from a multiple-server StoreFront deployment. You can remove any server in the group apart from the server on which you are running the task. Before removing a server from a multiple-server deployment, first remove the server from the load-balancing environment.

**Propagate local changes to a server group**

Use the Propagate Changes task to update the configuration of all the other servers in a multiple-server StoreFront deployment to match the configuration of the current server. Any changes made on other servers in the group are discarded. While running this task, you cannot make any further changes until all the servers in the group have been updated.

Important: If you update the configuration of a server without propagating the changes to the other servers in the group, you might lose those updates if you later propagate changes from different server in the deployment.

**Change the base URL for a deployment**

Use the Change Base URL task to modify the URL that is used as the root of the URLs for the stores and other StoreFront services hosted on a deployment. For multiple-server deployments, specify the load-balanced URL. You can use this task to change from HTTP to HTTPS at any time, provided that Microsoft Internet Information Services (IIS) is configured for HTTPS.

To configure IIS for HTTPS, use the Internet Information Services (IIS) Manager console on the StoreFront server to create a server certificate signed by your Microsoft Active Directory domain cer-
tification authority. Then add HTTPS binding to the default website. For more information about creating a server certificate in IIS, see https://docs.microsoft.com/en-us/previous-versions/windows/it-pro/windows-server-2012-R2-and-2012/hh831637(v=ws.11)#create-certificate-wizard. For more information about adding HTTPS binding to an IIS site, see https://docs.microsoft.com/en-us/previous-versions/orphan-topics/ws.11/hh831632(v=ws.11).

Configure server bypass behavior

To improve performance when some of the servers providing resources become unavailable, StoreFront temporarily bypasses servers that fail to respond. While a server is being bypassed, StoreFront ignores that server and does not use it to access resources. Use these parameters to specify the duration of the bypass behavior:

- **All failed bypass duration** specifies a reduced duration in minutes that StoreFront uses instead of **Bypass duration** if all servers for a particular Delivery Controller are being bypassed. The default is 0 minutes.
- **Bypass duration** specifies the time in minutes that StoreFront bypasses an individual server after a failed attempt to contact that server. The default bypass duration is 60 minutes.

Considerations when specifying All failed bypass duration

Setting a larger **All failed bypass duration** reduces the impact of unavailability of a particular Delivery Controller; however, it has the negative affect that resources from this Delivery Controller are unavailable to users for the specified duration after a temporary network outage or server unavailability. Consider the use of larger **All failed bypass duration values** when many Delivery Controllers have been configured for a store, particularly for nonbusiness-critical Delivery Controllers.

Setting a smaller **All failed bypass duration** increases the availability of resources served by that Delivery Controller but increases the possibility of client-side timeouts if many Delivery Controllers are configured for a store and several of them become unavailable. It is worth keeping the default 0-minute value when not many farms are configured and for business-critical Delivery Controllers.

To change the bypass parameters for a store

**Important:** In multiple-server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so the other servers in the deployment are updated.

1. On the Windows **Start** screen or **Apps** screen, locate and click the **Citrix StoreFront** tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and click Manage Delivery Controllers in the Actions pane.

3. Select a controller, click Edit, and then click Settings on the Edit Delivery Controller screen.

4. On the All failed bypass duration row, click in the second column and enter a time, in minutes, for which a delivery controller is considered offline after all its servers fail to respond.

5. On the Bypass duration row, click in the second column and enter a time, in minutes, for which a single server is considered offline after it fails to respond.

**Configure authentication and delegation**

August 16, 2018

**Note:**

Learn about product name changes in What's new.

Depending on your requirements, there are several authentication and delegations methods.

<table>
<thead>
<tr>
<th>Authentication Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Configure the authentication service</strong></td>
<td>The authentication service authenticates users to Microsoft Active Directory, ensuring that users do not need to log on again to access their desktops and applications.</td>
</tr>
<tr>
<td><strong>XML service-based authentication</strong></td>
<td>When StoreFront is not in the same domain as XenApp or XenDesktop, and it is not possible to put Active Directory trusts in place, you can configure StoreFront to use the XenApp and XenDesktop XML Service to authenticate the username and password credentials.</td>
</tr>
<tr>
<td><strong>Kerberos constrained delegation for XenApp 6.5</strong></td>
<td>Use the Configure Kerberos Delegation task to specify whether StoreFront uses single-domain Kerberos constrained delegation to authenticate to delivery controllers.</td>
</tr>
<tr>
<td><strong>Smart card authentication</strong></td>
<td>Set up smart card authentication for all the components in a typical StoreFront deployment.</td>
</tr>
</tbody>
</table>
If you enable Citrix Receiver for Web site users to change their passwords at any time, local users whose passwords are about to expire are shown a warning when they log on.

### Configure the authentication service

February 27, 2019

#### Manage authentication methods

You can enable or disable user authentication methods set up when the authentication service was created by selecting an authentication method in the results pane of the Citrix StoreFront management console and, in the Actions pane, clicking Manage Authentication Methods.

1. On the Windows Start screen or Apps screen, locate and click the Citrix **StoreFront** tile.
2. Select the **Store** node in the left pane of the Citrix StoreFront management console and, in the Actions pane, click **Manage Authentication Methods**.
3. Specify the access methods that you want to enable for your users.
Select the **Username and password** check box to enable explicit authentication. Users enter their credentials when they access their stores.

Select the **SAML Authentication** check box to enable integration with a SAML Identity Provider. Users authenticate to an Identity Provider and are automatically logged when they access their stores. From the Settings drop-down menu:
- Select **Identity Provider** to configure the trust to the Identity Provider.
- Select **Service Provider** to configure the trust for the Service Provider. This information is required by the Identity Provider.

Select the Domain pass-through check box to enable pass-through of Active Directory domain credentials from users’ devices. Users authenticate to their domain-joined Windows computers and are automatically logged on when they access their stores. In order to use this option, pass-through authentication must be enabled when Citrix Receiver for Windows is installed on users’ devices.

Select the Smart card check box to enable smart card authentication. Users authenticate using smart cards and PINs when they access their stores.

Select the HTTP Basic check box to enable HTTP Basic authentication. Users authenticate with the StoreFront server’s IIS web server.

Select the Pass-through from NetScaler Gateway check box to enable pass-through authentication from NetScaler Gateway. Users authenticate to NetScaler Gateway and are automatically...
logged on when they access their stores.

To enable pass-through authentication for smart card users accessing stores through NetScaler Gateway, use the Configure Delegated Authentication task.

**Configure trusted user domains**

Use the Trusted Domains task to restrict access to stores for users logging on with explicit domain credentials, either directly or using pass-through authentication from NetScaler Gateway.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.

2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the results pane, select the appropriate authentication method. In the Actions pane, click **Manage Authentication Methods**.

3. From the **User name and password (explicit) > Settings** list, select **Configure Trusted Domains**.

4. Select **Trusted Domains only** and click **Add** to enter the name of a trusted domain. Users with accounts in that domain will be able to log on to all stores that use the authentication service. To modify a domain name, select the entry in the Trusted domains list and click **Edit**. To discontinue access to stores for user accounts in a domain, select the domain in the list and click **Remove**.

   The way in which you specify the domain name determines the format in which users must enter their credentials. If you want users to enter their credentials in domain user name format, add the NetBIOS name to the list. To require that users enter their credentials in user principal name format, add the fully qualified domain name to the list. If you want to enable users to enter their credentials in both domain user name format and user principal name format, you must add both the NetBIOS name and the fully qualified domain name to the list.

5. If you configure multiple trusted domains, select from the Default domain list the domain that is selected by default when users log on.

6. If you want to list the trusted domains on the logon page, select the **Show domains list in logon page** check box.

**Enable users to change their passwords**

Use the **Manage Password Options** task to enable desktop Receivers and Receiver for Web site users logging on with domain credentials to change their passwords. When you create the authentication service, the default configuration prevents Citrix Receiver and Citrix Receiver for Web site users from changing their passwords, even if the passwords have expired. If you decide to enable this feature,
ensure that the policies for the domains containing your servers do not prevent users from changing their passwords. Enabling users to change their passwords exposes sensitive security functions to anyone who can access any of the stores that use the authentication service. If your organization has a security policy that reserves user password change functions for internal use only, ensure that none of the stores are accessible from outside your corporate network.

1. Citrix Receiver for Web supports password changes on expiration, as well as elective password changes. All desktop Citrix Receivers support password change through NetScaler Gateway on expiration only. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.

2. In the left pane of the Citrix StoreFront management console Actions pane, select the Stores node and click Manage Authentication Methods.

3. From the User name and passwords > Settings drop-down menu select Manage Password Options, specify the circumstances under which Citrix Receiver for Web site users logging on with domain credentials are able to change their passwords.

   • To enable users to change their passwords whenever they want, select At any time. Local users whose passwords are about to expire are shown a warning when they log on. Password expiry warnings are only displayed to users connecting from the internal network. By default, the notification period for a user is determined by the applicable Windows policy setting. For more information about setting custom notification periods, see Configure the password expiry notification period. Supported only with Citrix Receiver for Web.

   • To enable users to change their passwords only when the passwords have already expired, select When expired. Profiles are not created for expired passwords. Users who cannot log on because their passwords have expired are redirected to the Change Password dialog box. Supported for desktop Citrix Receivers and Citrix Receiver for Web.

   Note:

   Ensure that there is sufficient disk space on your StoreFront servers to store profiles for all your users. To check whether a user’s password is about to expire, StoreFront creates a local profile for that user on the server. StoreFront must be able to contact the domain controller to change users’ passwords.

   • To prevent users from changing their passwords, do not select Allow users to change passwords. If you do not select this option, you must make your own arrangements to support users who cannot access their desktops and applications because their passwords have expired.
Self-Service Password Reset security questions

Self-Service Password Reset enables end users to have greater control over their user accounts. Once you configure Self-Service Password Reset, if end users have problems logging on to their systems, they can unlock their accounts or reset their passwords to something new by correctly answering several security questions.

When setting up Self-Service Password Reset, you specify which users are able to perform password resets and unlock their accounts using the management console. If you enable these features for the StoreFront, users might still be denied permission to perform these tasks based on the settings configured in the Self-Service Password Reset configuration console.

Self-Service Password Reset is available only to users accessing StoreFront using HTTPS connections. They cannot access StoreFront using an HTTP connection and have Self-Service Password Reset available. Self-Service Password Reset is available only when authenticating directly to StoreFront with a user name and password.

Self-Service Password Reset does not support UPN logons, such as username@domain.com.

Before configuring Self-Service Password Reset for a store, you must ensure that:

- The store is configured to use user name and password authentication.
- The store is configured to use only one Self-Service Password Reset. If StoreFront is configured to use multiple farms within the same or trusted domains, you must configure Self-Service Password Reset to accept credentials from all of those domains.
- The store is configured to allow users to change their password at any time if you want to enable password reset functionality.
- You must associate a StoreFront store with a Receiver for Web site, and you must configure that site to use the unified experience.

<table>
<thead>
<tr>
<th>Citrix Receivers</th>
<th>User can change an expired password if enabled on StoreFront</th>
<th>User is notified that password will expire</th>
<th>User can change password before it expires if enabled on StoreFront</th>
</tr>
</thead>
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<tr>
<td>Linux</td>
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<td>Yes</td>
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</tr>
<tr>
<td>Web</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Before being able to use Self-Service Password Reset, you must install and configure it. It is available on the XenApp and XenDesktop media. For information, see the Self-Service Password Reset documentation.

1. Enable Self-Service Password Reset support in StoreFront by selecting the Stores node in the left pane of the Citrix StoreFront management console and in the Actions pane, click Manage Authentication Methods > User name and Password, and choose Manage Password Options from the drop-down menu.
2. Choose when you want users to change passwords and click OK.
3. From the User name and passwords drop-down menu, choose Configure Account Self-Service, select Citrix SSPR from the drop-down menu, and click OK.
4. Specify whether or not users can reset their passwords and unlock their accounts with Self-Service Password Reset, add the Password Reset Service account URL, click OK, and then click OK.

This option is available only when the StoreFront base URL is HTTPS (not HTTP) and the Enable password reset option is available only after you use Manage Password Options to allow users to change passwords at any time.
The next time the user logs on to Citrix Receiver or Citrix Receiver for Web, security enrollment is available. After clicking **Start**, questions are displayed to which the user must specify answers.

Once configured in StoreFront, users see the **Account Self-Service** link on the Citrix Receiver for Web logon screen (it displays as a button in other Citrix Receivers).

Clicking this link takes the user through a series of forms to first select between **Unlock account** and **Reset password** (if both are available).

After choosing a radio button and clicking **Next**, the next screen prompts for a domain and username *(domain\user)* if that information was not entered in the log on form. Note that account self-service does not support UPN log ons, such as *username@domain.com*. 

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They are required to answer the security question. If all the answers match those supplied by the user, the requested operation (unlock or reset) is performed and the user is notified that it succeeded.

**Shared authentication service settings**

Use the Shared Authentication Service Settings task to specify stores that will share the authentication service enabling single sign on between them.

1. On the Windows **Start** screen or **Apps** screen, locate and click the **Citrix StoreFront** tile.
2. Select the **Stores** node in the left pane of the Citrix StoreFront management console and, in the results pane, select a store. In the **Actions** pane, click **Manage Authentication Methods**.
3. From the **Advanced** drop-down menu, select **Shared authentication service settings**.
4. Click the **Use shared authentication service** check box and select a store from the **Store** name drop-down menu.

**Note:**

There is no functional difference between a shared and dedicated authentication service. An authentication service shared by more than two stores is treated as a shared authentication service and any configuration changes affect the access to all the stores using the shared authentication service.

**Delegate credential validation to NetScaler Gateway**

Use the Configure Delegated Authentication task to enable pass-through authentication for smart card users accessing stores through NetScaler Gateway. This task is only available when Pass-through from NetScaler Gateway is enabled and selected in the results pane.

When credential validation is delegated to NetScaler Gateway, users authenticate to NetScaler Gateway with their smart cards and are automatically logged on when they access their stores. This setting
is disabled by default when you enable pass-through authentication from NetScaler Gateway, so that pass-through authentication only occurs when users log on to NetScaler Gateway with a password.

**XML service-based authentication**

August 2, 2018

When StoreFront is not in the same domain as XenApp or XenDesktop, and it is not possible to put Active Directory trusts in place, you can configure StoreFront to use the XenApp and XenDesktop XML Service to authenticate the user name and password credentials.

**Enable XML service-based authentication**

1. On the Windows **Start** screen or **Apps** screen, locate and click the Citrix StoreFront tile.
2. Select the **Stores** node in the left pane of the Citrix StoreFront management console and, in the Actions pane, click **Manage Authentication Methods**.
3. On the **Manage Authentication Methods** page, from the **User name and password > Settings** drop-down menu, select **Configure Password Validation**.
4. From the **Validation Password Via** list, select **Delivery Controllers**, and then click **Configure**.
5. Follow the **Configure Delivery Controllers** screens to add one or more **Delivery Controllers** for validating the user credentials and click **OK**.

**Disable XML service-based authentication**

1. On the Windows **Start** screen or **Apps** screen, locate and click the Citrix StoreFront tile.
2. Select the **Stores** node in the left pane of the Citrix StoreFront management console and, in the Actions pane, click **Manage Authentication Methods**.
3. On the **Manage Authentication Methods** page, from the **User name and password > Settings** list, select **Configure Password Validation**.
4. From the **Validation Password Via** drop-down menu, select **Active Directory**, and then click **OK**.

**Configure Kerberos constrained delegation for XenApp 6.5**

July 30, 2018

Use the **Configure Store Settings > Kerberos delegation** task to specify whether StoreFront uses single-domain Kerberos constrained delegation to authenticate to delivery controllers.
Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the results pane, select a store. In the Actions pane, click **Configure Store Settings**, and then click **Kerberos Delegation**.
3. Select Enable or Disable Kerberos delegation to authenticate to delivery controllers, respectively, enable or disable Kerberos constrained delegation.

**Configure the StoreFront server for delegation**

Follow this procedure when StoreFront is not installed on the same machine as XenApp.

1. On the domain controller, open the MMC Active Directory Users and Computers snap-in.
2. On the View menu, click Advanced Features.
3. In the left pane, click the Computers node under the domain name and select the StoreFront server.
4. In the Action pane, click Properties.
5. On the Delegation tab, click **Trust this computer for delegation to specified services only** and **Use any authentication protocol**, and then click **Add**.
6. In the Add Services dialog box, click Users or Computers.
7. In the Select Users or Computers dialog box, type the name of the server running the Citrix XML Service (XenApp) in the Enter the object names to select box, click OK.
8. Select the HTTP service type from the list, click OK.
9. Apply the changes and close the dialog box.

**Configure XenApp server for delegation**

Configure Active Directory Trusted Delegation for each XenApp server.

1. On the domain controller, open the **MMC Active Directory Users and Computers** snap-in.
2. In the left pane, click the **Computers** node under the domain name and select the server running the Citrix XML Service (XenApp) that StoreFront is configured to contact.
3. In the **Action** pane, click **Properties**.
4. On the **Delegation** tab, click **Trust this computer for delegation to specified services only** and **Use any authentication protocol**, and then click **Add**.
5. In the **Add Services** dialog box, click **Users or Computers**.
6. In the **Select Users or Computers** dialog box, type the name of the server running the Citrix XML Service (XenApp) in the **Enter the object names to select** box, click **OK**.

7. Select the HOST service type from the list, click **OK**, and then click **Add**.

8. In the **Select Users or Computers** dialog box, type the name of the Domain Controller in the **Enter the object names to select** box and click **OK**.

9. Select the **cifs** and **ldap** service types from the list and click **OK**. Note: If two choices appear for the ldap service, select the one that matches the FQDN of the domain controller.

10. Apply the changes and close the dialog box.

**Important considerations**

When you decide whether to use Kerberos constrained delegation, consider the following information.

- **Key Notes:**
  - You do not need ssonsvr.exe unless doing pass-through authentication (or smart card pin pass-through authentication) without Kerberos constrained delegation.

- **Storefront and Citrix Receiver for Web domain pass-through:**
  - You do not need ssonsvr.exe on the client.
  - You can set the Local username and password in the Citrix icaclient.adm template to anything (controls ssonsvr.exe function).
  - The icaclient.adm template Kerberos setting is required.
  - Add the Storefront Fully Qualified Domain Name (FQDN) to Internet Explorer trusted sites list. Check the Use local username box in the Internet Explorer security settings for the trusted zone.
  - The client must be in a domain.
  - Enable the Domain pass-through authentication method on the StoreFront server and enable for Citrix Receiver for Web.

- **Storefront, Citrix Receiver for Web, and smart card authentication with PIN prompt:**
  - You do not need ssonsvr.exe on the client.
  - Smart card authentication was configured.
  - You can set the Local username and password in the Citrix icaclient.adm template to anything (controls ssonsvr.exe function).
  - The icaclient.adm template Kerberos setting is required.
  - Enable the Smart card authentication method on the StoreFront server and enable for Citrix Receiver for Web.
  - To ensure smart card authentication is chosen, do not check the Use local username box in the Internet Explorer security settings for the StoreFront site zone.
  - The client must be in a domain.

- **NetScaler Gateway, StoreFront, Citrix Receiver for Web, and smart card authentication with PIN prompt:**
- You do not need sssonsvr.exe on the client.
- Smart card authentication was configured.
- You can set the Local username and password in the Citrix icaclient.adm template to anything (controls sssonsvr.exe function).
- The icaclient.adm template Kerberos setting is required.
- Enable the Pass-through from NetScaler Gateway authentication method on the StoreFront server and enable for Citrix Receiver for Web.
- To ensure smart card authentication is chosen, do not check the Use local username box in the Internet Explorer security settings for the StoreFront site zone.
- The client must be in a domain.
- Configure NetScaler Gateway for smart card authentication and configure an additional vServer for launch using StoreFront HDX routing to route the ICA traffic through the unauthenticated NetScaler Gateway vServer.

- Citrix Receiver for Windows (AuthManager), Kerberos, and StoreFront:
  - You do not need sssonsvr.exe on the client.
  - You can set the Local username and password in the Citrix icaclient.adm template to anything (controls sssonsvr.exe function).
  - The icaclient.adm template Kerberos setting is required.
  - The client must be in a domain.
  - Enable the Smart card authentication method on the StoreFront server.

- Citrix Receiver for Windows (AuthManager), smart card authentication with PIN prompt, and StoreFront:
  - You do not need sssonsvr.exe on the client.
  - You can set the Local username and password in the Citrix icaclient.adm template to anything (controls sssonsvr.exe function).
  - The icaclient.adm template Kerberos setting is required.
  - Check the Use local username box in the Internet Explorer security settings for the trusted zone.
  - The client must be in a domain.
  - Enable the Domain pass-through authentication method on the StoreFront server.
  - Ensure this registry key is set:

  ```
  Caution:
  Editing the registry incorrectly can cause serious problems that may require you to reinstall your operating system. Citrix cannot guarantee that problems resulting from the incorrect use of Registry Editor can be solved. Use Registry Editor at your own risk.
  Be sure to back up the registry before you edit it.
  ```

  For 32-bit machines: 
  HKEY_LOCAL_MACHINE\SOFTWARE\Citrix\AuthManagerProtocols\integratedwindows
  Name: SSONCheckEnabled
  Type: REG_SZ
Configure smart card authentication

November 15, 2018

This article gives an overview of the tasks involved in setting up smart card authentication for all the components in a typical StoreFront deployment. For more information and step-by-step configuration instructions, see the documentation for the individual products.

The document Smart card configuration for Citrix environments describes how to configure a Citrix deployment for smart cards uses a specific smart card type. Similar steps apply to smart cards from other vendors.

Prerequisites

- Ensure that accounts for all users are configured either within the Microsoft Active Directory domain in which you plan to deploy your StoreFront servers or within a domain that has a direct two-way trust relationship with the StoreFront server domain.
- If you plan to enable pass-through with smart card authentication, ensure that your smart card reader types, middleware type and configuration, and middleware PIN caching policy permit this.
- Install your vendor’s smart card middleware on the virtual or physical machines running the Virtual Delivery Agent that provide users’ desktops and applications. For more information about using smart cards with XenDesktop, see Smart cards.
- Before continuing, ensure that your public-key infrastructure is configured appropriately. Check that certificate to account mapping is configured correctly for your Active Directory environment and that user certificate validation can be performed successfully.

Configure NetScaler Gateway

- On your NetScaler Gateway appliance, install a signed server certificate from a certification authority. For more information, see Installing and Managing Certificates.
On your NetScaler Gateway appliance, install the root certificate of the certification authority issuing your smart card user certificates. For more information, see To install a root certificate on NetScaler Gateway.

Create and configure a virtual server for client certificate authentication. Create a certificate authentication policy, specifying SubjectAltName:PrincipalName for user name extraction from the certificate. Then, bind the policy to the virtual server and configure the virtual server to request client certificates. For more information, see Configuring and Binding a Client Certificate Authentication Policy.

Bind the certification authority root certificate to the virtual server. For more information, see To add a root certificate to a virtual server.

To ensure that users do not receive an additional prompt for their credentials at the virtual server when connections to their resources are established, create a second virtual server. When you create the virtual server, disable client authentication in the Secure Sockets Layer (SSL) parameters. For more information, see Configuring smart card authentication.

You must also configure StoreFront to route user connections to resources through this additional virtual server. Users log on to the first virtual server and the second virtual server is used for connections to their resources. When the connection is established, users do not need to authenticate to NetScaler Gateway but are required to enter their PINs to log on to their desktops and applications. Configuring a second virtual server for user connections to resources is optional unless you plan to enable users to fall back to explicit authentication if they experience any issues with their smart cards.

Create session policies and profiles for connections from NetScaler Gateway to StoreFront and bind them to the appropriate virtual server. For more information, see Access to StoreFront Through NetScaler Gateway.

If you configured the virtual server used for connections to StoreFront to require client certificate authentication for all communications, you must create a further virtual server to provide the callback URL for StoreFront. This virtual server is used only by StoreFront to verify requests from the NetScaler Gateway appliance and so does not need to be publically accessible. A separate virtual server is required when client certificate authentication is mandatory because StoreFront cannot present a certificate to authenticate. For more information, see Creating Virtual Servers.

Configure StoreFront

You must use HTTPS for communications between StoreFront and users’ devices to enable smart card authentication. Configure Microsoft Internet Information Services (IIS) for HTTPS by obtaining an SSL certificate in IIS and then adding HTTPS binding to the
default website. For more information about creating a server certificate in IIS, see https://docs.microsoft.com/en-us/previous-versions/windows/it-pro/windows-server-2012-R2-and-2012/hh831637(v=ws.11)#create-certificate-wizard. For more information about adding HTTPS binding to an IIS site, see https://docs.microsoft.com/en-us/previous-versions/orphan-topics/ws.11/hh831632(v=ws.11).

• If you want to require that client certificates are presented for HTTPS connections to all StoreFront URLs, configure IIS on the StoreFront server.

When StoreFront is installed, the default configuration in IIS only requires that client certificates are presented for HTTPS connections to the certificate authentication URL of the StoreFront authentication service. This configuration is required to provide smart card users with the option to fall back to explicit authentication and, subject to the appropriate Windows policy settings, enable users to remove their smart cards without needing to reauthenticate.

When IIS is configured to require client certificates for HTTPS connections to all StoreFront URLs, smart card users cannot connect through NetScaler Gateway and cannot fall back to explicit authentication. Users must log on again if they remove their smart cards from their devices. To enable this IIS site configuration, the authentication service and stores must be collocated on the same server, and a client certificate that is valid for all the stores must be used. Moreover, this configuration where IIS is requiring client certificates for HTTPS connections to all StoreFront URLs, will conflict with authentication for Citrix Receiver for Web clients. For this reason, this configuration should be used when Citrix Receiver for Web client access is not required.

• Install and configure StoreFront. Create the authentication service and add your stores, as required. If you configure remote access through NetScaler Gateway, do not enable virtual private network (VPN) integration. For more information, see Install and setup StoreFront.

• Enable smart card authentication to StoreFront for local users on the internal network. For smart card users accessing stores through NetScaler Gateway, enable the pass-through with NetScaler Gateway authentication method and ensure that StoreFront is configured to delegate credential validation to NetScaler Gateway. If you plan to enable pass-through authentication when you install Citrix Receiver for Windows on domain-joined user devices, enable domain pass-through authentication. For more information, see Configure the authentication service.

To allow Citrix Receiver for Web client authentication with smart cards, you must enable the authentication method per Citrix Receiver for Web site. For more information, see the Configure Citrix Receiver for Web sites instruction.

If you want smart card users to be able to fall back to explicit authentication if they experience any issues with their smart cards, do not disable the user name and password authentication method.

• If you plan to enable pass-through authentication when you install Citrix Receiver for Windows on domain-joined user devices, edit the default.ica file for the store to enable pass-through of
users' smart card credentials when they access their desktops and applications. For more information, see Enable pass-through with smart card authentication for Citrix Receiver for Windows.

- If you created an additional NetScaler Gateway virtual server to be used only for user connections to resources, configure optimal NetScaler Gateway routing through this virtual server for connections to the deployments providing the desktops and applications for the store. For more information, see Configure optimal HDX routing for a store.

- To enable users of non-domain-joined Windows desktop appliances to log on to their desktops using smart cards, enable smart card authentication to your Desktop Appliance sites. For more information, see Configure Desktop Appliance sites.

Configure the Desktop Appliance site for both smart card and explicit authentication to enable users to log on with explicit credentials if they experience any issues with their smart cards.

- To enable users of domain-joined desktop appliances and repurposed PCs running the Citrix Desktop Lock to authenticate using smart cards, enable pass-through with smart card authentication to your XenApp Services URLs. For more information, see Configure authentication for XenApp Services URLs.

Configure user devices

- Ensure that your vendor's smart card middleware is installed on all user devices.

- For users with non-domain-joined Windows desktop appliances, install Receiver for Windows Enterprise using an account with administrator permissions. Configure Internet Explorer to start in full-screen mode displaying the Desktop Appliance site when the device is powered on. Note that Desktop Appliance site URLs are case sensitive. Add the Desktop Appliance site to the Local intranet or Trusted sites zone in Internet Explorer. Once you have confirmed that you can log on to the Desktop Appliance site with a smart card and access resources from the store, install the Citrix Desktop Lock. For more information, see To install the Desktop Lock.

- For users with domain-joined desktop appliances and repurposed PCs, install Receiver for Windows Enterprise using an account with administrator permissions. Configure Receiver for Windows with the XenApp Services URL for the appropriate store. Once you have confirmed that you can log on to the device with a smart card and access resources from the store, install the Citrix Desktop Lock. For more information, see To install the Desktop Lock.

- For all other users, install the appropriate version of Citrix Receiver on the user device. To enable pass-through of smart card credentials to XenDesktop and XenApp for users with domain-joined devices, use an account with administrator permissions to install Receiver for Windows at a command prompt with the /includeSSON option. For more information, see Configure and install Receiver for Windows using command-line parameters.
Ensure that Receiver for Windows is configured for smart card authentication either through a domain policy or a local computer policy. For a domain policy, use the Group Policy Management Console to import the Receiver for Windows Group Policy Object template file, ica-client.adm, onto the domain controller for the domain containing your users’ accounts. To configure an individual device, use the Group Policy Object Editor on that device to configure the template. For more information, see Configure Receiver with the Group Policy Object template.

Enable the Smart card authentication policy. To enable pass-through of users’ smart card credentials, select Use pass-through authentication for PIN. Then, to pass users’ smart card credentials through to XenDesktop and XenApp, enable the Local user name and password policy and select Allow pass-through authentication for all ICA connections. For more information, see ICA Settings Reference.

If you enabled pass-through of smart card credentials to XenDesktop and XenApp for users with domain-joined devices, add the store URL to the Local intranet or Trusted sites zone in Internet Explorer. Ensure that Automatic logon with the current user name and password is selected in the security settings for the zone.

- Where necessary, provide users with connection details for the store (for users on the internal network) or NetScaler Gateway appliance (for remote users) using an appropriate method. For more information about providing configuration information to your users, see Citrix Receiver.

**Enable pass-through with smart card authentication for Receiver for Windows**

You can enable pass-through authentication when you install Receiver for Windows on domain-joined user devices. To enable pass-through of users’ smart card credentials when they access desktops and applications hosted by XenDesktop and XenApp, you edit the default.ica file for the store.

**Important:**

In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. Use a text editor to open the default.ica file for the store, which is typically located in the C:\inetpub\wwwroot\Citrix\storename\App_Data\ directory, where storename is the name specified for the store when it was created.

2. To enable pass-through of smart card credentials for users who access stores without NetScaler Gateway, add the following setting in the [Application] section.

   `DisableCtrlAltDel=Off`
This setting applies to all users of the store. To enable both domain pass-through and pass-through with smart card authentication to desktops and applications, you must create separate stores for each authentication method. Then, direct your users to the appropriate store for their method of authentication.

3. To enable pass-through of smart card credentials for users accessing stores through NetScaler Gateway, add the following setting in the [Application] section.

   UseLocalUserAndPassword=On

   This setting applies to all users of the store. To enable pass-through authentication for some users and require others to log on to access their desktops and applications, you must create separate stores for each group of users. Then, direct your users to the appropriate store for their method of authentication.

Configure the password expiry notification period

July 30, 2018

If you enable Citrix Receiver for Web site users to change their passwords at any time, local users whose passwords are about to expire are shown a warning when they log on. By default, the notification period for a user is determined by the applicable Windows policy setting. To set a custom notification period for all users, you edit the configuration file for the authentication service.

Important: In multiple-server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the Actions pane, click Manage Authentication Methods.
3. On the Manage Authentication Methods page, from the User name and password > Settings drop-down menu, select Manage Password Options, and select the Allow users to change passwords check box.
4. Select At any time... and make a choice under Remind users before their passwords expire.

Note:

StoreFront does not support Fine Grained Password Policies in Active Directory.
Configure and manage stores

August 16, 2018

Note:
Learn about product name changes in What's new.

In Citrix StoreFront, you can create and manage stores that aggregate applications and desktops from XenApp and XenDesktop giving users on-demand, self-service access to resources.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tbody>
<tr>
<td>Create or remove a store</td>
<td>Configure as many additional stores as you need.</td>
</tr>
<tr>
<td>Create an unauthenticated store</td>
<td>Configure additional unauthenticated stores to support access for unauthenticated (anonymous) users.</td>
</tr>
<tr>
<td>Export store provisioning files for users</td>
<td>Generate files containing connection details for stores, including any NetScaler Gateway deployments and beacons configured for the stores.</td>
</tr>
<tr>
<td>Hide and advertise stores to users</td>
<td>Prevent stores being presented to users to add to their accounts when they configure Citrix Receiver through email-based account discovery or FQDN.</td>
</tr>
<tr>
<td>Manage the resources made available in stores</td>
<td>Add and remove resources from stores.</td>
</tr>
<tr>
<td>Manage remote access to stores through NetScaler Gateway</td>
<td>Configure access to stores through NetScaler Gateway for users connecting from public networks.</td>
</tr>
<tr>
<td>Integrate Citrix Online applications with stores</td>
<td>Select the Citrix Online applications to include in a store and specify the action that Citrix Receiver takes when users subscribe to a Citrix Online application.</td>
</tr>
<tr>
<td>Configure two StoreFront stores to share a common subscription datastore</td>
<td>Configure two stores to share a common subscription database.</td>
</tr>
<tr>
<td>Advanced store settings</td>
<td>Configure advanced store settings.</td>
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</table>
Create or remove a store

November 5, 2018

Use the Create Store task to configure additional stores. You can create as many stores as you need; for example, you can create a store for a particular group of users or to group together a specific set of resources. You can also create an unauthenticated store that allows for anonymous, or unauthenticated store. To create this type of store, refer to the Create an unauthenticated store instruction.

To create a store, you identify and configure communications with the servers providing the resources that you want to make available in the store. Then, optionally, you configure remote access to the store through NetScaler Gateway.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

Add desktops and applications to the store

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the Actions pane, click Create Store.
3. On the Store Name page, specify a name for your store and click Next.
   Store names appear in Citrix Receiver under users’ accounts, so choose a name that gives users information about the content of the store.
4. On the Delivery Controllers page, list the infrastructure providing the resources that you want to make available in the store. Click Add.
5. In the Add Delivery Controller dialog box, specify a name that will help you to identify the deployment and indicate whether the resources that you want to make available in the store are provided by XenDesktop, XenApp, or AppController. For App Controller deployments, ensure that the name you specify does not contain any spaces.
6. If you are adding details of XenDesktop or XenApp servers, continue to Step 7. To make applications managed by App Controller available in the store, enter the name or IP address of an App Controller virtual appliance in the Server box and specify the port for StoreFront to use for connections to App Controller. The default port is 443. Continue to Step 11.
7. To make desktops and applications provided by XenDesktop or XenApp available in the store, add the names or IP addresses of your servers to the Servers list. Specify multiple servers to
enable fault tolerance, listing the entries in order of priority to set the failover sequence. For XenDesktop sites, give details of Delivery Controllers. In the case of XenApp farms, list servers running the Citrix XML Service.

8. Select from the Transport type list the type of connections for StoreFront to use for communications with the servers.

   - To send data over unencrypted connections, select HTTP. If you select this option, you must make your own arrangements to secure connections between StoreFront and your servers.
   - To send data over secure HTTP connections using Transport Layer Security (TLS), select HTTPS. If you select this option for XenDesktop and XenApp servers, ensure that the Citrix XML Service is set to share its port with Microsoft Internet Information Services (IIS) and that IIS is configured to support HTTPS.
   - To send data over secure connections to XenApp servers using the SSL Relay to perform host authentication and data encryption, select SSL Relay.

   Note: If you are using HTTPS or the SSL Relay to secure connections between StoreFront and your servers, ensure that the names you specify in the Servers list match exactly (including the case) the names on the certificates for those servers.

9. Specify the port for StoreFront to use for connections to the servers. The default port is 80 for connections using HTTP and the SSL Relay, and 443 for HTTPS connections. In the case of XenDesktop and XenApp servers, the specified port must be the port used by the Citrix XML Service.

10. If you are using the SSL Relay to secure connections between StoreFront and XenApp servers, specify the TCP port of the SSL Relay in the SSL Relay port box. The default port is 443. Ensure that all the servers running the SSL Relay are configured to monitor the same port.

11. Click OK. You can configure stores to provide resources from any mixture of XenDesktop, XenApp, and App Controller deployments. Repeat Steps 4 to 11, as necessary, to list additional deployments providing resources for the store. When you have added all the required resources to the store, click Next.

12. On the Remote Access page, specify whether and how users connecting from public networks can access the store through NetScaler Gateway.

   - To make the store unavailable to users on public networks, make sure you do not check **Enable Remote Access**. Only local users on the internal network will be able to access the store.
   - To enable remote access, check **Enable Remote Access**.
     - To make only resources delivered through the store available through NetScaler Gateway, select No VPN tunnel. Users log on directly to NetScaler Gateway and do not need to use the NetScaler Gateway Plug-in.
– To make the store and all other resources on the internal network available through an SSL virtual private network (VPN) tunnel, select Full VPN tunnel. Users require the NetScaler Gateway Plug-in to establish the VPN tunnel.

If it is not already enabled, the pass-through from NetScaler Gateway authentication method is automatically enabled when you configure remote access to the store. Users authenticate to NetScaler Gateway and are automatically logged on when they access their stores.

13. If you enabled remote access, continue to the next procedure to specify the NetScaler Gateway deployments through which users can access the store. Otherwise, on the Remote Access page, click Create. Once the store has been created, click Finish.

Provide remote access to the store through NetScaler Gateway

Complete the following steps to configure remote access through NetScaler Gateway to the store that you created in the previous procedure. It is assumed that you have completed all the preceding steps.

1. On the Remote Access page of the Create Store wizard, select from the NetScaler Gateway appliances list the deployments through which users can access the store. Any deployments you configured previously for other stores are available for selection in the list. If you want to add a further deployment to the list, click Add. Otherwise, continue to Step 12.

2. On the Add NetScaler Gateway Appliance General Settings page, specify a name for the NetScaler Gateway deployment that will help users to identify it.

Users see the display name you specify in Citrix Receiver, so include relevant information in the name to help users decide whether to use that deployment. For example, you can include the geographical location in the display names for your NetScaler Gateway deployments so that users can easily identify the most convenient deployment for their location.

3. Enter the URL of the virtual server or user logon point for your deployment. Specify the product version used in your deployment.

The fully qualified domain name (FQDN) for your StoreFront deployment must be unique and different from the NetScaler Gateway virtual server FQDN. Using the same FQDN for StoreFront and the NetScaler Gateway virtual server is not supported.

4. Select the usage of the NetScaler Gateway from the available options.

   - **Authentication and HDX routing:** The NetScaler Gateway will be used for Authentication, as well as for routing any HDX sessions.
   - **Authentication Only:** The NetScaler Gateway will be used for Authentication and not for any HDX session routings.
   - **HDX routing Only:** The NetScaler Gateway will be used for HDX session routings and not for Authentication.
5. On the Secure Ticket Authority (STA) page, if you are making resources provided by XenDesktop or XenApp available in the store, list all the Secure Ticket Authority page URLs for servers running the STA. Add URLs for multiple STAs to enable fault tolerance, listing the servers in order of priority to set the failover sequence.

The STA is hosted on XenDesktop and XenApp servers and issues session tickets in response to connection requests. These session tickets form the basis of authentication and authorization for access to XenDesktop and XenApp resources.

6. Choose to set the Secure Ticket Authority to be load balanced. You can also specify the time interval after which the non-responding STAs are bypassed.

7. If you want XenDesktop and XenApp to keep disconnected sessions open while Citrix Receiver attempts to reconnect automatically, select the **Enable session reliability** check box. If you configured multiple STAs and want to ensure that session reliability is always available, select the Request tickets from two STAs, where available check box. StoreFront obtains session tickets from two different STAs so that user sessions are not interrupted if one STA becomes unavailable during the course of the session. If, for any reason, StoreFront is unable to contact two STAs, it falls back to using a single STA.

8. On Authentication Settings page, select the version of NetScaler gateway you want to configure.

9. Specify the VServer IP address of the NetScaler Gateway appliance, if required. The VServer IP address is the IP address that NetScaler Gateway uses to represent the user device when communicating with servers on the internal network. This can also be the mapped IP address of the NetScaler Gateway appliance. Where specified, StoreFront uses the VServer IP address to verify that incoming requests originate from a trusted device.

10. Select from the Logon type list the authentication method you configured on the appliance for Citrix Receiver users. The information you provide about the configuration of your NetScaler Gateway appliance is added to the provisioning file for the store. This enables Citrix Receiver to send the appropriate connection request when contacting the appliance for the first time.

   • If users are required to enter their Microsoft Active Directory domain credentials, select Domain.
   • If users are required to enter a token code obtained from a security token, select Security token.
   • If users are required to enter both their domain credentials and a token code obtained from a security token, select Domain and security token.
   • If users are required to enter a one-time password sent by text message, select SMS authentication.
   • If users are required to present a smart card and enter a PIN, select Smart card.

   If you configure smart card authentication with a secondary authentication method to which users can fall back if they experience any issues with their smart cards, select the secondary
authentication method from the Smart card fallback list.

11. Enter the NetScaler Gateway authentication service URL in the Callback URL box. This is an optional field. StoreFront automatically appends the standard portion of the URL. Enter the internally accessible URL of the appliance. StoreFront contacts the NetScaler Gateway authentication service to verify that requests received from NetScaler Gateway originate from that appliance.

12. Click Create to add your NetScaler Gateway deployment to the list on the Remote Access page. Repeat Steps 1 to 11, as necessary, to add more NetScaler Gateway deployments to the NetScaler Gateway appliances list. If you enable access through multiple deployments by selecting more than one entry in the list, specify the default deployment to be used to access the store.

13. On the Remote Access page, click Create. Once the store has been created, click Finish.

Your store is now available for users to access with Citrix Receiver, which must be configured with access details for the store. There are a number of ways in which you can provide these details to users to make the configuration process easier for them. For more information, see User access options.

Alternatively, users can access the store through the Receiver for Web site, which enables users to access their desktops and applications through a webpage. The URL for users to access the Receiver for Web site for the new store is displayed when you create the store.

When you create a new store, the XenApp Services URL is enabled by default. Users of domain-joined desktop appliances and repurposed PCs running the Citrix Desktop Lock, along with users who have older Citrix clients that cannot be upgraded, can access stores directly using the XenApp Services URL for the store. The XenApp Services URL has the form `http[s]://serveraddress/Citrix/storename/PNAgent/config.xml`, where `serveraddress` is the FQDN of the server or load balancing environment for your StoreFront deployment and `storename` is the name you specified for the store in Step 3.

Create a store for single server deployments on a nondomain-joined server

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.

2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the Actions pane, click Create Store.

3. On the Store Name page, specify a name for your store and click Next.

   Store names appear in Citrix Receiver under users’ accounts, so choose a name that gives users information about the content of the store.

4. On the Delivery Controllers page, list the infrastructure providing the resources that you want to make available in the store. Click Add.
5. In the Add Delivery Controller dialog box, specify a name that will help you to identify the deployment and indicate whether the resources that you want to make available in the store are provided by XenDesktop, XenApp, or XenMobile AppController. For App Controller deployments, ensure that the name you specify does not contain any spaces.

6. If you are adding details of XenDesktop or XenApp servers, continue to Step 7. To make applications managed by App Controller available in the store, enter the name or IP address of an App Controller virtual appliance in the Server box and specify the port for StoreFront to use for connections to App Controller. The default port is 443. Continue to Step 11.

7. To make desktops and applications provided by XenDesktop or XenApp available in the store, add the name or IP address of your server to the Servers box. For XenDesktop sites, give details of Delivery Controllers. In the case of XenApp farms, list the server running the Citrix XML Service.

8. Select from the Transport type list the type of connections for StoreFront to use for communications with the server.

   • To send data over unencrypted connections, select HTTP. If you select this option, you must make your own arrangements to secure connections between StoreFront and your server.

   • To send data over secure HTTP connections Transport Layer Security (TLS), select HTTPS. If you select this option for XenDesktop and XenApp servers, ensure that the Citrix XML Service is set to share its port with Microsoft Internet Information Services (IIS) and that IIS is configured to support HTTPS.

   • To send data over secure connections to XenApp servers using the SSL Relay to perform host authentication and data encryption, select SSL Relay.

   **Note:**
   If you are using HTTPS or the SSL Relay to secure connections between StoreFront and your server, ensure that the name you specify in the Servers box matches exactly (including the case) the name on the certificate for that server.

9. Specify the port for StoreFront to use for connections to the server. The default port is 80 for connections using HTTP and the SSL Relay, and 443 for HTTPS connections. In the case of XenDesktop and XenApp servers, the specified port must be the port used by the Citrix XML Service.

10. If you are using the SSL Relay to secure connections between StoreFront and the XenApp server, specify the TCP port of the SSL Relay in the SSL Relay port box. The default port is 443. Ensure that all the servers running the SSL Relay are configured to monitor the same port.

11. Click OK. You can configure stores to provide resources from any mixture of XenDesktop, XenApp, and App Controller deployments. Repeat Steps 4 to 11, as necessary, to list additional de-
ployments providing resources for the store. When you have added all the required resources to the store, click Next.

12. On the Remote Access page, specify whether and how users connecting from public networks can access the store through NetScaler Gateway.

   - To make the store unavailable to users on public networks, select **None**. Only local users on the internal network will be able to access the store.

   - To make only resources delivered through the store available through NetScaler Gateway, select **No VPN tunnel**. Users log on directly to NetScaler Gateway and do not need to use the NetScaler Gateway Plug-in.

   - To make the store and all other resources on the internal network available through an SSL virtual private network (VPN) tunnel, select **Full VPN tunnel**. Users require the NetScaler Gateway Plug-in to establish the VPN tunnel.

   If it is not already enabled, the pass-through from NetScaler Gateway authentication method is automatically enabled when you configure remote access to the store. Users authenticate to NetScaler Gateway and are automatically logged on when they access their stores.

13. If you enabled remote access, continue to provide remote access to the store through NetScaler Gateway to specify the NetScaler Gateway deployments through which users can access the store. Otherwise, on the Remote Access page, click **Next**.

14. On the Configure Authentication Methods page, select the methods by which users will authenticate and access resources, and click **Next**.

15. On the Configure Password Validation page, select the delivery controllers to provide the password validation, click **Next**.

16. On the XenApp Services URL page, configure the URL for users who use PNAgent to access applications and desktops and click **Create**.

   **Server Group Node** in the left and **Action** panes is replaced by **Change Base URL**. The only option available is to change the base URL, because server groups are not available in nondomain-joined servers.

**Remove a store**

Use the Remove Store task to delete a store. When you remove a store, any associated Receiver for Web sites, Desktop Appliance sites, and XenApp Services URLs are also deleted.
Important:
In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

Create an unauthenticated store

July 30, 2018

Use the Create Store task to configure additional unauthenticated stores to support access for unauthenticated (anonymous) users. You can create as many unauthenticated stores as you need; for example, you can create an unauthenticated store for a particular group of users or to group together a specific set of resources.

Remote access through a NetScaler Gateway cannot be applied to unauthenticated stores.

To create an unauthenticated store, you identify and configure communications with the servers providing the resources that you want to make available in the store.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

Add desktops and applications to the store

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the Actions pane, click Create Store.
3. On the Store Name page, specify a name for your store, select Allow only unauthenticated (anonymous) users to access this store, and click Next.
4. Store names appear in Citrix Receiver under users’ accounts, so choose a name that gives users information about the content of the store.
5. On the Delivery Controllers page, list the infrastructure providing the resources that you want to make available in the store. Click Add.
5. In the **Add Delivery Controller** dialog box, specify a name that will help you to identify the deployment and indicate whether the resources that you want to make available in the store are provided by XenApp or XenMobile (AppController). For XenMobile (AppController) deployments, ensure that the name you specify does not contain any spaces. When assigning Controllers, ensure that you are only using those which support the anonymous apps feature. Configuring your unauthenticated store with Controllers that do not support this feature may lead to no anonymous apps being available from the store.

6. If you are adding details for XenApp servers, continue to Step 7. To make applications managed by XenMobile (App Controller) available in the store, enter the name or IP address of a XenMobile (App Controller) virtual appliance in the Server box and specify the port for StoreFront to use for connections to XenMobile (App Controller). The default port is 443. Continue to Step 10.

7. To make desktops and applications provided by XenApp available in the store, add the names or IP addresses of your servers to the Servers list. Specify multiple servers to enable fault tolerance, listing the entries in order of priority to set the failover sequence. For XenDesktop sites, give details of Controllers. In the case of XenApp farms, list servers running the Citrix XML Service.

8. Select from the Transport type list the type of connections for StoreFront to use for communications with the servers.
   - To send data over unencrypted connections, select **HTTP**. If you select this option, you must make your own arrangements to secure connections between StoreFront and your servers.
   - To send data over secure HTTP connections using Secure Sockets Layer (SSL) or Transport Layer Security (TLS), select **HTTPS**. If you select this option for XenDesktop and XenApp servers, ensure that the Citrix XML Service is set to share its port with Microsoft Internet Information Services (IIS) and that IIS is configured to support HTTPS.

   **Note:**
   If you are using HTTPS to secure connections between StoreFront and your servers, ensure that the names you specify in the Servers list match exactly (including the case) the names on the certificates for those servers.

9. Specify the port for StoreFront to use for connections to the servers. The default port is 80 for connections using HTTP and 443 for HTTPS connections. In the case of XenDesktop and XenApp servers, the specified port must be the port used by the Citrix XML Service.

10. Click OK. You can configure stores to provide resources from any mixture of XenDesktop, XenApp, and App Controller deployments. Repeat Steps 4 to 10, as necessary, to list additional deployments providing resources for the store. When you have added all the required resources to the store, click Create.

Your unauthenticated store is now available for use. To enable user access to the new store, Citrix Receiver must be configured with access details for the store. There are a number of ways in which you can provide these details to users to make the configuration process easier for them. For more
information, see User access options.

Alternatively, users can access the store through the Receiver for Web site, which enables users to access their desktops and applications through a web page. By default with unauthenticated stores, Receiver for Web displays the applications in a folder hierarchy that includes a breadcrumb path. The URL for users to access the Receiver for Web site for the new store is displayed when you create the store.

When you create a new store, the XenApp Services URL is enabled by default. Users of domain-joined desktop appliances and repurposed PCs running the Citrix Desktop Lock, along with users who have older Citrix clients that cannot be upgraded, can access stores directly using the XenApp Services URL for the store. The XenApp Services URL has the form http[s]://serveraddress/Citrix/storename/PNAgent/config.xml, where serveraddress is the FQDN of the server or load balancing environment for your StoreFront deployment and storename is the name you specified for the store in Step 3.

Note:
In StoreFront configurations where the web.config file has been configured with the parameter LogoffAction="terminate", Citrix Receiver for Web sessions accessing this unauthenticated store will not terminate. Typically, the web.config file can be found at C:\inetpub\wwwroot\Citrix\storename\, where storename is the name specified for the store when it was created. To ensure these sessions terminate properly, the XenApp server being used by this store must have the Trust XML requests option enabled as shown in Configuring the Citrix XML Service Port and Trust in the XenApp and XenDesktop documentation.

Export store provisioning files for users

July 30, 2018

Use the Export Multi-Store Provisioning File and Export Provisioning File tasks to generate files containing connection details for stores, including any NetScaler Gateway deployments and beacons configured for the stores. Make these files available to users to enable them to configure Citrix Receiver automatically with details of the stores. Users can also obtain Citrix Receiver provisioning files from Receiver for Web sites.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.
1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile. Select the Stores node in the left pane of the Citrix StoreFront management console.
2. To generate a provisioning file containing details for multiple stores, in the Actions pane, click **Export Multi-Store Provisioning File** and select the stores to include in the file.
3. Click **Export** and **Save** the provisioning file with a .cr extension to a suitable location on your network.

### Advertise and hide stores to users

**July 30, 2018**

Use the Hide Store task to prevent stores being presented to users to add to their accounts when they configure Citrix Receiver through email-based account discovery or FQDN. By default, when you create a store it is presented as an option for users to add in Citrix Receiver when they discover the StoreFront deployment hosting the store. Hiding a store does not make it inaccessible, instead users must configure Citrix Receiver with connection details for the store, either manually, using a setup URL, or with a provisioning file. To resume advertising a hidden store, use the Advertise Store task.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, **propagate your configuration changes to the server group** so that the other servers in the deployment are updated.

1. On the Windows **Start** screen or **Apps** screen, locate and click the **Citrix StoreFront** tile.
2. Select the **Stores** node in the left pane of the Citrix StoreFront management console and, in the **Actions** pane, click **Configure Store Settings > Advertise Store**.
3. On the **Advertise Store** page, select either **Advertise Store** or **Hide Store**.

### Manage the resources made available in stores

**July 30, 2018**

Use the Manage Controllers task to add and remove from stores resources provided by XenDesktop, XenApp, and App Controller, and to modify the details of the servers providing these resources.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, **propagate your configuration changes to the server group** so that the other servers in the deployment are updated.
1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the results pane, select a store. In the Actions pane, click Manage Delivery Controllers.
3. In the Manage Delivery Controllers dialog box, click Add to include desktops and applications from another XenDesktop, XenApp, or App Controller deployment in the store. To modify the settings for a deployment, select the entry in the Delivery controllers list and click Edit. Select an entry in the list and click Remove to stop the resources provided by the deployment being available in the store.
4. In the Add Controller or Edit Controller dialog box, specify a name that will help you to identify the deployment and indicate whether the resources that you want to make available in the store are provided by XenDesktop, XenApp, or AppController. For App Controller deployments, ensure that the name you specify does not contain any spaces.
5. If you are adding details of XenDesktop or XenApp servers, continue to Step 6. To make applications managed by App Controller available in the store, enter the name or IP address of an App Controller virtual appliance in the Server box and specify the port for StoreFront to use for connections to App Controller. The default port is 443. Continue to Step 10.
6. To make desktops and applications provided by XenDesktop or XenApp available in the store, click Add to enter the name or IP address of a server. Depending on how the web.config file is configured, specifying multiple servers enables either load balancing or failover, as indicated in the dialog box. Load balancing is configured by default. If failover is configured, list the entries in order of priority to set the failover sequence. For XenDesktop sites, give details of Delivery Controllers. In the case of XenApp farms, list servers running the Citrix XML Service. To modify the name or IP address of a server, select the entry in the Servers list and click Edit. Select an entry in the list and click Remove to stop StoreFront contacting the server to enumerate the resources available to the user.
7. Select from the Transport type list the type of connections for StoreFront to use for communications with the servers.
   • To send data over unencrypted connections, select HTTP. If you select this option, you must make your own arrangements to secure connections between StoreFront and your servers.
   • To send data over secure HTTP connections using Secure Sockets Layer (SSL) or Transport Layer Security (TLS), select HTTPS. If you select this option for XenDesktop and XenApp servers, ensure that the Citrix XML Service is set to share its port with Microsoft Internet Information Services (IIS) and that IIS is configured to support HTTPS.
   • To send data over secure connections to XenApp servers using the SSL Relay to perform host authentication and data encryption, select SSL Relay.
   Note: If you are using HTTPS or the SSL Relay to secure connections between StoreFront and your servers, ensure that the names you specify in the Servers list match exactly (including the case) the names on the certificates for those
servers.
8. Specify the port for StoreFront to use for connections to the servers. The default port is 80 for connections using HTTP and the SSL Relay, and 443 for HTTPS connections. In the case of XenDesktop and XenApp servers, the specified port must be the port used by the Citrix XML Service.
9. If you are using the SSL Relay to secure connections between StoreFront and XenApp servers, specify the TCP port of the SSL Relay in the SSL Relay port box. The default port is 443. Ensure that all the servers running the SSL Relay are configured to monitor the same port.
10. Click OK. You can configure stores to provide resources from any mixture of XenDesktop, XenApp, and App Controller deployments. Repeat Steps 3 to 10, as necessary, to add or modify other deployments in the Delivery controllers list.

Manage remote access to stores through NetScaler Gateway

July 30, 2018

Use the Remote Access Settings task to configure access to stores through NetScaler Gateway for users connecting from public networks. Remote access through a NetScaler Gateway cannot be applied to unauthenticated stores.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the results pane, select a store. In the Actions pane, click **Configure Remote Access Settings**.
3. In the **Configure Remote Access Settings** dialog box, specify whether and how users connecting from public networks can access the store through NetScaler Gateway.
   - To make the store unavailable to users on public networks, make sure you do not check **Enable remote access**. Only local users on the internal network will be able to access the store.
   - To enable remote access, check **Enable Remote Access**.
     - To make only resources delivered through the store available through NetScaler Gateway, select No VPN tunnel. Users log on directly to NetScaler Gateway and do not need to use the NetScaler Gateway Plug-in.
     - To make the store and other resources on the internal network available through a Secure Sockets Layer (SSL) virtual private network (VPN) tunnel, select Full VPN tunnel. Users require the NetScaler Gateway Plug-in to establish the VPN tunnel.
If it is not already enabled, the pass-through from NetScaler Gateway authentication method is automatically enabled when you configure remote access to the store. Users authenticate to NetScaler Gateway and are automatically logged on when they access their stores.

4. If you enabled remote access, select from the NetScaler Gateway appliances list the deployments through which users can access the store. Any deployments you configured previously for this and other stores are available for selection in the list. If you want to add a further deployment to the list, click Add. Otherwise, continue to Step 16.

5. On the General Settings page, specify a name for the NetScaler Gateway deployment that will help users to identify it.

Users see the display name you specify in Citrix Receiver, so include relevant information in the name to help users decide whether to use that deployment. For example, you can include the geographical location in the display names for your NetScaler Gateway deployments so that users can easily identify the most convenient deployment for their location.

6. Enter the URL of the virtual server or user logon point (for Access Gateway 5.0) for your deployment. Specify the product version used in your deployment.

The fully qualified domain name (FQDN) for your StoreFront deployment must be unique and different from the NetScaler Gateway virtual server FQDN. Using the same FQDN for StoreFront and the NetScaler Gateway virtual server is not supported.

7. If you are adding an Access Gateway 5.0 deployment, continue to Step 9. Otherwise, specify the subnet IP address of the NetScaler Gateway appliance, if necessary. A subnet IP address is required for Access Gateway 9.3 appliances, but optional for more recent product versions.

The subnet address is the IP address that NetScaler Gateway uses to represent the user device when communicating with servers on the internal network. This can also be the mapped IP address of the NetScaler Gateway appliance. Where specified, StoreFront uses the subnet IP address to verify that incoming requests originate from a trusted device.

8. If you are adding an appliance running NetScaler Gateway select from the Logon type list the authentication method you configured on the appliance for Citrix Receiver users.

The information you provide about the configuration of your NetScaler Gateway appliance is added to the provisioning file for the store. This enables Citrix Receiver to send the appropriate connection request when contacting the appliance for the first time.

- If users are required to enter their Microsoft Active Directory domain credentials, select Domain.
- If users are required to enter a tokencode obtained from a security token, select Security token.
- If users are required to enter both their domain credentials and a tokencode obtained from a security token, select Domain and security token.
• If users are required to enter a one-time password sent by text message, select **SMS authentication**.

• If users are required to present a smart card and enter a PIN, select **Smart card**.

If you configure smart card authentication with a secondary authentication method to which users can fall back if they experience any issues with their smart cards, select the secondary authentication method from the Smart card fallback list. Continue to Step 10.

9. To add an Access Gateway 5.0 deployment, indicate whether the user logon point is hosted on a standalone appliance or an Access Controller server that is part of a cluster. If you are adding a cluster, click Next and continue to Step 11.

10. If you are configuring StoreFront for NetScaler Gateway or a single Access Gateway 5.0 appliance, complete the NetScaler Gateway authentication service URL in the Callback URL box. StoreFront automatically appends the standard portion of the URL. Click Next and continue to Step 13.

   Enter the internally accessible URL of the appliance. StoreFront contacts the NetScaler Gateway authentication service to verify that requests received from NetScaler Gateway originate from that appliance.

11. To configure StoreFront for an Access Gateway 5.0 cluster, list on the Appliances page the IP addresses or FQDNs of the appliances in the cluster and click Next.

12. On the Enable Silent Authentication page, list URLs for the authentication service running on the Access Controller servers. Add URLs for multiple servers to enable fault tolerance, listing the servers in order of priority to set the failover sequence. Click Next.

   StoreFront uses the authentication service to authenticate remote users so that they do not need to re-enter their credentials when accessing stores.

13. For all deployments, if you are making resources provided by XenDesktop or XenApp available in the store, list on the Secure Ticket Authority (STA) page URLs for servers running the STA. Add URLs for multiple STAs to enable fault tolerance, listing the servers in order of priority to set the failover sequence.

   The STA is hosted on XenDesktop and XenApp servers and issues session tickets in response to connection requests. These session tickets form the basis of authentication and authorization for access to XenDesktop and XenApp resources.

14. If you want XenDesktop and XenApp to keep disconnected sessions open while Citrix Receiver attempts to reconnect automatically, select the Enable session reliability check box. If you configured multiple STAs and want to ensure that session reliability is always available, select the Request tickets from two STAs, where available checkbox.

   When the Request tickets from two STAs, where available check box is selected, StoreFront obtains session tickets from two different STAs so that user sessions are not interrupted if one STA
becomes unavailable during the course of the session. If, for any reason, StoreFront is unable to contact two STAs, it falls back to using a single STA.

15. Click **Create** to add your NetScaler Gateway deployment to the list in the **Remote Access Settings** dialog box.

16. Repeat Steps 4 to 15, as necessary, to add more NetScaler Gateway deployments to the NetScaler Gateway appliances list. If you enable access through multiple deployments by selecting more than one entry in the list, specify the default deployment to be used to access the store.

### Integrate Citrix Online applications with stores

August 2, 2018

**Note:**

From StoreFront 3.12, this feature cannot be configured in the StoreFront management console. If you upgrade to StoreFront 3.12, you can continue to use this feature. To change your configuration, use the PowerShell cmdlet, `Update-DSGenericApplications`.

For information on configuring this feature in the StoreFront management console in earlier versions, see the article *Integrate Citrix Online applications with stores* in the **StoreFront 3.11 documentation**.

#### Update-DSGenericApplications

**Name**

`Update-DSGenericApplications`

**Synopsis**

Updates the generic application settings for a store service.

**Syntax**

```
Update-DSGenericApplications [-StoreServiceSiteId] <Int64> [-StoreServiceVirtualPath] <String> [-GoToMeetingEnabled] <Boolean> [-GoToMeetingDeliveryOption] <String> [-GoToWebinarEnabled] <Boolean> [-GoToWebinarDeliveryOption] <String>
```
Description

Cmdlet used to update the generic (Citrix Online) functionality of the store service.

Configure two StoreFront stores to share a common subscription datastore

July 31, 2018

As of version 2.0, StoreFront no longer uses an SQL database to maintain its subscription data. Citrix replaced the SQL database with a Windows datastore that requires no additional configuration when StoreFront is first installed. The installation installs the Windows datastore locally on each StoreFront server. In StoreFront server group environments, each server also maintains a copy of the subscription data used by its store. This data is propagated to other servers to maintain user subscriptions across the whole group. By default, StoreFront creates a single datastore for each store. Each subscription datastore is updated independently from each other store.

Where different configuration settings are required, it is common for administrators to configure StoreFront with two distinct stores; one for external access to resources using Netscaler Gateway and another for internal access using the corporate LAN. You can configure both “external” and “internal” stores to share a common subscription datastore by making a simple change to the store web.config file.

In the default scenario involving two stores and their corresponding subscription datastores, a user must subscribe to the same resource twice. Configuring the two stores to share a common subscription database improves and simplifies the roaming experience when users access the same resource from inside or outside the corporate network. With a shared subscription datastore it does not matter whether they use the “external” or “internal” store when they initially subscribe to a new resource.

- Each store has a web.config file located in C:\inetpub\wwwroot\citrix<storename>.
- Each store web.config contains a client endpoint for the Subscription Store Service.

<clientEndpoint uri="net.pipe://localhost/Citrix/Subscriptions/1__Citrix_<StoreName>" authenticationMode="windows" transferMode="Streamed">

The subscription data for each Store is located in:

C:\Windows\ServiceProfiles\NetworkService\AppData\Roaming\Citrix\SubscriptionsStore\1__Citrix_<StoreName>

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For two stores to share a subscription datastore, you need only point one store to the subscription service endpoint of the other store. In the case of a server group deployment, all servers have identical pairs of stores defined and identical copies of the shared datastore they both share.

**Note:**
The XenApp, XenDesktop and AppC controllers configured on each store must match exactly; otherwise, an inconsistent set of resource subscriptions on one store compared to another might occur. Sharing a datastore is supported only when the two stores reside on the same StoreFront server or server group deployment.

**StoreFront subscription datastore endpoints**

1. On a single StoreFront deployment, open the external store web.config file using Notepad and search for the `clientEndpoint`. For example:

```xml
<subscriptionsStoreClient enabled="true">
  <clientEndpoint uri="net.pipe://localhost/Citrix/Subscriptions/1__Citrix_External" authenticationMode="windows" transferMode="Streamed">
    <clientCertificate thumbprint="0" />
  </clientEndpoint>
</subscriptionsStoreClient>
```

2. Change the external to match the internal store endpoint:

```xml
<subscriptionsStoreClient enabled="true">
  <clientEndpoint uri="net.pipe://localhost/Citrix/Subscriptions/1__Citrix_Internal" authenticationMode="windows" transferMode="Streamed">
    <clientCertificate thumbprint="0" />
  </clientEndpoint>
</subscriptionsStoreClient>
```

3. If using StoreFront server group then propagate any changes made to the web.config file of the primary node to all other nodes.

Both stores are now set to share the internal store subscription datastore.

**Advanced store settings**

July 31, 2018
You can configure advanced store properties by using the Advanced Settings page in the Configure Store Settings.

**Important:**
In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console, select a store in the center pane, and in the Action pane, select **Configure Store Settings**.
3. On the **Configure Store Settings** page, select **Advanced Settings**, select the advance option you want to configure, make the required change, and click **OK**.

**Address resolution type**

Use the **Advanced Settings** task to specify the type of address to request from the server. The default is DnsPort. From the **Address resolution type** drop-down menu on **Advanced Settings**, select one of the following:

- Dns
- DnsPort
- IPV4
- IPV4Port
- Dot
- DotPort
- Uri
- NoChange

**Allow font smoothing**

You can specify if you want font smoothing for HDX sessions. The default is On.

Use the **Advanced Settings** task, check the **Allow font smoothing** check box, and click **OK**.

**Allow session reconnect**

You can specify if you want HDX sessions to be reconnected. The default is On.
Use the Advanced Settings task, check the Allow session reconnect check box, and click OK to enable session reconnect.

Allow special folder redirection

Use the Advanced Settings task to enable or disable special folder redirection. With special folder redirection configured, users can map Windows special folders for the server to those on their local computers. Special folders refer to standard Windows folders, such as Documents and Desktop, which are always presented in the same way regardless of the operating system.

Use the Advanced Settings task, check or uncheck the Allow special folder redirection check box to enable or disable special folder redirection, and click OK.

Background health check polling period

StoreFront runs periodic health checks on each XenDesktop broker and XenApp server to reduce the impact of intermittent server availability. The default is every minute (00:01:00). Use the Advanced Settings task, specify a time for the Background health-check Polling period, and click OK to control the frequency of the health check.

Communication time-out duration

By default, requests from StoreFront to a server providing resources for a store time out after 30 seconds. The server is considered unavailable after 1 unsuccessful communication attempt. Use the Advanced Settings task, make your changes to the default time, and click OK to change these settings.

Connection timeout

You can specify the number of seconds to wait when establishing an initial connection with a Delivery Controller. The default is 6.

Use the Advanced Settings task, specify the seconds to wait when establishing the initial connection, and click OK

Enable enhanced enumeration

You can enable (or disable) parallel communication with Delivery Controllers. The default is On.

Use the Advanced Settings task, check (or uncheck) the Enable enhanced enumeration check box, and click OK.
Enable socket spooling

Socket pooling is disabled by default in stores. When socket pooling is enabled, StoreFront maintains a pool of sockets, rather than creating a socket each time one is needed and returning it to the operating system when the connection is closed. Enabling socket pooling enhances performance, particularly for Secure Sockets Layer (SSL) connections. To enable socket pooling, you edit the store configuration file. Use the Advanced Settings task, check the Enable socket spooling check box, and click OK to enable socket pooling.

Filter resources by excluded keywords

You can filter matching resources by excluded keywords. Specifying exclusion keywords removes any previously configured inclusion keywords. The default is No filtering (no resource types excluded).

Use the Advanced Settings task, select Filter resources by excluded keywords, click to the right of it, enter a semicolon-separated list of keywords in the enter keywords box, and click OK.

Filter resources by included keywords

You can filter matching resources by inclusion keywords. Specifying inclusion keywords removes any previously configured exclusion keywords. The default is No filtering (no resource types excluded).

Use the Advanced Settings task, select Filter resources by included keywords, click to the right of it, enter a semicolon-separated list of keywords in the enter keywords box, and click OK.
Filter resources by type

Choose the resource types to be included in resource enumeration. The default is No filtering (all resource types included).

Use the Advanced Settings task, select Filter resources by type, click to the right of it, choose the resource types to include in the enumeration, and click OK.

Maximum concurrent enumerations

Specify the maximum number of concurrent requests to send to different Delivery Controllers. The default is 0 (No Limit).

Use the Advanced Settings task, select Maximum concurrent enumerations, enter a number, and click OK.

Minimum farms for concurrent enumeration

Specify the minimum number of Delivery Controllers before enumerations occur in parallel. The default is 3.

Use the Advanced Settings task, select Minimum farms for concurrent enumerations, enter a number, and click OK.

Override ICA client name

Overrides the client name setting in the .ica launch file with an ID generated by Citrix Receiver for Web. When disabled, Citrix Receiver specifies the client name. The default is Off.

Use the Advanced Settings task, check the Override the ICA client name check box, and click OK.

Require token consistency

When enabled, StoreFront enforces consistency between the gateway used to authenticate and the gateway used to access the store. When the values are inconsistent, users must reauthenticate. You must enable this for Smart Access. The default is On.

Use the Advanced Settings task, check the Require token consistency check box, and click OK.
Server communication attempts

Specify the number of attempts to communicate with Delivery Controllers before marking them unavailable. The default is 1.

Use the Advanced Settings task, select Server communication attempts, enter a number, and click OK.

Show Desktop Viewer for legacy clients

Specify whether to show the Citrix Desktop Viewer window and toolbar when users access their desktop from legacy clients. The default is Off.

Use the Advanced Settings task, check the Show Desktop Viewer for legacy clients check box, and click OK.

Manage a Citrix Receiver for Web site

August 16, 2018

Note:
Learn about product name changes in What’s new.

Citrix Receiver for Web allows access to applications, data, and desktops easily and securely from a wide range of devices. Use StoreFront to configure Citrix Receiver for Web app selection for the Citrix Receiver for Web.

Use the StoreFront management console to do the following Citrix Receiver for Web-related tasks:

<table>
<thead>
<tr>
<th>Task</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a Citrix Receiver for Web site</td>
<td>Create Citrix Receiver for Web sites, which enable users to access stores through a web page.</td>
</tr>
<tr>
<td>Configure Citrix Receiver for Web sites</td>
<td>Modify settings for your Receiver for Web sites.</td>
</tr>
<tr>
<td>Configure support for the unified Citrix Receiver experience</td>
<td>StoreFront supports both the classic and unified user experiences. The unified experience delivers a centrally managed HTML5 user experience.</td>
</tr>
<tr>
<td>Create and manage featured apps</td>
<td>Create product featured app groups for your end users that are related to or fit in a specific category.</td>
</tr>
</tbody>
</table>
### StoreFront 1811

<table>
<thead>
<tr>
<th>Task</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Configure workspace control</strong></td>
<td>Workspace control lets applications follow users as they move between devices.</td>
</tr>
<tr>
<td><strong>Configure the Citrix Receiver for HTML5 use of browser tabs</strong></td>
<td>Specify when users start resources from shortcuts using Citrix Receiver for HTML5, whether the desktop or application replaces the Citrix Receiver for Web site in the existing browser tab rather than appearing in a new tab.</td>
</tr>
<tr>
<td><strong>Configure communication time-out duration and retry attempts</strong></td>
<td>By default, requests from a Citrix Receiver for Web site to the associated store time out after three minutes. The store is considered unavailable after one unsuccessful communication attempt. You can change the default settings.</td>
</tr>
</tbody>
</table>

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### Create a Citrix Receiver for Web site

**July 30, 2018**

Use the **Create Website** task to add Receiver for Web sites, which enable users to access stores through a webpage.

**Important:**

In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, **propagate your configuration changes to the server group** so that the other servers in the deployment are updated.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.

2. Select the Store node in the left pane of the Citrix StoreFront management console, select the store for which you want to create the Citrix Receiver for Web site, and in the Actions pane, click Manage Receiver for Web Sites.

3. Click **Add** to create a new Citrix Receiver for Web site. Specify the desired URL in the Website path Box and click **Next**.

4. Select the Citrix Receiver experience and click **Next**.
Choose an authentication method, click Create and then, once the site has been created, click Finish.

The URL for users to access the Citrix Receiver for Web site is displayed. For more information about modifying settings for Citrix Receiver for Web sites, see Configure Citrix Receiver for Web sites.

By default, when a user accesses a Receiver for Web site from a computer running Windows or Mac OS X, the site attempts to determine whether Citrix Receiver is installed on the user’s device. If Citrix Receiver cannot be detected, the user is prompted to download and install the appropriate Citrix Receiver for their platform from the Citrix website. For more information about modifying this behavior, see Disable detection and deployment of Citrix Receiver.

The default configuration for Receiver for Web sites requires that users install a compatible version of Citrix Receiver to access their desktops and applications. However, you can enable Receiver for HTML5 on your Receiver for Web sites so that users who cannot install Citrix Receiver can still access resources. For more information, see Configure Citrix Receiver for Web sites.

**Configure Citrix Receiver for Web sites**

August 16, 2018

Citrix Receiver for Web sites enable users to access stores through a webpage. The tasks below enable you to modify settings for your Citrix Receiver for Web sites. Some advanced settings can only be changed by editing the site configuration files. For more information, see Configure Citrix Receiver for Web sites using the configuration files.

**Important:**
In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

**Choose authentication methods**

Use the Authentication Methods task to assign authentication methods for users connecting to the Citrix Receiver for Web site. This action allows you to specify a subset of authentication methods for each Receiver for Web site.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the **Stores** node in the left pane of the Citrix StoreFront management console and select the relevant store that you want to modify from the results pane.

3. In the Actions pane, click **Manage Receiver for Web Sites**, click **Configure**, and choose **Authentication Methods** to specify the access methods that you want to enable for your users.
   - Select the User name and password check box to enable explicit authentication. Users enter their credentials when they access their stores.
   - Select the **SAML Authentication** check box to enable integration with a SAML Identity Provider. Users authenticate to an Identity Provider and are automatically logged on when they access their stores. From the Settings drop-down menu:
     - Select **Identity Provider** to configure the trust to the Identity Provider.
     - Select **Service Provider** to configure the trust for the Service Provider. This information is required by the Identity Provider.
   - Select the Domain pass-through check box to enable pass-through of Active Directory domain credentials from users’ devices. Users authenticate to their domain-joined Windows computers and are automatically logged on when they access their stores. In order to use this option, pass-through authentication must be enabled when Citrix Receiver for Windows is installed on users’ devices. Note that Domain pass-through for Citrix Receiver for Web is limited to Windows operating systems using Chrome, Firefox, Internet Explorer, and Edge.
   - Select the Smart card check box to enable smart card authentication. Users authenticate using smart cards and PINs when they access their stores.
   - Select the Pass-through from NetScaler Gateway check box to enable pass-through authentication from NetScaler Gateway. Users authenticate to NetScaler Gateway and are automatically logged on when they access their stores.

4. Once the authentication method has been selected, click **OK**.
   
   For more information about modifying settings for authentication methods, see **Configure the authentication service**.

### Add resource shortcuts to other websites

Use the Add Shortcuts to Websites task to provide users with rapid access to desktops and applications from websites hosted on the internal network. You generate URLs for resources available through the Citrix Receiver for Web site and embed these links on your websites. Users click on a link and are redirected to the Receiver for Web site, where they log on if they have not already done so. The Receiver for Web site automatically starts the resource. In the case of applications, users are also subscribed to the application if they have not subscribed previously.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the **Stores** node in the left pane of the Citrix StoreFront management console and select the site from the results pane.

3. In the **Actions** pane, click **Manage Receiver for Web Sites**, click **Configure**, and choose **Website Shortcuts**.

4. Click **Add** to enter the URL for a website on which you plan to host shortcuts. URLs must be specified in the form `http[s]://hostname[:port]`, where `hostname` is the fully qualified domain name of the website host and `port` is the port used for communication with the host if the default port for the protocol is not available. Paths to specific pages on the website are not required. To modify a URL, select the entry in the Websites list and click **Edit**. Select an entry in the list and click **Remove** to delete the URL for a website on which you no longer want to host shortcuts to resources available through the Citrix Receiver for Web site.

5. Click **Get shortcuts** and then click **Save** when you are prompted to save your configuration changes.

6. Log on to the Citrix Receiver for Web site and copy the URLs you require to your website.

**Set session timeout**

By default, user sessions on Citrix Receiver for Web sites time out after 20 minutes of inactivity. When a session times out, users can continue to use any desktops or applications that are already running but must log on again to access Citrix Receiver for Web site functions such as subscribing to applications.

Use the Session Timeout task in the **Manage Receiver for Web Sites** to change the session timeout value.

1. On the Windows **Start** screen or **Apps** screen, locate and click the **Citrix StoreFront** tile.
2. Select the **Stores** node in the left pane and in the **Actions** pane, click **Manage Receiver for Web Sites**, click **Configure**, choose **Session Settings**. You can specify minutes and hours for **Session timeout**. The minimum value for all time intervals is 1. The maximum equates to 1 year for each time interval.

**Specify different views for applications and desktops**

Use the **Application and Desktops view on Receiver for Web** task in the **Manage Receiver for Web Sites** to change the session timeout value.

1. On the Windows **Start** screen or **Apps** screen, locate and click the **Citrix StoreFront** tile.
2. Select the **Stores** node in the left pane and in the **Actions** pane, click **Manage Receiver for Web Sites**, click **Configure**, and choose **Client Interface Settings**.
3. From the **Select view and Default view** drop-down menus, select the views you want displayed.

To enable folder view:
1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane and in the Actions pane, click Manage Receiver for Web Sites and click Configure.
3. Select Advanced Settings and check Enable folder view.

Stop offering provisioning files to users

By default, Citrix Receiver for Web sites offer provisioning files that enable users to configure Citrix Receiver automatically for the associated store. The provisioning files contain connection details for the store that provides the resources on the site, including details of any NetScaler Gateway deployments and beacons configured for the store.

Use the Enable Receiver configuration task in the Manage Receiver for Web Sites to change the session timeout value.

Configure site behavior for users without Citrix Receiver

Use the Deploy Citrix Receiver task to configure the behavior of a Citrix Receiver for Web site when a Windows or Mac OS X user without Citrix Receiver installed accesses the site. By default, Citrix Receiver for Web sites automatically attempt to determine whether Citrix Receiver is installed when accessed from computers running Windows or Mac OS X.

If Citrix Receiver cannot be detected, the user is prompted to download and install the appropriate Citrix Receiver for their platform. The default download location is the Citrix website, but you can also copy the installation files to the StoreFront server and provide users with these local files instead.

For users who cannot install Citrix Receiver, you can enable Citrix Receiver for HTML5 on your Citrix Receiver for Web sites. Citrix Receiver for HTML5 enables users to access desktops and applications directly within HTML5-compatible web browsers without needing to install Citrix Receiver. Both internal network connections and connections through NetScaler Gateway are supported. However, for connections from the internal network, Citrix Receiver for HTML5 only enables access to resources provided by specific products. Additionally, specific versions of NetScaler Gateway are required to enable connections from outside the corporate network. For more information, see Infrastructure requirements.

For local users on the internal network, access through Citrix Receiver for HTML5 to resources provided by XenDesktop and XenApp is disabled by default. To enable local access to desktops and applications using Citrix Receiver for HTML5, you must enable the ICA WebSockets connections policy on
your XenDesktop and XenApp servers. XenDesktop and XenApp use port 8008 for Citrix Receiver for HTML5 connections. Ensure your firewalls and other network devices permit access to this port. For more information, see WebSockets policy settings.

Citrix Receiver for HTML5 can only be used with Internet Explorer over HTTP connections. To use Citrix Receiver for HTML5 with Mozilla Firefox over HTTPS connections, users must type about:config in the Firefox address bar and set the network.websocket.allowinsecureFromHTTPS preference to true.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the results pane, select a site. In the Actions pane, click Manage Receiver for Web Sites and click Configure.
3. Choose Deploy Citrix Receiver and specify the response of the Citrix Receiver for Web site if Citrix Receiver cannot be detected on a user’s device.

   • If you want the site to prompt the user to download and install the appropriate Citrix Receiver for their platform, select Install locally. Users must install Citrix Receiver to access desktops and applications through the site.
     - If you select Allow users to download HDX engine (plug in), the Citrix Receiver for Web allows the user to download and install Citrix Receiver on the end user client if the Citrix Receiver is not available.
     - If you select Upgrade plug-in at logon, the Citrix Receiver for Web upgrades the Citrix Receiver client when the user logs on. To enable this feature, ensure the Citrix Receiver files are available on the StoreFront server.
     - Select a source from the drop-down menu.

   • If you want the site to prompt the user to download and install Citrix Receiver but fall back to Citrix Receiver for HTML5 if Citrix Receiver cannot be installed, select Use Receiver for HTML5 if local Receiver is unavailable. Users without Citrix Receiver are prompted to download and install Citrix Receiver every time they log on to the site.

   • If you want the site to enable access to resources through Citrix Receiver for HTML5 without prompting the user to download and install Citrix Receiver, select Always use Receiver for HTML5. With that option selected, users always access desktops and applications on the site through Citrix Receiver for HTML5, provided they use an HTML5-compatible browser. Users without an HTML5-compatible browser have to install the native Citrix Receiver.

Make Citrix Receiver installation files available on the server

By default, when a user accesses a Citrix Receiver for Web site from a computer running Windows or Mac OS X, the site attempts to determine whether Citrix Receiver is installed on the user’s device. If Citrix Receiver cannot be detected, the user is prompted to download and install the appropriate Citrix Receiver for their platform from the Citrix website.
1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the results pane, select a site. In the Actions pane, click Manage Receiver for Web Sites and click Configure.
3. Choose Deploy Citrix Receiver and Source for Receivers, and then browse to the installation files.

Run the prompt to install Citrix Receiver after logon

Before logging on to StoreFront, Citrix Receiver for Web prompts a user to install the latest Citrix Receiver if Citrix Receiver is not already installed on the user’s computer (for Internet Explorer, Firefox, and Safari users) or the first time that the user visits the site (for Chrome users). Depending on the configuration, the prompt might also display if the user’s installation of Citrix Receiver can be upgraded.

You can configure Citrix Receiver for Web to display the prompt after logging on to StoreFront.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and select the site from the results pane.
3. In the Actions pane, click Manage Receiver for Web Sites, click Configure.
4. Select Advanced Settings and check Prompt to install Citrix Receiver after logon.

Remove Citrix Receiver for Web sites

Use the Manage Receiver for Web Sites in the Actions pane to delete a Citrix Receiver for Web site. When you remove a site, users can no longer use that webpage to access the store.

Support for the unified Citrix Receiver experience

December 19, 2018

Notes:

- The unified experience is only supported on Internet Explorer 11. See Internet Explorer support.
- “StoreFront” continues to be the name used to refer to the enterprise app store that aggregates applications and desktops from Citrix Virtual Apps and Desktops sites into a single easy to use store for users. Citrix Receiver technology is now included in Citrix Workspace app. Implementing this transition in our products and documentation is an ongoing process. In-product content might still contain former names—for example, the unified ex-
experience refers to “Citrix Receiver”. “Receiver for web” in the administration console and in the documentation continues to refer to the client-less web access to StoreFront. Your patience during this transition is appreciated. For more detail about our new names, see https://www.citrix.com/about/citrix-product-guide/.

StoreFront supports both the classic and unified user experiences. With the classic experience, each Citrix Receiver platform is responsible for delivering its own user experience. The unified experience delivers a centrally managed HTML5 user experience to all web and native Citrix Receivers. This supports customization and featured app groups management.

Stores created using this version of StoreFront use the unified experience by default, but for upgrades Citrix retains the classic experience by default. To support the unified experience you must associate a StoreFront store with a Receiver for Web site, and that site must be configured to use the unified experience.

Important:
The unified experience is not supported if the Receiver for Web site is added to the Restricted zone. If you must add the Receiver for Web site to the Restricted zone, configure your store to use the classic experience.

Use the StoreFront management console to do the following Citrix Receiver for Web related tasks:

- Create a Citrix Receiver for Web site.
- Change the Citrix Receiver for Web site experience.
- Select a unified Citrix Receiver for Web site to associate with the store.
- Customize the Receiver appearance.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

Note:

If using XenApp 6.x, applications set to Stream to client or Streamed if possible, otherwise accessed from a server are not supported with the unified experience enabled.

Create a Citrix Receiver for Web website

A Citrix Receiver for Web site is created automatically, whenever you create a store. You can also create additional Receiver for Web sites using this procedure.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the Actions pane, click Manage Receiver for Web Sites > Add and follow the wizard.
Change the Citrix Receiver experience

You can select if a Citrix Receiver for Web website delivers the classic or unified experience. Note that enabling the classic experience disables the advanced customizations and featured app group management.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console, select the store that you want to change in the center pane, and click Manage Receiver for Web Sites in the Actions pane, and then click Configure.
3. Select Receiver Experience and choose Disable classic experience or Enable classic experience.

Select a unified Citrix Receiver for Web site to associate with the store

When a new store is created using StoreFront, a Citrix Receiver for Web site in unified mode is automatically created and associated with the store. However if you upgrade from a previous version of StoreFront, it defaults to the classic experience.

To select a Citrix Receiver for Web site to provide the unified experience for a store, you must have at least one Citrix Receiver for Web site created with the classic experience disabled.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console, select a store in the center pane, and click Configure Unified Experience in the Actions pane. Only websites that support the unified experience (classic experience disabled) can be used for setting as the default for the store. If you do not have a Citrix Receiver for Web website created, a message displays including a link to the Create a new Receiver for Web website. You can also change an existing Receiver for Web site into a Receiver for Web website. See Change the Citrix Receiver experience.
3. When you have a Citrix Receiver for Web site created, choose Configure Unified Experience for this store and choose the specific website.

Important:

If you change the unified experience to the classic experience on a Receiver for Web site, this might affect the native Citrix Receiver clients. Changing the experience back to the unified experience on this Receiver for Web site does not update the experience to the unified experience for the native Citrix Receiver clients. You must reset the unified experience in the Stores node on the management console.
Customize the Citrix Receiver appearance

To customize the Citrix Receiver appearance, your Citrix Receiver for Web website must have the classic Citrix Receiver experience disabled.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and in the Actions pane, click Manage Receiver for Web Sites and click Configure.
3. Select Receiver Experience > Disable classic experience.
4. Select Customize Appearance and make selections to customize how the website displays after logging on.

Citrix Receiver unified user experience

This section describes the features and appearance of the unified experience.
Card layout

Apps in the store are represented in a “card” layout. You can expand a panel below each card to show more details and actions.

Home

Home displays the favorites.

Favorites

Click or tap the star to make an item a favorite:
Search across all apps, desktops, and categories:

Settings

Access settings from the drop-down menu:

The menu shows the user name, taken from the Active Directory display name. If the display name is left blank (we do not recommend this), the domain and account name display. Use the menu to open the Settings page, check Citrix Receiver version, or log off.
Settings allow you to resume any disconnected sessions, and disconnect all of your current sessions and log you out respectively. Display the settings page in card or list layout:

- **Connect.** Resumes any disconnected sessions.
- **Disconnect.** Disconnects all of your current sessions and logs you off.
- **Activate Citrix Receiver.** Downloads a file that adds this store to the local Citrix Receiver app.
- **Change Citrix Receiver.** Opens a page that checks for a local Citrix Receiver app. This also allows users to switch between launching resources using the locally installed Citrix Workspace app (or Citrix Receiver), and launching them in an HTML5 browser.

**Create and manage featured apps**

November 6, 2018
You can create product featured app groups for your end users that are related to or fit in a specific category. For example, you can create a Sales Department featured app group containing applications that are used by that department. You can define featured apps in the StoreFront administration console by using application names or by using keywords or application categories that were defined in the Studio console.

Use the **Featured App Groups** task to add, edit, or remove featured app groups.

**Important:**

In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, **propagate your configuration changes to the server group** so that the other servers in the deployment are updated.

**Note:**

This functionality is available only when the Classic experience is disabled. This is described in [Customize the Citrix Receiver appearance](#).

1. On the Windows **Start** screen or Apps screen, locate and click the Citrix **StoreFront** tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and in the Actions pane, click **Manage Receiver for Web Sites** and click **Configure**.
3. Select **Featured App Groups**.
4. In the **Featured App Groups** dialog box, click **Create** to define a new featured app group.
5. In the **Create Featured App Group** dialog box, specify a featured app group name, description (optional), background, and the method by which you define the featured app groups. You can choose keywords, application names, or application category, and click **OK**.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keywords</td>
<td>Define the keywords in Studio.</td>
</tr>
<tr>
<td>Application category</td>
<td>Define the application category in Studio.</td>
</tr>
</tbody>
</table>
## Option Description

| Application names | Use the application name to define the featured app group. All applications names matching the name included here in the Create a Featured App Group dialog screen are included in the featured app group. StoreFront does not support wildcards in application names. The match is not case sensitive, but it does match whole words. For example, if you type Excel, StoreFront matches a published app named Microsoft Excel 2013 but typing Excel does not match anything. |

### Example:

We created two featured app groups:

- Collaboration - Created by matching apps in the **Collaboration** category in Studio.
- Engineering - Created by naming the app group and specifying a collection of app names.
Configure workspace control

July 30, 2018

Workspace control lets applications follow users as they move between devices. This enables, for example, clinicians in hospitals to move from workstation to workstation without having to restart their applications on each device. Workspace control is enabled by default for Citrix Receiver for Web sites. To disable or configure workspace control, you edit the site configuration file.

Important:

In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. In the left pane, select Stores and in the Action pane, select Manage Receiver for Web Sites, and click Configure.
3. Select **Workspace Control**.

4. Configure default settings for workspace control, which include:
   - Enabling workspace control
   - Setting session reconnection options
   - Specifying log off action

---

**Configure Citrix Receiver for HTML5 use of browser tabs**

July 31, 2018

By default, Citrix Receiver for HTML5 starts desktops and applications in a new browser tab. However, when users start resources from shortcuts using Citrix Receiver for HTML5, the desktop or application replaces the Citrix Receiver for Website in the existing browser tab rather than appearing in a new tab.

**Important:**

In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, **propagate your configuration changes to the server group** so that the other servers in the deployment are updated.

1. On the Windows **Start** screen or **Apps** screen, locate and click the Citrix StoreFront tile.
2. In the left pane, select **Stores** and in the Action pane, select **Manage Receiver for Web Sites**, and click **Configure**.
3. Select **Deploy Citrix Receiver**.
4. Select **Always use HTML 5 Receiver** from the **Deployment options** drop-down menu and depending on the tab in which you want to start applications, select or deselect **Launch applications in the same tab as Receiver for Web**.

---

**Configure communication timeout duration and retry attempts**

January 8, 2019

By default, requests from a Citrix Receiver for Web site to the associated store timeout after three minutes. The store is considered unavailable after one unsuccessful communication attempt. Use the **Session Settings** task to change the default settings.

**Important:**

In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running
on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console, select a store in the center pane, and in the Action pane, select Manage Receiver for Web Site, and click Configure.
3. Select Session Settings, make your changes, and click OK/Apply to save the changes.

Configure the session timeout

If the session timeout is not appropriately configured on StoreFront, the users may see the following timeout message - “Your session has timed out due to inactivity.” You can reset the session timeout value to increase the inactivity timer to suit your users’ usage pattern.

Complete the following steps to configure the session timeout on StoreFront:

Increase the session timeout for StoreFront

1. On StoreFront, navigate to c:\inetpub\wwwroot\Citrix<StoreWeb>.
2. Locate the entry: <sessionState timeout="20"/> in the web.config file.
3. Change the sessionState timeout to the desired value in minutes.

Increase maximum token lifetime of Authentication Service

If you increase the session timeout for the Citrix Receiver for Web to be more than one hour, you also have to increase the token maximum lifetime appropriately in the Authentication Service.

Increase session timeout for native Citrix Receiver

1. For the native Citrix Receiver installed on the StoreFront Server, navigate to c:\inetpub\wwwroot\Citrix\Authentication.
2. In the web.config file, locate the entry: <defaultLifetime="01:00:00"maxLifetime="01:00:00">
3. Change the maxLifetime to desired value.

Note:

For native receiver client (Windows/Linux), after logging out from the current session, you may see Citrix Virtual Apps and Desktops in the background. However, you should enter your credentials again when you click on any app or desktop after the StoreFront session timeout.
Increase authentication token lifetime

If the desired timeout value is greater than eight hours, edit the web.config file under Citrix Receiver for Web to increase the Authentication token lifetime:

1. On StoreFront, navigate to c:\inetpub\wwwroot\Citrix<StoreWeb>.
2. Locate the entry: `<authentication tokenLifeTime="08:00:00" method="Auto"/>
3. Change the tokenLifeTime to a desired value.

Restart IIS

- Run the iisreset command to apply the changes. Running this command logs off the users from Citrix Receiver for Web, and it does not impact their current ICA session.

Note:
The completed lifetime format is .d.hh:mm:ss[.ff]. The maximum lifetime is not limited to 24 hours.

Additional resources

- Citrix Blog - Idle timeout Receiver for Web
- Security Token Services API

Configure user access

November 12, 2018

Note:
Learn about product name changes in What's new.

Configure support for connections through XenApp Services URLs

Use the Configure XenApp Services Support task to configure access to your stores through XenApp Services URLs. Users of domain-joined desktop appliances and repurposed PCs running the Citrix Desktop Lock, along with users who have older Citrix clients that cannot be upgraded, can access stores directly using the XenApp Services URL for the store. When you create a new store, the XenApp Services URL is enabled by default.

Important:
In multiple server deployments, use only one server at a time to make changes to the configura-
tion of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.

2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the results pane, select a store. In the Actions pane, click Configure XenApp Services Support.

3. Select or clear Enable XenApp Services Support to enable or disable user access to the store through the displayed XenApp Services URL.

   The XenApp Services URL for a store has the form http[s]://<serveraddress>/Citrix/<storename>/PNAgent/config.xml*, where serveraddress is the fully qualified domain name of the server or load balancing environment for your StoreFront deployment and store-name is the name specified for the store when it was created.

4. If you enable XenApp Services Support, optionally specify a default store in your StoreFront deployment for users with the Citrix Online Plug-in.

   Specify a default store so that your users can configure the Citrix Online Plug-in with the server URL or load-balanced URL of the StoreFront deployment, rather than the XenApp Services URL for a particular store.

**Disable or enable workspace control reconnect for all Citrix Receivers**

Workspace control enables applications to follow users as they move between devices. This allows, for example, clinicians in hospitals to move from workstation to workstation without having to restart their applications on each device.

StoreFront contains a configuration to disable workspace control reconnect in the Store Service for all Citrix Receivers. Manage this feature by using the StoreFront console or PowerShell.

**Use the StoreFront management console**

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.

2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the Actions pane, click Configure Store Settings.

3. Select Advanced Settings and check or uncheck Allow session reconnect.

**Use PowerShell**

Close the Administration Console then run the following code snippet to import the StoreFront PowerShell modules:
Then the PowerShell command \texttt{Set-DSAllowSessionReconnect} turns Workspace control reconnect on or off.

\textbf{Syntax}

\begin{verbatim}
\end{verbatim}

For example, to turn off workspace control reconnect for a store in /Citrix/Store, the following command configures the store:

\begin{verbatim}
Set-DSAllowSessionReconnect -SiteId 1 -VirtualPath /Citrix/Store -IsAllowed $false
\end{verbatim}

\section*{Configure user subscriptions}

Use the User Subscriptions task to do select one of the following options:

\begin{itemize}
  \item Require users to subscribe to applications before using them (Self Service Store).
  \item Enable users to receive all applications when they connect to the store (Mandatory Store).
\end{itemize}

Disabling user subscriptions for a store within StoreFront also prevents the display of the Favorites tab to users in Citrix Receiver. Disabling subscriptions does not delete the Store subscription data. Re-enabling subscriptions for the store will allow the user to see their subscribed apps in Favorites whenever they next log on.

1. On the Windows \texttt{Start} screen or \texttt{Apps} screen, locate and click the \texttt{Citrix StoreFront} tile.
2. Select the \texttt{Stores} node in the left pane of the Citrix StoreFront management console and, in the results pane, select a store. In the \texttt{Actions} pane, click \texttt{Configure Store Settings > User Subscriptions} to toggle the user subscriptions feature off or on.
3. Choose \texttt{Enable user subscriptions (Self Service Store)} to make users subscribe to the applications to use them. Any previously specified subscriptions are still available.
4. Choose \texttt{Disable user subscriptions (Mandatory Store)} to make all applications published to the users available on the Home screen without users subscribing to them. Their subscriptions are not deleted and they can recover them if you re-enable the feature.
In StoreFront 3.5 or later, you can use the following PowerShell script to configure user subscriptions for a store:

```powershell
$StoreObject = Get-STFStoreService -SiteID 1 -VirtualPath "\citrix\<yourstore>"
Set-STFStoreService -StoreService $StoreObject -LockedDown $True -Confirm:$False
```


### Manage subscription data for a store

Manage subscription data for a store using PowerShell cmdlets.

**Note:**

Use either the StoreFront management console or PowerShell to manage StoreFront. Do not use both methods at the same time. Always close the StoreFront management console before using PowerShell to change your StoreFront configuration. Citrix also recommends that you take a
backup of your existing subscription data before making changes so that rollback to a previous state is possible.

**Purge subscription data**

A folder and datastore containing subscription data exists for each store in your deployment.

1. Stop the Citrix Subscriptions Store service on the StoreFront server. If the Citrix Subscriptions Store service is running, it is not possible to delete subscription data for any of your stores.
2. Locate the subscription store folder on the StoreFront server: C:\Windows\ServiceProfiles\NetworkService\AppData\Roaming\Citrix\SubscriptionsStore\1__Citrix_\<StoreName>
3. Delete the contents of the subscription store folder, but do not delete the folder itself.
4. Restart the Citrix Subscriptions Store service on the StoreFront server.

In StoreFront 3.5 or later, you can use the following PowerShell script to purge subscription data for a store. Run this PowerShell function as an administrator with rights to stop or start services and delete files. This PowerShell function achieves the same result as the manual steps described above.

To run the cmdlets successfully, the Citrix Subscriptions Store service must be running on the server.

```powershell
function Remove-SubscriptionData
{
    [CmdletBinding()]
    [Parameter(Mandatory=$False)][String]$Store = "Store"

    $SubsService = "Citrix Subscriptions Store"

    # Path to Subscription Data in StoreFront version 2.6 or higher
    $SubsPath = "C:\Windows\ServiceProfiles\NetworkService\AppData\Roaming\Citrix\SubscriptionsStore\1__Citrix_\<StoreName>"

    Stop-Service -displayname $SubsService

    Remove-Item $SubsPath -Force -Verbose

    Start-Service -displayname $SubsService

    Get-Service -displayname $SubsService
}
```
Export subscription data

You can obtain a backup of the Store subscription data in the form of a tab separated .txt file using the following PowerShell cmdlet.

```
1 $StoreObject = Get-STFStoreService -SiteID 1 -VirtualPath "\citrix<yourstore>"
2
3 Export-STFStoreSubscriptions -StoreService $StoreObject -FilePath "$env:USERPROFILE\Desktop\Subscriptions.txt"
```

If you are managing a multiple-server deployment, you can run this PowerShell cmdlet on any server within the StoreFront server group. Each server in the server group maintains an identical synced copy of the subscription data from its peers. If you believe you are experiencing issues with subscription synchronization between the Storefront servers, then export the data from all servers in the group and compare them to see differences.

Restore subscription data

Use Restore-STFStoreSubscriptions to overwrite your existing subscription data. You can restore a Store's subscription data using the tab separated .txt file backup you created earlier using Export-STFStoreSubscriptions.

```
1 $StoreObject = Get-STFStoreService -SiteID 1 -VirtualPath "\citrix<yourstore>"
2
3 Restore-STFStoreSubscriptions -StoreService $StoreObject -FilePath "$env:USERPROFILE\Desktop\Subscriptions.txt"
```


Restoring Data on a Single StoreFront Server

In a single server deployment, there is no need to shut down the Subscriptions Store service. There is also no need to purge the existing subscription data before restoring the subscription data.
Restoring Data on a StoreFront Server Group

To restore subscription data to a server group, the following steps are required.

Example Server Group Deployment containing three StoreFront servers.

- StoreFrontA
- StoreFrontB
- StoreFrontC

1. Back up of the existing subscription data from any of the three servers.
2. Stop the Subscriptions Store service on servers StoreFrontB and C. This action prevents the servers from sending or receiving subscription data during the update of StoreFrontA.
3. Purge the subscription data from servers StoreFrontB and C. This prevents mismatch of the restored subscription data.
4. Restore the data on StoreFrontA using the **Restore-STFStoreSubscriptions** cmdlet. It is not necessary to stop the Subscriptions Store service, or to purge the subscription data on StoreFrontA (it is overwritten during the restore operation).
5. Restart the Subscriptions Store service on servers StoreFrontB and StoreFrontC. The servers can then receive a copy of the data from StoreFrontA.
6. Wait for synchronization to occur between all servers. The time required depends on the number of records that exist on StoreFrontA. If all servers are on a local network connection, synchronization normally occurs quickly. Synchronization of subscriptions across a WAN connection may take longer.
7. Export the data from StoreFrontB and C to confirm that the synchronization has completed, or view the Store Subscription counters.

Import subscription data

Use **Import-STFStoreSubscriptions** when there is no subscription data for the Store. This cmdlet also allows subscription data to be transferred from one Store to another or if subscription data is imported to newly provisioned StoreFront servers.

```
$StoreObject = Get-STFStoreService -SiteID 1 -VirtualPath ”/citrix/<yourstore>"
Import-STFStoreSubscriptions -StoreService $StoreObject -FilePath ”$env:USERPROFILE\Desktop\Subscriptions.txt”
```

Subscription data file details

The subscription data file is a text file containing one line per user subscription. Each line is a tab-separated sequence of values:

\(<user-identifier> <resource-id> <subscription-id> <subscription-status> <property-name> <property-value> <property-name> <property-value> ...\)

where:

- \(<user-identifier>\) - Required. A sequence of characters identifying the user. This identifier is the user's Windows Security Identifier.
- \(<resource-id>\) - Required. A sequence of characters identifying the subscribed resource.
- \(<subscription-id>\) - Required. A sequence of characters uniquely identifying the subscription. This value is not used (although, a value must be present in the data file).
- \(<subscription-status>\) - Required. The status of the subscription: subscribed or unsubscribed.
- \(<property-name>\) and \(<property-value>\) - Optional. A sequence of zero or more pairs of property name/value pairs. These represent properties associated with the subscription by a StoreFront client (typically a Citrix Receiver). A property with multiple values that is represented by multiple name/value pairs that have the same name (for example, “… MyProp A MyProp B …” represents the property MyProp with values A, B).

Example

S-0-0-00-0000000000-0000000000-0000000000-0000 XenApp.Excel 21EC2020-3AEA-4069-A2DD-08002B30309D Subscribed dazzle;position 1

Size of subscription data on the StoreFront server disk
Store Subscription Counters

You can use Microsoft Windows Performance Monitor counters (Start > Run > perfmon) to show, for example, the total numbers of subscription records on the server or number of records synchronized between StoreFront server groups.

View the Subscription Counters using PowerShell
Configure StoreFront to launch applications and desktops in Windowed Mode

January 4, 2019

Launching the applications seamlessly depends on availability of StoreFront in deployment. If you disable the seamless option for applications and desktops, consider launching your resources in Windowed Mode instead.

The following is an example of a published Notepad. Use the name of the published application exactly as shown in the application set of the Citrix Virtual Apps and Desktops console.

Note:
Most of the settings in ICA files are not case sensitive except for the DesiredHRES and DesiredVRES settings. When applying the windowed app version, use the browser name to reference the app in the default.ica file on the StoreFront server. Verify the browser name of the application by using PowerShell on Delivery Controller:

```
> asnp citrix*
> Get-BrokerApplication -ApplicationName
```

To configure StoreFront

1. Edit the default.ica file on the StoreFront server in the \inetpub\wwwroot\Citrix\StoreName\App_Data directory.
2. In the default.ica file, locate the lines: [ApplicationServers] application=.
3. Create a line after application=, and add the following parameters:

```plaintext
1 [Notepad]
```
2. TWIMode=Off
3. DesiredHRES=1024
4. DesiredVRES=768

4. Save the file.

Note:
Replace DesiredHRES=1024 DesiredVRES=768 with ScreenPercent=90 to use the percentage of screen instead of specific screen resolutions.

For published desktops from Citrix Virtual Apps and Desktops 7.x and StoreFront 3.x

1. Edit the web.config file on the StoreFront server in the C:\inetpub\wwwroot\Citrix\storeWeb directory.
2. In the web.config file, locate the following line: showDesktopViewer="true".
3. Modify the value from True to False.
4. On the Client side or from AD-GPMC, use the administrative template file (receiver.adm or receiver.admx\receiver.adml, depending on the Operating system) to configure the following policy
   • Computer configuration > Citrix Components > Citrix Receiver > User Experience > Client Display Settings: Enable
   • Seamless windows: False
   • Window width: <As per requirement>, Window height: <As per requirement>

Additional resources

DesiredHRES and DesiredVRES can be set to any desired resolution, such as 800x600 or 1024x768.
If the application needs to run in a percent of screen size, then after setting TWIMode=Off, add the line ScreenPercent=90 which configures the screen to 90 percent. You can also accomplish this with the XenApp Services (formerly Program Neighborhood Agent) site. Ensure that the corresponding file under the conf folder for that site (Inetpub\wwwroot\Citrix\PNAgent\conf) is edited.
If you are using the 10.x client and editing the default.ica or template.ica file, add only the TWIMode=Off line. It obtains the HRES and VRES settings from the published application properties. Otherwise, an error appears indicating duplicate entries in the ICA file when a user tries to launch the application.

Set up highly available multi-site stores

August 16, 2018
Note:
Learn about product name changes in What’s new.

For stores that aggregate resources from multiple deployments, particularly geographically dispersed deployments, you can configure load balancing and failover between deployments, mapping of users to deployments, and specific disaster recovery deployments to provide highly available resources. Where you have configured separate NetScaler Gateway appliances for your deployments, you can define the optimal appliance for users to access each of the deployments.

Since StoreFront 3.5, the StoreFront management console has supported common multi-site scenarios. Citrix recommends you use the management console when it meets your requirements.

Configure user mapping and aggregation

The StoreFront management console enables you to:

- **Map users to deployments**: Based on Active Directory group membership, you can limit which users have access to particular deployments.

- **Aggregate deployments**: You can specify which deployments have resources that you want to aggregate. Matching resources from aggregated deployments are presented to the user as a single highly-available resource.

- **Associate a zone with a deployment**: When accessed with NetScaler Gateway in a global load-balancing configuration, StoreFront prioritizes deployments from zones matching the gateway zone when launching resources.

**Important:**

In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. Ensure that you have configured the store with details of all the XenDesktop and XenApp deployments that you want to use in your configuration. For more information about adding deployments to stores, see Manage the resources made available in stores.

2. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.

3. Select the Stores node in the left pane of the Citrix StoreFront management console and click Manage Delivery Controllers in the Actions pane.

4. If two or more controllers are defined, click User Mapping and Multi-Site Aggregation Configuration > Configure.
5. Click **Map users to controllers** and make selections on the screens to specify which Delivery Controllers are available to which users.

6. Click **Aggregate resources**, choose controllers, and click **Aggregate** to specify whether or not Delivery Controllers are aggregated. If you enable aggregation of Delivery Controllers, applications and desktops from those Delivery Controllers with the same display name and path are presented as a single application/desktop in Citrix Receiver.

7. Choose one, or both, of the **Aggregated Controller Settings** check boxes and click **OK**.

   **Controllers publish identical resources** - When checked, StoreFront enumerates resources from only one of the controllers in the aggregated set. When unchecked, StoreFront enumerates resources from all controllers in the aggregated set (to accumulate the user’s entire set of available resources). Checking this option gives a performance improvement when enumerating resources, but we do not recommend it unless you are certain that the list of resources is identical across all aggregated deployments.

   **Load balance resources across controllers** - When checked, launches are distributed evenly among the available controllers. When unchecked, launches are directed to the first controller specified in the user mapping dialog screen, failing over to subsequent controllers if the launch fails.

**Advanced configurations**

Although you can configure many common multi-site and high availability operations with the StoreFront management console, you can still configure StoreFront using the configuration files in the same manner as earlier StoreFront versions.

Extra functionality available using PowerShell or by editing the StoreFront configuration files:

- The ability to specify multiple groupings of deployments for aggregation.
  - The management console allows only a single grouping of deployments, which is sufficient for most cases.
  - For stores with many deployments with disjointed sets of resources, multiple groupings might give performance improvements.
- The ability to specify complex preference orders for aggregated deployments. The management console allows aggregated deployments to be load balanced or to be used as a single failover list.
- The ability to define disaster recovery deployments (deployments accessed only when all other deployments are unavailable).

**Warning:**

After configuring advanced multi-site options by manually editing the configuration file, some
tasks become unavailable in the Citrix StoreFront management console to prevent misconfigura-
tion.

**Important:**

In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. Ensure that you have configured the store with details of all the XenDesktop and XenApp deployments that you want to use in your configuration, including disaster recovery deployments. For more information about adding deployments to stores, see Manage the resources made available in stores.

2. Use a text editor to open the web.config file for the store, which is typically located in the directory C:\inetpub\wwwroot\Citrix\storename, where storename is the name specified for the store when it was created.

3. Locate the following section in the file.

   ```xml
   <resourcesWingConfigurations>
   <resourcesWingConfiguration name="Default" wingName="Default" />
   </resourcesWingConfigurations>
   ```

4. Specify your configuration as shown below.

   ```xml
   <resourcesWingConfigurations>
   <resourcesWingConfiguration name="Default" wingName="Default">
   <clear />
   <userFarmMappings>
   <clear />
   <userFarmMapping name="user_mapping">
   <groups>
   <group name="domain\usergroup" sid="securityidentifier" />
   <group ... />
   ...</groups>
   <equivalentFarmSets>
   <equivalentFarmSet name="setname" loadBalanceMode="{LoadBalanced | Failover }">
   "aggregationGroup="aggregationgroupname">
   <primaryFarmRefs>
   <farm name="primaryfarmname" />
   <farm ... />
   ...</primaryFarmRefs>
   </equivalentFarmSet>
   ...</equivalentFarmSets>
   </userFarmMapping>
   </userFarmMappings>
   </resourcesWingConfiguration>
   </resourcesWingConfigurations>
   ```

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Use the following elements to define your configuration.

- **userFarmMapping**—Specifies groups of deployments and defines the load balancing and failover behavior between those deployments. Identifies deployments to be used for disaster recovery. Controls user access to resources by mapping Microsoft Active Directory user groups to the specified groups of deployments.

- **groups**—Specifies the names and security identifiers (SIDs) of Active Directory user groups to which the associated mapping applies. User group names must be entered in the format `domain\usergroup`. Where more than one group is listed, the mapping is only applied to users who are members of all the specified groups. To enable access for all Active Directory user accounts, set the group name & sid to `everyone`.

- **equivalentFarmSet**—Specifies a group of equivalent deployments providing resources to be aggregated for load balancing or failover, plus an optional associated group of disaster recovery deployments.

The `loadBalanceMode` attribute determines the allocation of users to deployments. Set the value of the `loadBalanceMode` attribute to `LoadBalanced` to randomly assign users to deployments in the equivalent deployment set, evenly distributing users across all the available deployments. When the value of the `loadBalanceMode` attribute is set to `Failover`, users are connected to the first available deployment in the order in which they are listed in the configuration, minimizing the number of deployments in use at any given time. Specify names for aggregation groups to identify equivalent deployment sets providing resources to be aggregated. Resources provided by equivalent deployment sets belonging to the same aggregation group...
are aggregated. To specify that the deployments defined in a particular equivalent deployment set should not be aggregated with others, set the aggregation group name to the empty string ""

The identical attribute accepts the values true and false, and specifies whether all deployments within an equivalent deployment set provide exactly the same set of resources. When the deployments are identical, StoreFront enumerates the user’s resources from just one primary deployment in the set. When the deployments provide overlapping but not identical resources, StoreFront enumerates from each deployment to obtain the full set of resources available to a user. Load balancing (at launch time) can take place whether or not the deployments are identical. The default value for the identical attribute is false, although it is set to true when StoreFront is upgraded to avoid altering the pre-existing behavior following an upgrade.

• primaryFarmRefs—Specifies a set of equivalent XenDesktop or XenApp sites where some or all of the resources match. Enter the names of deployments that you have already added to the store. The names of the deployments you specify must match exactly the names you entered when you added the deployments to the store.

• optimalGatewayForFarms—Specifies groups of deployments and defines the optimal NetScaler Gateway appliances for users to access resources provided by these deployments. Typically, the optimal appliance for a deployment is colocated in the same geographical location as that deployment. You only need to define optimal NetScaler Gateway appliances for deployments where the appliance through which users access StoreFront is not the optimal appliance.

Configure subscription synchronization

To configure periodic pull synchronization of users' application subscriptions from stores in different StoreFront deployments, you execute Windows PowerShell commands.

Note:

The StoreFront and PowerShell consoles cannot be open at the same time. Always close the StoreFront admin console before using the PowerShell console to administer your StoreFront configuration. Likewise, close all instances of PowerShell before opening the StoreFront console.

Important:

In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server groups so that the other servers in the deployment are updated.
When establishing your subscription synchronization, note that the configured Delivery Controllers must be named identically between the synchronized Stores and that the Delivery Controller names are case sensitive. Failing to duplicate the Delivery Controller names exactly may lead to users having different subscriptions across the synchronized Stores.

1. Use an account with local administrator permissions to start Windows PowerShell and, at a command prompt, type the following commands to import the StoreFront modules.

   ```powershell
   Import-Module "installationlocation\Management\Cmdlets\UtilCmdlets.psm1"
   Import-Module "installationlocation\Management\Cmdlets\SubscriptionSyncModule.psm1"
   ```

   where `installationlocation` is the directory in which StoreFront is installed, typically C:\Program Files\Citrix\Receiver StoreFront.

2. To specify the remote StoreFront deployment containing the store to be synchronized, type the following command.

   ```powershell
   Add-DSSubscriptionsRemoteSyncCluster -clusterName deploymentname -clusterAddress deploymentaddress
   ```

   where `deploymentname` is a name that helps you identify the remote deployment and `deploymentaddress` is the externally accessible address of the StoreFront server or load-balanced server group for the remote deployment.

3. To specify the remote store with which to synchronize users’ application subscriptions, type the following command.

   ```powershell
   Add-DSSubscriptionsRemoteSyncStore -clusterName deploymentname -storeName storename
   ```

   where `deploymentname` is the name that you defined for the remote deployment in the previous step and `storename` is the name specified for both the local and remote stores when they were created. To synchronize application subscriptions between the stores, both stores must have the same name in their respective StoreFront deployments.

4. To configure synchronization to occur at a particular time every day, type the following command.

   ```powershell
   Add-DSSubscriptionsSyncSchedule -scheduleName synchronizationname -startTime hh:mm
   ```

   where `synchronizationname` is a name that helps you identify the schedule you are creating. Use the `-startTime` setting to specify a time of day at which you want to synchronize subscriptions.
between the stores. Configure further schedules to specify additional synchronization times throughout the day.

5. Alternatively, to configure regular synchronization at a specific interval, type the following command.

```
Add-DSSubscriptionsSyncReoccurringSchedule -scheduleName synchronizationname -startTime hh:mm:ss -repeatMinutes interval
```

where `synchronizationname` is a name that helps you identify the schedule you are creating. Use the `-startTime` setting to specify the a time of day at which you want to start the reoccurring schedule. For interval, specify the time in minutes between each synchronization.

6. Add the Microsoft Active Directory domain machine accounts for each StoreFront server in the remote deployment to the local Windows user group CitrixSubscriptionSyncUsers on the current server.

This will allow the servers in the remote deployment to access the subscription store service on the local deployment once you have configured a synchronization schedule on the remote deployment. The CitrixSubscriptionSyncUsers group is automatically created when you import the subscription synchronization module in Step 1. For more information about modifying local user groups, see [http://technet.microsoft.com/en-us/library/cc772524.aspx](http://technet.microsoft.com/en-us/library/cc772524.aspx).

7. If your local StoreFront deployment consists of multiple servers, use the Citrix StoreFront management console to propagate the configuration changes to the other servers in the group.

For more information about propagating changes in a multiple server StoreFront deployment, see [Configure server groups](#).

8. Repeat Steps 1 to 7 on the remote StoreFront deployment to configure a complementary subscription synchronization schedule from the remote deployment to the local deployment.

When configuring the synchronization schedules for your StoreFront deployments, ensure that the schedules do not lead to a situation where the deployments are attempting to synchronize simultaneously.

9. To start synchronizing users’ application subscriptions between the stores, restart the subscription store service on both the local and remote deployments. At a Windows PowerShell command prompt on a server in each deployment, type the following command.

```
Restart-DSSubscriptionsStoreSubscriptionService
```

10. To remove an existing subscription synchronization schedule, type the following command, then propagate the configuration change to the other StoreFront servers in the deployment and restart the subscription store service.

```
Remove-DSSubscriptionsSchedule -scheduleName synchronizationname
```
where synchronizationname is the name that you specified for the schedule when you created it.

11. To list the subscription synchronization schedules currently configured for your StoreFront deployment, type the following command.

```
Get-DSSubscriptionsSyncScheduleSummary
```

**Configure optimal HDX routing for a store**

**Important:**

In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

**The difference between a farm and a zone when defining optimal gateway mappings for a store**

In StoreFront versions released before 3.5, you could map an optimal gateway only to a farm or farms. The concept of zones enables you to divide a XenApp XenDesktop deployment into zones based on the data center or geographic location where the XenApp or XenDesktop controllers and published resources reside. Define zones in XenApp or XenDesktop Studio. StoreFront interoperates with XenApp XenDesktop, and any zones defined in StoreFront must exactly match the zone names defined in XenApp and XenDesktop.

StoreFront also allows you to create an optimal gateway mapping for all of the delivery controllers located in the defined zone. Mapping a zone to an optimal gateway is almost identical to creating mappings using farms, with which you might already be familiar. The only difference is that zones typically represent much larger containers with many more delivery controllers. You do not need to add every delivery controller to an optimal gateway mapping. To place the controllers into the desired zone, you need only tag each delivery controller with a zone name that matches a zone already defined in XenApp or XenDesktop. You can map an optimal gateway to more than one zone, but typically you should use a single zone. A zone usually represents a data center in a geographic location. It is expected that each zone has at least one optimal NetScaler Gateway that is used for HDX connections to resources within that zone.

For more information about zones, see [Zones](#).

**Place a delivery controller into a zone**
Set the zone attribute on every delivery controller you wish to place within a Zone.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and click Manage Delivery Controllers in the Actions pane.
3. Select a controller, click Edit, and then click Settings on the Edit Delivery Controller screen.
4. On the Zones row, click in the second column.
5. Click Add on the Delivery Controller Zone Names screen and then add a zone name.

Configure optimal NetScaler Gateway routing to optimize the handling of ICA connection routing from the HDX engine to published resources such as XenDesktop VDAs or XenApp or XenDesktop published applications using StoreFront. Typically, the optimal gateway for a site is collocated in the same geographical location.

You need only define optimal NetScaler Gateway appliances for deployments where the appliance through which users access StoreFront is not the optimal gateway. If launches should be directed back through the gateway making the launch request, StoreFront does this automatically.

**Example scenario using farms**

1 x UK Gateway -> 1 x UK StoreFront
- UK Apps and Desktops local
- US Apps and Desktops used only for UK failover

1 x US Gateway -> 1 x US StoreFront
• US Apps and Desktops local
• UK Apps and Desktops used only for US failover

A UK gateway provides remote access to UK hosted resources such as apps and desktops using a UK StoreFront.

The UK storefront has both a UK based and US based NetScaler Gateway defined and UK and US farms in its delivery controller list. UK users access remote resources through their geographically collocated gateway, StoreFront, and farms. If their UK resources become unavailable, they can connect to US resources as a temporary failover alternative.

Without optimal gateway routing all ICA launches would pass through the UK gateway that made the launch request regardless of where the resources are geographically located. By default, gateways used to make launch requests are identified dynamically by StoreFront when the request is made. Optimal gateway routing overrides this and forces US connections through the gateway closest to the US farms that provides apps and desktops.

Note:
You can map only one optimal gateway per site for each StoreFront store.

Example scenario using zones

1 x CAMZone -> 2 x UK StoreFronts
  • Cambridge, UK: Apps and Desktops
  • Fort Lauderdale, Eastern US: Apps and Desktops
  • Bangalore, India: Apps and Desktops

1 x FTLZone -> 2 x US StoreFronts
  • Fort Lauderdale, Eastern US: Apps and Desktops
  • Cambridge, UK: Apps and Desktops
  • Bangalore, India: Apps and Desktops

1 x BGLZone -> 2 x IN StoreFronts
  • Bangalore, India: Apps and Desktops
  • Cambridge, UK: Apps and Desktops
  • Fort Lauderdale, Eastern US: Apps and Desktops

Figure 1. Suboptimal gateway routing
Figure 2. Optimal gateway routing
Use the Citrix StoreFront management console

After you have configured separate NetScaler Gateway appliances for your deployments, you can define the optimal appliance for users to access each of the deployments.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the results pane, select a store. In the Actions pane, click Configure Store Settings.
3. On the Settings > Optimal HDX Routing page, select a gateway.
4. If you select the External Only check box, it is equivalent to -enabledOnDirectAccess = false and Direct HDX Connection is equivalent to using Set-DSFarmsWithNullOptimalGateway for farms or zones.

Add a new gateway

One of the options in the previous procedure is to Add gateway. After you choose Add gateway, the Add NetScaler Gateway screen displays.

1. On the General Settings screen, complete the Display name, NetScaler Gateway URL, and Usage or Role settings to configure access to stores through NetScaler Gateway for users connecting from public networks. Remote access through a NetScaler Gateway cannot be applied to unauthenticated stores.
2. On the Secure Ticket Authority (STA) screen, complete the options displayed. STA is hosted on XenDesktop and XenApp servers and issues session tickets in response to connection requests. These session tickets form the basis of authentication and authorization for access to XenDesktop and XenApp resources.
3. On the Authentication Settings screen, enter the settings that specify how the remote user provides authentication credentials.
Use PowerShell to configure optimal NetScaler Gateway routing for a store

PowerShell API parameters

-SiteId (Int)—Site ID within IIS. This is typically 1 for the site in IIS where StoreFront is installed by default.

-ResourcesVirtualPath (String)—Path to the store that is to be configured to have a farm to optimal gateway mapping.

Example: “/Citrix/Store”

-GatewayName (String)—Name given to identify the Netscaler Gateway within StoreFront.

Example 1: ExternalGateway

Example 2: InternalGateway

-Hostnames (String Array)—Specifies the fully qualified domain name (FQDN) and port of the optimal NetScaler Gateway appliance.

Example 1 for standard vServer port 443: gateway.example.com

Example 2 for nonstandard vServer port 500: gateway.example.com:500

-Farms (String Array)—Specifies a set of (typically collocated) XenDesktop, XenApp, and App Controller deployments that share a common optimal NetScaler Gateway appliance. A farm can contain just a single delivery controller or multiple delivery controller that provides published resources.

You can configure a XenDesktop site in StoreFront under delivery controllers as “XenDesktop”. This represents a single farm. This could contain multiple delivery controllers in its failover list.

Example: “XenDesktop”

XenDesktop-A.example.com
XenDesktop-B.example.com
XenDesktop-C.example.com

-Zones (String Array)—Specifies a data center or data centers containing many delivery controllers. This requires you tag delivery controller objects in StoreFront with the appropriate zone to which you want to allocate them.

-staUrls (String Array)—Specifies the URLs for XenDesktop or XenApp servers running the Secure Ticket Authority (STA). If using multiple farms, list the STA servers on each using a comma separated list:

**StoreFront 1811**

**-StasUseLoadBalancing (Boolean)**—Set to **true**: randomly obtains session tickets from all STAs, evenly distributing requests across all the STAs. Set to **false**: users are connected to the first available STA in the order in which they are listed in the configuration, minimizing the number of STAs in use at any given time.

**-StasBypassDuration**—Set the time period, in hours, minutes, and seconds, for which an STA is considered unavailable after a failed request.

Example: 02:00:00

**-EnableSessionReliability (Boolean)**—Set to **true**: keeps disconnected sessions open while Receiver attempts to reconnect automatically. If you configured multiple STAs and want to ensure that session reliability is always available, set the value of the useTwoTickets attribute to **true** to obtain session tickets from two different STAs in case one STA becomes unavailable during the session.

**-UseTwoTickets (Boolean)**—Set to **true**: obtains session tickets from two different STAs in case one STA becomes unavailable during the session. Set to **false**: uses only a single STA server.

**-EnabledOnDirectAccess (Boolean)**—Set to **true**: ensures that when local users on the internal network log on to StoreFront directly, connections to their resources are still routed through the optimal appliance defined for the farm. Set to **false**: connections to resources are not routed through the optimal appliance for the farm unless users access StoreFront through a NetScaler Gateway.

When PowerShell scripts span multiple lines such as shown below, each line must end with the backtick (‘) character.

<table>
<thead>
<tr>
<th>Tip:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citrix recommends copying any code examples into the Windows PowerShell Integrated Scripting Environment (ISE) to validate the Powershell code using the format checker before you run it.</td>
</tr>
</tbody>
</table>

**Configure an optimal gateway for a farm**

**Note:**

Configuration of Optimal HDX routing with the old PowerShell cmdlet `Set-DSOptimalGatewayForFarms`, does not work.

To work around this issue:

1. Configure a global gateway with the settings you want for Optimal HDX routing using the `Add-DSGlobalV10Gateway` command and provide default values for the authentication settings.

2. Use the `Add-DSSStoreOptimalGateway` command to add the optimal gateway configuration.
StoreFront 1811

Example:


Add-DSStoreOptimalGateway -SiteId 1 -VirtualPath /Citrix/Store1 -GatewayId 2eba0524-af40-421e-9c5f-a1ccca80715f -Farms @("Controller") -EnabledOnDirectAccess $true

Example

Create or overwrite Optimal Gateway For Farms mappings for the store **Internal**.

```
& "$Env:PROGRAMFILES\Citrix\Receiver StoreFront\Scripts\ImportModules.ps1"
Set-DSOptimalGatewayForFarms -SiteId 1 
-ResourcesVirtualPath /Citrix/Internal 
-GatewayName "gateway1" 
-Hostnames "gateway1.example.com:500" 
-Farms "XenApp","XenDesktop" 
-StasUseLoadBalancing:$false 
-StasBypassDuration 02:00:00 
-EnableSessionReliability:$false 
-UseTwoTickets:$false 
-EnabledOnDirectAccess:$true
```

Configure an optimal gateway for a zone

Example

Create or overwrite Optimal Gateway For Farms mappings for the zone **CAMZone**.

```
**& "$Env:PROGRAMFILES\Citrix\Receiver StoreFront\Scripts\ImportModules.ps1" **
**Set-DSOptimalGatewayForFarms -SiteId 1 
-ResourcesVirtualPath /Citrix/Internal 
```

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Example

This script returns all Optimal Gateway For Farms mappings for the store Internal.

Get-DSOptimalGatewayForFarms -SiteId 1 -ResourcesVirtualPath "/Citrix/Internal"

Example

Remove all optimal gateway for farms mappings for store called Internal.

Remove-DSOptimalGatewayForFarms -SiteId 1 -ResourcesVirtualPath "/Citrix/Internal"

Configure direct HDX connections for farms

Example

This script prevents all ICA launches from passing through a gateway for the list of specified farms for the store called Internal.

Set-DSFarmsWithNullOptimalGateway -SiteId 1 -ResourcesVirtualPath /Citrix/Store -Farms "Farm1","Farm2"

Example

This script returns all farms that are configured to prevent ICA launches from passing through a gateway for a store called Internal.

Get-DSFarmsWithNullOptimalGateway -SiteId 1 -ResourcesVirtualPath "/Citrix/Internal"

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Determine if your Optimal Gateway For Farms mappings are being used by StoreFront

1. Enable StoreFront tracing on all server group nodes using PowerShell by running:

```powershell
& "$Env:PROGRAMFILES\Citrix\Receiver_StoreFront\Scripts\ImportModules.ps1"

# Traces output is to c:\Program Files\Citrix\Receiver_Storefront\admin\trace
Set-DSTraceLevel -All -TraceLevel Verbose
```

2. Open the Debug View tool on the desktop of a StoreFront server. If you are using a storefront server group, you might have to do this on all nodes to ensure you obtain traces from the node that receives the launch request.

3. Enable Capture Global Win32 events.

4. Save the trace output as a .log file and open the file with Notepad. Search for the log entries shown in the example scenarios below.

5. Turn tracing off afterwards, as it consumes a lot of disk space on your StoreFront servers.

   ```powershell
   Set-DSTraceLevel -All -TraceLevel Off
   ```

Tested optimal gateway scenarios

1 - **External client logs on **Gateway1**. Launch is directed through the designated optimal gateway **Gateway2** for the farm **Farm2**.**

   ```powershell
   'Set-DSOptimalGatewayForFarms -onDirectAccess=false'
   ```

   Farm2 is configured to use the optimal gateway Gateway2.

   Farm2 has optimal gateway on direct access disabled.
The optimal gateway Gateway2 will be used for the launch.

- Internal client logs on using StoreFront. Launch is directed through the designated optimal gateway Gateway1 for the farm Farm1.

`Set-DSOptimalGatewayForFarms -onDirectAccess=true`

No dynamically identified gateway in request. StoreFront was contacted directly.

Farm1 is configured to use the optimal gateway Gateway1.

Farm1 has optimal gateway on direct access enabled.

The optimal gateway Gateway1 will be used for the launch.

- Internal client logs on using Gateway1. Launches of resources on Farm1 are prevented from passing through any gateway and StoreFront is contacted directly.

`Set-DSFarmsWithNullOptimalGateway`

Dynamically identified gateway in request: Gateway1

Farm1 is configured to not use a gateway. No gateway will be used for launch.

---

**Force connections through Citrix Gateway using Optimal Gateway feature of StoreFront**

October 12, 2018

The **Optimal Gateway** setting is available in StoreFront to force applications to launch through Citrix Gateway. It applies when accessing StoreFront through Citrix Receiver to connect to Citrix Gateway virtual server and launching resources from Citrix Virtual Apps and Desktops using a single sign-on.

**System requirements:**

- 2 Citrix Gateway VPXs
- 2 XenDesktop 7.1 DDCs
- 2 separate StoreFront servers
From a domain joined device on the LAN/MPLS network, the users log on only once with the domain credentials at the windows logon prompt. The users must launch their Citrix apps using native receiver, through a Citrix ADC protected SSL connection. Before attempting to get this functionality to work, verify that the users can launch sessions directly with StoreFront and with Citrix ADC in ICA Proxy mode. Also, ensure that you have already configured NetScaler and StoreFront using CTX139963 and Citrix Receiver with pass-through authentication using CTX133855.

**Configure the Optimal Citrix Gateway routing**

The Optimal Gateway architecture allows you to route the user authentication to the StoreFront server. It launches the ICA session through the Citrix ADC to guarantee a secure connection. The credential handling is secure between the Windows machine and the StoreFront servers. With the customization done to StoreFront, the ICA Ticket routes the user connection through Citrix ADC.

To configure the Optimal Citrix Gateway routing for a store, modify the `web.config` file located at C:\inetpub\wwwroot\Citrix\Store\web.config to direct StoreFront to route user connections through Citrix Gateway.

Modify `enabledOnDirectAccess="true"` in the `optimalGatewayForFarmsCollection` key.

```
<optimalGatewayForFarmsCollection>
  <optimalGatewayForFarms enabledOnDirectAccess="true">
    <farms>
      <farm name="farmname" />
    </farms>
    <optimalGateway key="_" name="deploymentname" stasUseLoadBalancing="{
      true | false }
    ">
      stasBypassDuration="hh:mm:ss" enableSessionReliability="{
      true | false }
    ">
      useTwoTickets="{
      true | false }
    ">
      <hostnames>
        <add hostname="appliancefqdn:port" />
      </hostnames>
      <staUrls>
        <add staUrl="https://stapath/scripts/ctxsta.dll" />
      </staUrls>
    </optimalGateway>
  </optimalGatewayForFarms>
</optimalGatewayForFarmsCollection>
```
Integrate with Citrix Gateway and Citrix ADC

November 9, 2018

Note:

Learn about product name changes in What’s new.

Use Citrix Gateway with StoreFront to provide secure remote access for users outside the corporate network and Citrix ADC to provide load balancing.

Plan gateway and server certificate usage

Integrating StoreFront with Citrix Gateway and Citrix ADC requires a plan for gateway and server certificate usage. Consider which Citrix components are going to require server certificate(s) within your deployment:

• Plan to obtain certificates for Internet-facing servers and gateways from external certificate authorities. Client devices may not automatically trust certificates signed by an internal certificate authority.

• Plan for both external and internal server names. Many organizations have separate namespaces for internal and external use—such as example.com (external) and example.net (internal). A single certificate can contain both of these kinds of name by using the Subject Alternative Name (SAN) extension. This is not normally recommended. A public certificate authority will only issue a certificate if the top-level domain (TLD) is registered with IANA. In this case, some commonly used internal server names (such as example.local) cannot be used, and separate certificates for external and internal names are required anyway.

• Use separate certificates for external and internal servers, where possible. A gateway may support multiple certificates, either by binding a different certificate to each interface.

• Avoid sharing certificates between Internet-facing and non-Internet-facing servers. These certificates are likely to be different—with different validity periods and different revocation policies than certificates issued by your internal certificate authorities.

• Share “wildcard” certificates only between equivalent services. Avoid sharing a certificate between different types of server (for example StoreFront servers, and other kinds of servers). Avoid sharing a certificate between servers which are under different administrative control, or which have different security policies. Typical examples of servers which provided equivalent service are:
- A group of StoreFront servers and the server that performs load balancing between them.
- A group of Internet-facing gateways within GSLB.
- A group of XenApp and XenDesktop 7.x controllers, which provide equivalent resources.

- Plan for hardware-secured private key storage. Gateways and servers, including some Citrix ADC models, can store the private key securely within a hardware security module (HSM) or Trusted Platform Module (TPM). For security reasons, these configurations are not usually intended to support sharing of certificates and their private keys. Consult the documentation for the component. If implementing GSLB with Citrix Gateway, this may require each gateway within GSLB to have an identical certificate, which contains all the FQDNs you wish to use.

For more information about securing your Citrix deployment, see the white paper End-To-End Encryption with Citrix Virtual Apps and Desktops and the Citrix Virtual Apps and Desktops Secure section.

**Configure StoreFront Log On when authentication is disabled on Citrix Gateway VIP**

Log on to StoreFront when authentication is disabled on Citrix Gateway VIP. This procedure works in two scenarios:

**Internal networks.** App launch fails from remote locations because STAs cannot be used when authentication is disabled on the Citrix Gateway if the X-Citrix-Gateway header is getting passed to StoreFront.

**Citrix Receiver for Web.** Receiver clients do not authenticate if authentication is not enabled at the Citrix Gateway VIP.

**Changes on the StoreFront Server**

1. Disable the **Require Token Consistency** field:

   - StoreFront 3.0
     a) Edit the `web.config` file for the store website. For example, if a StoreFront store name is NoAuth, the `web.config` file in the StoreFront server has the path `inetpub\wwwroot\Citrix\NoAuth`.

       a) Locate the following line in the `web.config` file and change the value from True to False.

       Before
       `<resourcesGateways requireTokenConsistency="true"`  
       After
       `<resourcesGateways requireTokenConsistency="false"`  

       Note:
On StoreFront 3.x, **Require Token Consistency** is a checkbox in the GUI. For more information, see **Advanced store settings**.

b) **Save the** `web.config` **file and then restart the IIS service.**

2. **Open the** **Citrix StoreFront Management** **console.**

3. **Click** **Citrix StoreFront Receiver** **for the web.**

4. **Select** **the corresponding Receiver for the website and then select** **Choose Authentication Methods.**

5. **Ensure that the** **Pass-through from Citrix Gateway** **check-box is cleared.**

**Note:**

Citrix Gateway and Enable Remote Access are assumed to be set up on the StoreFront server.

**Changes on the Citrix Gateway**

1. **Open** the Citrix Gateway virtual server.

2. **Click** the **Authentication** **tab and ensure that** **Enable Authentication** **check-box is cleared.**

3. **Bind** the corresponding session policy to the Citrix Gateway virtual server.

4. **Test** the connection.

**Add a NetScaler Gateway connection**

**July 30, 2018**

Use the Add NetScaler Gateway Appliance task to add NetScaler Gateway deployments through which users can access your stores. You must enable the pass-through from NetScaler Gateway authentication method before you can configure remote access to your stores through NetScaler Gateway. For more information about configuring NetScaler Gateway for StoreFront, see **Using WebFront to Integrate with StoreFront.**

**Important:**

In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, **propagate your configuration changes to the server group** so that the other servers in the deployment are updated.

1. **On the Windows Start screen or Apps screen,** locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and in the Actions pane, click Manage NetScaler Gateways.

3. Click Add and General Settings, specify a name for the NetScaler Gateway deployment that will help users to identify it.

Users see the display name you specify in Citrix Receiver, so include relevant information in the name to help users decide whether to use that deployment. For example, you can include the geographical location in the display names for your NetScaler Gateway deployments so that users can easily identify the most convenient deployment for their location.

4. Enter the URL of the virtual server or user logon point (for Access Gateway 5.0) for your deployment. Specify the product version used in your deployment.

The fully qualified domain name (FQDN) for your StoreFront deployment must be unique and different from the NetScaler Gateway virtual server FQDN. Using the same FQDN for StoreFront and the NetScaler Gateway virtual server is not supported.

5. If you are adding an Access Gateway 5.0 deployment, continue to Step 7. Otherwise, specify the subnet IP address of the NetScaler Gateway appliance, if necessary. A subnet IP address is required for Access Gateway 9.3 appliances, but optional for more recent product versions.

The subnet address is the IP address that NetScaler Gateway uses to represent the user device when communicating with servers on the internal network. This can also be the mapped IP address of the NetScaler Gateway appliance. Where specified, StoreFront uses the subnet IP address to verify that incoming requests originate from a trusted device.

6. If you are adding an appliance running NetScaler Gateway, select from the Logon type list the authentication method you configured on the appliance for Citrix Receiver users.

The information you provide about the configuration of your NetScaler Gateway appliance is added to the provisioning file for the store. This enables Citrix Receiver to send the appropriate connection request when contacting the appliance for the first time.

- If users are required to enter their Microsoft Active Directory domain credentials, select Domain.
- If users are required to enter a toekencode obtained from a security token, select Security token.
- If users are required to enter both their domain credentials and a toekencode obtained from a security token, select Domain and security token.
- If users are required to enter a one-time password sent by text message, select SMS authentication.
- If users are required to present a smart card and enter a PIN, select Smart card.

If you configure smart card authentication with a secondary authentication method to which users can fall back if they experience any issues with their smart cards, select the secondary
authentication method from the Smart card fallback list. Continue to Step 8.

7. To add an Access Gateway 5.0 deployment, indicate whether the user logon point is hosted on a standalone appliance. If you are adding a cluster, click Next and continue to Step 9.

8. If you are configuring StoreFront for NetScaler Gateway or a single Access Gateway 5.0 appliance, complete the NetScaler Gateway authentication service URL in the Callback URL box. StoreFront automatically appends the standard portion of the URL. Click Next and continue to Step 11.

Enter the internally accessible URL of the appliance. StoreFront contacts the NetScaler Gateway authentication service to verify that requests received from NetScaler Gateway originate from that appliance.

9. To configure StoreFront for an Access Gateway 5.0 cluster, list on the Appliances page the IP addresses or FQDNs of the appliances in the cluster and click Next.

10. On the Enable Silent Authentication page, list URLs for the authentication service running on the Access Controller servers. Add URLs for multiple servers to enable fault tolerance, listing the servers in order of priority to set the failover sequence. Click Next.

StoreFront uses the authentication service to authenticate remote users so that they do not need to re-enter their credentials when accessing stores.

11. For all deployments, if you are making resources provided by XenDesktop or XenApp available in the store, list on the Secure Ticket Authority (STA) page URLs for servers running the STA. Add URLs for multiple STAs to enable fault tolerance, listing the servers in order of priority to set the failover sequence.

The STA is hosted on XenDesktop and XenApp servers and issues session tickets in response to connection requests. These session tickets form the basis of authentication and authorization for access to XenDesktop and XenApp resources.

12. If you want XenDesktop and XenApp to keep disconnected sessions open while Citrix Receiver attempts to reconnect automatically, select the Enable session reliability check box. If you configured multiple STAs and want to ensure that session reliability is always available, select the Request tickets from two STAs, where available check box.

When the Request tickets from two STAs, where available check box is selected, StoreFront obtains session tickets from two different STAs so that user sessions are not interrupted if one STA becomes unavailable during the course of the session. If, for any reason, StoreFront is unable to contact two STAs, it falls back to using a single STA.

13. Click Create to add details of your NetScaler Gateway deployment. Once the deployment has been added, click Finish.

For more information about updating the details of your deployments, see Configure NetScaler Gateway connection settings.
To provide access to stores through NetScaler Gateway, one internal beacon point and at least two external beacon points are required. Citrix Receiver uses beacon points to determine whether users are connected to local or public networks and then selects the appropriate access method. By default, StoreFront uses the server URL or load-balanced URL of your deployment as the internal beacon point. The Citrix website and the virtual server or user logon point (for Access Gateway 5.0) URL of the first NetScaler Gateway deployment you add are used as external beacon points by default. For more information about changing beacon points, see Configure beacon points.

To enable users to access your stores through NetScaler Gateway, ensure that you configure remote user access for those stores.

**Import a NetScaler Gateway**

July 30, 2018

Remote access settings configured within the NetScaler administration console have to be identical to those configured in StoreFront. This article shows you how to import a NetScaler Gateway so that NetScaler and StoreFront are configured correctly to work together.

**Requirements**

- NetScaler 11.1.51.21 or higher is required to export multiple gateway vServers to a ZIP file.
  
  **Note:**
  NetScaler can only export gateway vServers created using the XenApp and XenDesktop wizard.

- It must be possible for DNS to resolve, and for StoreFront to contact, all STA (Secure Ticket Authority) server URLs in the GatewayConfig.json file within the ZIP file generated by NetScaler.

- The GatewayConfig.json file within the ZIP file generated by NetScaler has to contain the URL of an existing Citrix Receiver for Web site on the StoreFront server. NetScaler 11.1 and higher takes care of this by contacting the StoreFront server and enumerating all existing stores and Citrix Receiver for Web sites before generating the ZIP file for export.

- StoreFront must be able to resolve the callback URL in DNS to the gateway VPN vServer IP address for authentication using the imported gateway to succeed.

  The callback URL and port combination you use is usually the same as the gateway URL and port combination, as long as StoreFront can resolve this URL.

  or
The callback URL and port combination may be different from the gateway URL and port combination if you use different external and internal DNS namespaces in your environment. If your gateway is located in a DMZ and uses an `<example.com>` URL and StoreFront is on your private corporate network and uses an `<example.local>` URL you may use an `<example.local>` callback URL to point back to the gateway vServer in the DMZ.

**Import a NetScaler Gateway using the console**

You can import one or multiple NetScaler Gateway appliances by importing a NetScaler configuration file.

**Important:**
Citrix does not support manual editing of the configuration file exported from NetScaler.

1. Select **Stores** in the left pane of the Citrix StoreFront management console, and in the **Actions** pane, click **Manage NetScaler Gateways**.

2. On the Manage NetScaler Gateways screen, click the **imported from file** link.


4. A list of gateway vServers from the selected ZIP file is displayed. Select the gateway vServer you want to import and click **Import**. If you are repeating an import of a vServer, the Import button
displays as Update. If you choose **Update**, you will have the option later to overwrite or create a new gateway.

5. Review the logon type for the selected gateway and specify a callback URL if required. The logon type is the authentication method that you configured on the NetScaler Gateway appliance for Citrix Receiver users. Some logon types require callback URLs (see table).

   • Click **Verify** to check that the Callback URL is valid and reachable from the StoreFront server.
If a callback URL is required, StoreFront will autofill Callback URL based on the gateway URL found in the ZIP file. You can change this to any valid URL that points back to the NetScaler Gateway vServer IP.
If you want to use Smart Access, a Callback URL is required.

6. Click **Next**.

7. StoreFront contacts all the STA (Secure Ticket Authorities) server URLs listed in the ZIP file using DNS, and validates that they are functional STA ticketing servers. The import will not continue if one or more of the STA URLs is invalid.

8. Click **Next**.

9. Review the details of the import. If a gateway with the same gateway URL and port combination (Gateway:port) already exists, use the drop-down to select a gateway to overwrite it, or create a new gateway.
StoreFront uses the GatewayURL:port combination to determine whether a gateway you are trying to import matches an existing gateway that you may wish to update. If a gateway has a different GatewayURL:port combination then StoreFront treats this as a new gateway. This table of gateway settings shows which settings you can update.

<table>
<thead>
<tr>
<th>Gateway Setting</th>
<th>Can be updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway URL:Port Combination</td>
<td>No</td>
</tr>
<tr>
<td>GSLB URL</td>
<td>Yes</td>
</tr>
<tr>
<td>Netscaler Trust Certificate &amp; Thumbprint</td>
<td>Yes</td>
</tr>
<tr>
<td>Callback URL</td>
<td>Yes</td>
</tr>
<tr>
<td>Receiver for Web Site URL</td>
<td>Yes</td>
</tr>
<tr>
<td>Gateway Address/VIP</td>
<td>Yes</td>
</tr>
<tr>
<td>STA URL and STA ID</td>
<td>Yes</td>
</tr>
<tr>
<td>All Logon Types</td>
<td>Yes</td>
</tr>
</tbody>
</table>

10. Click Import. If the StoreFront server is part of a server group, a message is displayed reminding
you to propagate the imported gateway settings to the other servers in the group.

11. Click **Finish**.

To import another vServer configuration, repeat the steps above.

**Note:**
The default gateway for a store is the gateway that native Citrix Receivers try to connect through unless they are configured to use a different gateway. If no gateways are configured for the store, the first gateway imported from the ZIP file will become the default gateway used by native Citrix Receivers. Importing subsequent gateways does not change the default gateway already set for the store.

### Import multiple NetScaler Gateways using PowerShell

**Read-STFNetScalerConfiguration**

- Copy the ZIP file to the desktop of the currently logged on StoreFront administrator.
- Read the contents of the NetScaler ZIP file into memory and look at the three gateways it contains using their index values.

```powershell
$ImportedGateways = Read-STFNetScalerConfiguration -path "$env:USERPROFILE\desktop\GatewayConfig.zip"
```

View the three gateway objects in memory which were read in from the NetScaler ZIP import package using the **Read-STFNetScalerConfiguration** cmdlet.

```
$ImportedGateways.Document.Gateways[0]

GatewayMode : CVPN
CallbackUrl : 
GslbAddressUri : https://gslb.example.com/
AddressUri : https://emeagateway.example.com/
Address : https://emeagateway.example.com:443
GslbAddress : https://gslb.example.com:443
VipAddress : 10.0.0.1
Stas : {
   STA298854503, STA909374257 
}
StaLoadBalance : True
CertificateThumbprints : {
   F549AFAA29E870F2316B3981AD503AF387 
}
```
GatewayAuthType : Domain
GatewayEdition : Enterprise
ReceiverForWebSites : {
    ReceiverForWebSite }

GatewayMode : CVPN
CallbackUrl :
GslbAddressUri : https://gslb.example.com/
AddressUri : https://emeagateway.example.com/
Address : https://emeagateway.example.com:444
GslbAddress : https://gslb.example.com:443
Address : https://emeagateway.example.com:445
VipAddress : 10.0.0.2
Stas : {
  STA298854503, STA909374257 }
StaLoadBalance : True
CertificateThumbprints : {
  F549AFAA29EBF61E8709F2316B3981AD503AF387 }

GatewayAuthType : DomainAndRSA
GatewayEdition : Enterprise
ReceiverForWebSites : {
    ReceiverForWebSite }

GatewayMode : CVPN
CallbackUrl : https://emeagateway.example.com:445
GslbAddressUri : https://gslb.example.com/
AddressUri : https://gslb.example.com/
Address : https://emeagateway.example.com:445
GslbAddress : https://gslb.example.com:443
Address : https://emeagateway.example.com:445
VipAddress : 10.0.0.2
Stas : {
  STA298854503, STA909374257 }
StaLoadBalance : True
CertificateThumbprints : {
  F549AFAA29EBF61E8709F2316B3981AD503AF387 }

GatewayAuthType : SmartCard
GatewayEdition : Enterprise
ReceiverForWebSite : {
  ReceiverForWebSite }

Import-STFNetScalerConfiguration without specifying a CallbackURL

Copy the ZIP file to the desktop of the currently logged in StoreFront administrator. Read in the NetScaler ZIP import package into memory and look at the three gateways it contains using their index values.

```powershell
$ImportedGateways = Read-STFNetScalerConfiguration -path "$env:USERPROFILE\desktop\GatewayConfig.zip"
```

Import three new gateways into StoreFront using the `Import-STFNetScalerConfiguration` cmdlet and specifying the gateway indexes you require. Using the `-Confirm:$False` parameter prevents the Powershell GUI from prompting you to allow every gateway to be imported. Remove this if you wish to carefully import one gateway at a time.

```powershell
'``
2 Import-STFNetScalerConfiguration -Configuration $ImportedGateways -GatewayIndex 0 -Confirm:$False
3 Import-STFNetScalerConfiguration -Configuration $ImportedGateways -GatewayIndex 1 -Confirm:$False
4 Import-STFNetScalerConfiguration -Configuration $ImportedGateways -GatewayIndex 2 -Confirm:$False
'``

Import-STFNetScalerConfiguration specifying your own CallbackURL

Import three new gateways into StoreFront using the `Import-STFNetScalerConfiguration` cmdlet and specify a callback URL of your choice using the `-callbackURL` parameter.

```powershell
$ImportedGateways = Read-STFNetScalerConfiguration -path "$env:USERPROFILE\desktop\GatewayConfig.zip"
3 Import-STFNetScalerConfiguration -Configuration $ImportedGateways -GatewayIndex 0 -CallbackUrl "https://emeagatewaycb.example.com:443" -Confirm:$False
4 Import-STFNetScalerConfiguration -Configuration $ImportedGateways -GatewayIndex 1 -CallbackUrl "https://emeagatewaycb.example.com:444" -Confirm:$False
```
Configure NetScaler Gateway connection settings

November 8, 2018

The tasks below enable you to update details of the NetScaler Gateway deployments through which users access your stores. For more information about configuring NetScaler Gateway for StoreFront, see Using WebFront to Integrate with StoreFront.

If you make any changes to your NetScaler Gateway deployments, ensure that users who access stores through these deployments update Citrix Receiver with the modified connection information. Where a Citrix Receiver for Web site is configured for a store, users can obtain an updated Citrix Receiver provisioning file from the site. Otherwise, you can export a provisioning file for the store and make this file available to your users.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running.
on any of the other servers in the deployment. Once complete, 
propagate your configuration changes to the server group so that the other servers in the deployment are updated.

**Change general NetScaler Gateway settings**

Use the Change General Settings task to modify the NetScaler Gateway deployment names shown to users and to update StoreFront with changes to the virtual server or user logon point URL, and the deployment mode of your NetScaler Gateway infrastructure.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and pane, click Manage Netscaler Gateways.
3. Specify a name for the NetScaler Gateway deployment that will help users to identify it.
   
   Users see the display name you specify in Citrix Receiver, so include relevant information in the name to help users decide whether to use that deployment. For example, you can include the geographical location in the display names for your NetScaler Gateway deployments so that users can easily identify the most convenient deployment for their location.
4. Enter the URL of the virtual server or user logon point (for Access Gateway 5.0) for your deployment. Specify the product version used in your deployment.
   
   The fully qualified domain name (FQDN) for your StoreFront deployment must be unique and different from the NetScaler Gateway virtual server FQDN. Using the same FQDN for StoreFront and the NetScaler Gateway virtual server is not supported.
5. If your deployment is running Access Gateway 5.0, continue to Step 7. Otherwise, specify the subnet IP address of the NetScaler Gateway appliance, if necessary.
   
   The subnet address is the IP address that NetScaler Gateway uses to represent the user device when communicating with servers on the internal network. This can also be the mapped IP address of the NetScaler Gateway appliance. Where specified, StoreFront uses the subnet IP address to verify that incoming requests originate from a trusted device.
6. If your appliance is running NetScaler Gateway, select from the Logon type list the authentication method you configured on the appliance for Citrix Receiver users.
   
   The information you provide about the configuration of your NetScaler Gateway appliance is added to the provisioning file for the store. This enables Citrix Receiver to send the appropriate connection request when contacting the appliance for the first time.
   
   - If users are required to enter their Microsoft Active Directory domain credentials, select Domain.
• If users are required to enter a token code obtained from a security token, select Security token.
• If users are required to enter both their domain credentials and a token code obtained from a security token, select Domain and security token.
• If users are required to enter a one-time password sent by text message, select SMS authentication.
• If users are required to present a smart card and enter a PIN, select Smart card.

If you configure smart card authentication with a secondary authentication method to which users can fall back if they experience any issues with their smart cards, select the secondary authentication method from the Smart card fallback list.

7. If your deployment consists of NetScaler Gateway, or a single Access Gateway 5.0 appliance, complete the NetScaler Gateway authentication service URL in the Callback URL box. StoreFront automatically appends the standard portion of the URL.

Enter the internally accessible URL of the appliance. StoreFront contacts the NetScaler Gateway authentication service to verify that requests received from NetScaler Gateway originate from that appliance.

**Manage Access Gateway 5.0 appliances**

Use the Manage Appliances task to add, edit, or remove from StoreFront the IP addresses or FQDNs of the appliances in your Access Gateway 5.0 cluster.

**Enable silent user authentication through Access Controller**

Use the Enable Silent Authentication task to add, edit, or remove URLs for the authentication service running on the Access Controller servers for your Access Gateway 5.0 cluster. Enter URLs for multiple servers to enable fault tolerance, listing the servers in order of priority to set the failover sequence. StoreFront uses the authentication service to authenticate remote users so that they do not need to re-enter their credentials when accessing stores.

**Manage Secure Ticket Authorities**

Use the Secure Ticket Authority task to update the list of Secure Ticket Authorities (STAs) from which StoreFront obtains user session tickets and to configure session reliability. The STA is hosted on XenDesktop and XenApp servers and issues session tickets in response to connection requests. These session tickets form the basis of authentication and authorization for access to XenDesktop and XenApp resources.
1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.

2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the results pane, select a NetScaler Gateway deployment. In the Actions pane, click Manage NetScaler Gateways.

3. Click Add to enter the URL for a server running the STA. Specify URLs for multiple STAs to enable fault tolerance, listing the servers in order of priority to set the failover sequence. To modify a URL, select the entry in the Secure Ticket Authority URLs list and click Edit. Select a URL in the list and click Remove to stop StoreFront obtaining session tickets from that STA.

4. If you want XenDesktop and XenApp to keep disconnected sessions open while Citrix Receiver attempts to reconnect automatically, select the Enable session reliability check box. If you configured multiple STAs and want to ensure that session reliability is always available, select the Request tickets from two STAs, where available check box.

   When the Request tickets from two STAs, where available check box is selected, StoreFront obtains session tickets from two different STAs so that user sessions are not interrupted if one STA becomes unavailable during the course of the session. If, for any reason, StoreFront is unable to contact two STAs, it falls back to using a single STA.

**Remove NetScaler Gateway deployments**

In the Actions pane, use the Remove task from Manage NetScaler Gateways to delete the details of a NetScaler Gateway deployment from StoreFront. Once a NetScaler Gateway deployment is removed, users are no longer be able to access stores through that deployment.

**Load balancing with NetScaler**

December 18, 2018

This article contains the information needed to use NetScaler to load balance two or more StoreFront servers.

**Configure a StoreFront server group and NetScaler load balancing**

**Plan your load balanced StoreFront deployment**

This article provides guidance on how to deploy a StoreFront server group containing two or more StoreFront servers in all active load balanced configuration. The article provides details of how to
configure a NetScaler appliance to load balance incoming requests from Citrix Receiver and Citrix Receiver for Web between the StoreFront nodes in the server group. This article also shows you how to configure the new StoreFront Monitor for use with a NetScaler or third party load balancer.

For load balancing configuration examples, see the following sections “Scenario 1” and “Scenario 2”.

**Tested with the following environment**

- Four Windows Server 2012 R2 StoreFront 3.0 nodes in a single server group.
- One NetScaler 10.5 load balancer configured for Least Connection and CookieInsert “sticky” load balancing.
- One Windows 8.1 test client with Fiddler 4.0 and Citrix Receiver for Windows 4.3 installed.

**Server certificate requirements for the load balanced deployment if you intend to use HTTPS**

Review the section Plan gateway and server certificate usage.

Consider the following options before purchasing a certificate from a commercial certificate authority or issuing one from your enterprise certificate authority.

- **Option 1**: Use a *.example.com wildcard certificate on both the NetScaler load balancing vServer and on the StoreFront server group nodes. This simplifies the configuration and allows you to add extra StoreFront servers in the future without the need to replace the certificate.
- **Option 2**: Use a certificate including Subject Alternative Names (SANs) on both the NetScaler load balancing vServer and on the StoreFront server group nodes. Extra SANs within the certificate that match all of StoreFront server fully qualified domain names (FQDNs) are optional, but recommended, as this allows greater flexibility in the StoreFront deployment. Include a SAN for email-based discovery discoverReceiver.example.com.


**Note:**

When exporting the private key associated with the certificate is not feasible. Use two separate certificates: one on the NetScaler load balancing vServer and a different certificate on the StoreFront server group nodes. Both certificates must include Subject Alternative Names.
Example Web server certificates

**Option 1: Wildcard certificate**

**Option 2: SAN certificate with every StoreFront server**

**Common Properties**
Create a server certificate for the NetScaler load balancer and all StoreFront servers

Import a certificate issued from a Windows Certificate Authority onto a NetScaler appliance using OpenSSL

- WinSCP is a useful third party and free tool to move files from a Windows machine to a NetScaler file system. Copy certificates for import to the /nsconfig/ssl/ folder within the NetScaler file system.
- You can also use OpenSSL tools on the NetScaler to extract the certificate and key from a PKCS12/PFX file to create a two separate .CER and .KEY X.509 files in PEM format that NetScaler can use.

1. Copy the PFX file into /nsconfig/ssl/ on the NetScaler appliance or VPX.
2. Open the NetScaler command line interface (CLI).
3. Type Shell to switch to exit the NetScaler CLI and switch to the FreeBSD shell.
5. Run openssl pkcs12 -in <imported cert file>.pfx -nokeys -out <certfilename>.cer and enter the PFX password when prompted.
6. Run openssl pkcs12 -in <imported cert file>.pfx -nocerts -out <keyfilename>.key and enter the PFX password when prompted, and then set the private key PEM passphrase to protect the .KEY file.
7. Run ls -al to check the .CER and .KEY files have been successfully created inside /nsconfig /ssl/.
8. Type Exit to return to the NetScaler CLI.

Configure the server certificate on the NetScaler after it is imported

1. Log on to the NetScaler management GUI.
2. Select Traffic Management > SSL > SSL Certificates and click Install.
3. On the Install Certificate window, enter the certificate and private key pair names.
   - Select the .cer certificate file on the NetScaler file system under /nsconfig/ssl/.
   - Select the .key file containing the private key from the same location.
Create DNS records for the StoreFront server group load balancer

Create a DNS A and PTR record for your chosen shared FQDN. Clients within your network use this FQDN to access the StoreFront server group using the NetScaler load balancer.

Example - storefront.example.com resolves to the load balancing vServer virtual IP (VIP).

Scenario 1: An end to end HTTPS 443 secure connection between the client and NetScaler load balancer and also between the load balancer and two or more StoreFront 3.0 servers

This scenario uses a modified StoreFront monitor using port 443.

Add individual StoreFront server nodes to the NetScaler load balancer
1. Log onto the NetScaler management GUI.

2. Select Traffic Management > Load Balancing > Servers > Add and add each of the four StoreFront nodes to be load balanced.

   Example = 4 x 2012R2 StoreFront Nodes called 2012R2-A to -D

3. Use IP based server configuration and enter the server IP address for each StoreFront node.

4. Define a StoreFront monitor to check the status of all StoreFront nodes in the server group

   1. Log onto the NetScaler management GUI.
   2. Select Traffic Management > Load Balancing > Monitors > Add and add a new monitor called StoreFront and accept all default settings.
   3. From the Type drop down menu, select StoreFront.
   4. Makes sure the Secure check box is checked if using HTTPS connections between your load balancing vServer and StoreFront; otherwise leave this option disabled.
   5. Specify the store name under the Special Parameters tab.
   6. Check the Check Backend Services check box under the Special Parameters tab. This option enables monitoring of services running on the StoreFront server. StoreFront services are monitored by probing a Windows service that runs on the StoreFront server, which returns the status of the following services:
      - W3SVC (IIS)
      - WAS (Windows Process Activation Service)
      - CitrixCredentialWallet
      - CitrixDefaultDomainService
Create an HTTPS 443 service group containing all of the StoreFront servers

1. Within your Service Group, select the Members option on the right hand side and add all of the StoreFront server nodes you defined previously in the Servers section.

2. Set the SSL port and give each node a unique server ID as they are added.
1. On the Monitors tab, select the StoreFront monitor you created earlier.

1. On the Certificates tab, bind the server certificate you imported earlier.

2. Bind the CA certificate used to sign the server certificate you imported earlier and any other CAs that might be part of the PKI chain of trust.
Create a load balancing vServer for user traffic

1. Log onto the NetScaler management GUI.
3. Select the load balancing method for the vServer. Common choices for StoreFront load balancing are round robin or least connection.

1. Bind the Service Group you created earlier to the load balancing vServer.
2. Bind the same server and CA certificate you previously bound to the service group, to the load balancing vServer.
3. From within the load balancing vServer menu, select Persistence on the right hand side and set the persistence method to be CookieInsert.
4. Name the cookie. For example, NSC_SFPersistence, as this makes it easy to identify in Fiddler traces during debugging.
5. Set backup persistence to None.
Scenario 2: HTTPS termination - HTTPS 443 communication between the client and NetScaler load balancer and HTTP 80 connections between the load balancer and the StoreFront 3.0 servers behind it

This scenario uses the default StoreFront monitor using port 8000.

Add individual StoreFront server servers to the NetScaler load balancer

1. Log onto the NetScaler management GUI.

2. Select Traffic Management > Load Balancing > Servers > Add and add each of the four StoreFront servers to be load balanced.
   
   Example = 4 x 2012R2 Storefront servers called 2012R2-A to -D.

3. Use IP based Server configuration and enter the server IP address for each Storefront server.
Define an HTTP 8000 StoreFront monitor to check the status of all StoreFront servers in the server group

1. Log onto the NetScaler management GUI.
2. Select Traffic Management > Monitors > Add and add a new monitor called StoreFront.
3. Add a name for the new monitor and accept all default settings.
4. Select Type from the drop down menu as StoreFront.
5. Specify the store name under the Special Parameter tab.
6. Enter 8000 into destination port, as this matches the default monitor instance that is created on each StoreFront server.
7. Tick the Check Backend Services check box under the Special Parameters tab. This option enables monitoring of services running on the StoreFront server. StoreFront services are monitored by probing a Windows service that runs on the StoreFront server, which returns the status of the following services:
   - W3SVC (IIS)
   - WAS (Windows Process Activation Service)
   - CitrixCredentialWallet
   - CitrixDefaultDomainService

Create an HTTP 80 service group containing all of the StoreFront servers

1. Within your Service Group, select the Members option on the right hand side and add all of the StoreFront server nodes you defined previously in the Servers section.
2. Set the HTTP port to 80 and give each server a unique server ID as you add them.
3. On the Monitors tab, select the StoreFront monitor you created earlier.
Create an HTTPS terminating load balancing vServer for user traffic

2. Select the load balancing method vServer will use. Common choices for StoreFront load balancing are round robin or least connection.
3. Bind the Service Group you created earlier to the load balancing vServer.
4. Bind the same server and CA certificate you previously bound to the service group, to the load balancing vServer.

Note:
If the client is not allowed to store the HTTP cookie, the subsequent requests do not have the HTTP cookie and Persistence is not used.

5. From within the load balancing vServer menu, select Persistence and set the persistence method to be CookieInsert.
6. Name the cookie. For example, NSC_SFPersistence, as this makes it easy to identify in Fiddler traces during debugging.
7. Set backup persistence to None.

Standard Parameters Tab

Special Parameters Tab

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Create a load balancing vServer for subscription synchronization between server groups

Considerations before creating a load balancing vServer include the following:

- **Option 1:** Create a single vServer: To load balance only user traffic. This is all that is needed if performing only ICA launches of published apps and desktops. (Mandatory and usually all that is required.)

- **Option 2:** Create a pair of vServers: One to load balance user traffic for performing ICA launches of published apps and desktops and another for load balancing subscription data synchronization operations. (Necessary only when propagating subscription data between two or more load balanced StoreFront server groups in a large multisite deployment.)

If a multisite deployment consists of two or more StoreFront server groups located in separate geographic locations, you can replicate subscription data between them using a pull strategy on a repeating schedule. StoreFront subscription replication uses TCP port 808, so using an existing load balancing vServer on HTTP port 80 or HTTPS 443 fails. To provide high availability for this service, create a second vServer on each NetScaler in your deployment to load balance TCP port 808 for each of the StoreFront server groups. When configuring the replication schedule, specify a server group address that matches the subscription synching vServer virtual IP address. Ensure the server group address is the FQDN of the load balancer for the server group at that location.

Configure a service group for subscription synchronization

1. Log onto the NetScaler management GUI.
2. Select **Traffic Management > Service Groups > Add** and add a new service group.
3. Change the protocol to TCP.
4. Within your Service Group, select the **Members** option on the right hand side and add all of the StoreFront server nodes you defined previously in the Servers section.
5. On the **Monitors** tab, select the TCP monitor.

<table>
<thead>
<tr>
<th>Monitor Name</th>
<th>Weight</th>
<th>State</th>
<th>Passive</th>
</tr>
</thead>
<tbody>
<tr>
<td>tcp</td>
<td>1</td>
<td>✓</td>
<td>x</td>
</tr>
</tbody>
</table>

Create a load balancing vServer for subscription synchronization between server groups

1. Log onto the NetScaler management GUI.
2. Select Traffic Management > Service Groups > Add and add a new service group.
3. Set the load balancing method to round robin.
4. Change the protocol to TCP.
5. Enter \texttt{808} \textit{and NOT} \texttt{443} as the port number.

\textbf{Membership within CitrixSubscriptionsSyncUsers}

For \textit{StoreFront server A} at \textbf{Location A} to request and pull subscription data from \textbf{server B} at a different location, server A must be a member of the \texttt{CitrixSubscriptionsSyncUsers} local security group on server B. The \texttt{CitrixSubscriptionsSyncUsers} local group contains an access control list of all remote StoreFront servers authorized to pull subscription data from a particular server. For bidirectional subscription synchronization, server B must also be a member of the \texttt{CitrixSubscriptionsSyncUsers} security group on server A to pull subscription data from it.
Configure the StoreFront server group for load balancing

1. Import the same certificate and private key that was deployed on the NetScaler load balancing vServer to every StoreFront node in the server group.

2. Create an HTTPS binding in IIS on every StoreFront node, and then bind the certificate you imported earlier to it.
3. Install StoreFront on every node in the server group.

4. During installation of StoreFront, set the host base URL on the primary node to be the shared FQDN used by all members of the server group. You must use a certificate containing the load balanced FQDN as a Common Name (CN) or Subject Alternative Name (SAN).

See the Create a server certificate for the NetScaler load balancer and StoreFront servers.

5. When you complete the initial StoreFront configuration, join each of the nodes, one after the other, to the server group using the primary node.


1. Propagate the configuration from the primary node to all other server group nodes in the group.
2. Test the load balanced server group using a client that can contact and resolve the shared FQDN of the load balancer.
**Citrix Service Monitor**

To enable external monitoring of the run-state of the Windows services on which StoreFront relies for correct operation, use the **Citrix Service Monitor** Windows service. This service has no other service dependencies and can monitor and report the failure of other critical StoreFront services. The monitor enables the relative health of a StoreFront server deployment to be determined externally by other Citrix components, such as NetScaler. Third party software can consume the StoreFront monitor XML response to monitor the health of essential StoreFront services.

After StoreFront is deployed, a default monitor that uses HTTP and port 8000 is created.

**Note:**

Only a single instance of a monitor can exist within a Storefront deployment.

To make any changes to the existing default monitor, such as changing the protocol and port to HTTPS 443, use the three PowerShell cmdlets to view or reconfigure the StoreFront monitor service URL.

**Remove the default Service Monitor and replace it with one that uses HTTPS and port 443**

1. Open the PowerShell Integrated Scripting Environment (ISE) on the primary StoreFront server and run the following commands to change the default monitor to HTTPS 443.

   ```powershell
   $ServiceUrl = "https://localhost:443/StorefrontMonitor"
   Set-STFServiceMonitor -ServiceUrl $ServiceUrl
   Get-STFServiceMonitor
   ```

2. Once completed, propagate the changes to all other servers in the StoreFront server group.

3. To perform a quick test on the new monitor, enter the following URL into the browser on the StoreFront server or any other machine with network access to the StoreFront server. The browser should return an XML summary of the status of every Storefront service.

   ```plaintext
   https://<loadbalancingFQDN>:443/StoreFrontMonitor/GetSFServicesStatus
   ```
NetScaler Gateway and load balancing vServers on the same NetScaler appliance

If you have configured the NetScaler Gateway vServer and load balancing vServer on the same NetScaler appliance, internal domain users might experience issues when trying to access the StoreFront load balanced host base URL directly rather than passing through the NetScaler Gateway vServer.

In this scenario StoreFront assumes that the end user has already authenticated at the NetScaler Gateway because StoreFront correlates the source IP address of the incoming user with the NetScaler Gateway Subnet IP Address (SNIP). This triggers StoreFront attempt to use the AGBasic protocol to perform NetScaler Gateway silent authentication, rather than actually prompting the user to log on with their domain credentials. To avoid this issue, omit a SNIP address as shown below so that username and password authentication is used instead of AGBasic.
Configure a Netscaler Gateway on the Storefront Server Group

**Loopback options when load balancing a StoreFront server group using NetScaler**

In previous versions of Storefront such as 2.6 or older, Citrix recommended that you manually modify the hosts file on each StoreFront server to map the fully qualified domain name (FQDN) of the load balancer to the loopback address or the IP address of the specific StoreFront server. This ensures that Receiver for Web always communicates with the StoreFront services on the same server in a load balanced deployment. This is necessary because an HTTP session is created during the explicit login process between Receiver for Web and the authentication service and Receiver for Web communicates with Storefront services using the base FQDN. If the base FQDN were to resolve to the load balancer, the load balancer could potentially send the traffic to a different StoreFront server in the group, leading to authentication failure. This does not bypass the load balancer except when Receiver for Web attempts to contact the Store service residing on the same server as itself.

You can set loopback options using PowerShell. Enabling loopback negates the need to create host file entries on every StoreFront server in the server group.

**Example Receiver for Web web.config file**

```
<communication attempts=”2” timeout=”00:01:00” loopback=”On”
loopbackPortUsingHttp=”80”>
```

**Example PowerShell command**

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The `-Loopback` parameter can take three possible values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>On — Changes the host of the URL to 127.0.0.1. The schema and port (if specified) are not changed.</td>
<td>Cannot be used if SSL-terminating load balancer is used.</td>
</tr>
<tr>
<td>OnUsingHttp — Changes the host to 127.0.0.1 and schema to HTTP and modifies the port the value configured for <code>loopbackPortUsingHttp</code> attribute.</td>
<td>Use only when the load balancer is SSL terminating. Communication between the load balancer and StoreFront servers is with HTTP. You can explicitly configure the HTTP port using the <code>-loopbackPortUsingHttp</code> attribute.</td>
</tr>
<tr>
<td>Off — The URL in the request is not modified in any way.</td>
<td>Use for trouble shooting. Tools like Fiddler cannot capture the traffic between Receiver for Web and StoreFront Services if loopback is set to On.</td>
</tr>
</tbody>
</table>

**Configure two URLs for the same NetScaler Gateway**

July 30, 2018

In StoreFront, you can add a single NetScaler Gateway URL from the StoreFront management console in Manage NetScaler Gateways > Add or Edit. It is also possible to add both a public NetScaler Gateway URL and a GSLB (Global Server Load Balancing) URL in Manage NetScaler Gateways > imported from file.

This article shows you how to use PowerShell cmdlets and the StoreFront PowerShell SDK to use an optional parameter, `-gslburl`, to set the GslbLocation attribute of a gateway. This feature simplifies the NetScaler Gateway administration in StoreFront in the following use cases:

1. **GSLB and multiple NetScaler Gateways.** Use GSLB and multiple NetScaler Gateways to load balance remote connections to published resources in two or more locations within a large global Citrix deployment.

2. **Single NetScaler Gateway using a public or private URL.** Use the same NetScaler Gateway for external access using a public URL, and for internal access using a private URL.
This is an advanced feature. If you are new to GSLB concepts, see the Related information links at the end of this article.

This feature offers the following benefits:

- Support two simultaneous URLs for a single gateway object.
- Users can switch between two different URLs to access the NetScaler Gateway without the administrator reconfiguring the StoreFront gateway object to match the gateway URL the user wants to use.
- Shorter setup and test times to validate the StoreFront gateway configuration when using multiple GSLB gateways.
- Use the same NetScaler Gateway object in StoreFront inside the DMZ for both external and internal access.
- Support both URLs for optimal gateway routing. For more information on optimal gateway routing, see Set up highly available multi-site stores.

Deployment considerations when using two Gateway URLs

**Important:**

Before configuring a second gateway URL using the -gslburl parameter, Citrix recommends reviewing what server certificates you have in place and how your organization performs DNS resolution. Any URLs that you want to use in your NetScaler and StoreFront deployment must be present in your server certificates. For more information about server certificates, see Plan gateway and server certificate usage.

**DNS**

- **Split DNS.** It is common for large enterprises to use split DNS. Split DNS involves using different namespaces and different DNS servers for public and private DNS resolution. Check if you have the existing DNS infrastructure to support this.
- **Single URL for external and internal access to published resources.** Decide if you want to use the same URL to access published resources from both outside and inside your corporate network, or consider if two different URLs are acceptable such as example.com and example.net.

**Server certificate examples**

This section contains example server certificate deployments when using two Gateway URLs.
Example server certificate for a load balanced StoreFront deployment

A privately signed wildcard server certificate should contain the FQDN *.storefront.example.net.

Or

A privately signed SAN server certificate should contain all the FQDNs needed to load balance three StoreFront servers.

```
1 loadbalancer.storefront.example.net
2 server1.storefront.example.net
3 server2.storefront.example.net
4 server3.storefront.example.net
```

Set the host base URL of the Storefront server group to be the shared FQDN, which resolves to the load balancer IP address:

```
1 loadbalancer.storefront.example.net
```

Example server certificate for a group of XenApp and XenDesktop 7.x Delivery Controllers

A privately signed wildcard server certificate should contain the FQDN *.xendesktop.example.net.

Or

A privately signed SAN server certificate should contain all the server FQDNs needed for a XenDesktop site containing four Controllers.

```
1 XD1A. xendesktop.example.net
2 XD1B. xendesktop.example.net
3 XD2A. xendesktop.example.net
4 XD2B. xendesktop.example.net
```

Example server certificate for a NetScaler Gateway which is accessed both externally and internally using split DNS

A publically signed SAN server certificate for both external and internal access should contain both the external and internal FQDNs.

```
1 gateway.example.com
2 gateway.example.net
```

Example server certificate for all GSLB Gateways which are accessed externally

A publically signed SAN server certificate for external access through GSLB should contain the FQDNs.
This allows the user to access the closest gateway using GSLB or to pick a gateway in the location of their choice using its unique FQDN.

**Use Case #1: GSLB and multiple NetScaler Gateways**

The administrator uses GSLB and multiple NetScaler Gateways to load balance remote connections to published resources in two or more locations within a large global Citrix deployment.

In this example:

- Each location or data center contains at least one gateway, one or more StoreFront servers, and one or more XenApp and XenDesktop Controllers to provide published resources for that location.
- Each GSLB service configured on the GSLB NetScalers within the global deployment represents a gateway VPN vServer. All of the StoreFront servers in the deployment must be configured to contain all of the NetScaler Gateway vServers that make up the GSLB layer.
- The GSLB NetScaler Gateways are used in active/active mode but can also provide failover if the network connection, DNS, gateway, StoreFront server or XenApp and XenDesktop Controllers

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at one location fail. Users are automatically directed to another gateway if a GSLB service is unavailable.

- External clients are directed to the closest gateway based on the configured GSLB load balancing algorithm such as round trip time (RTT) or Static Proximity when making remote connections.
- The unique URL for each gateway allows users to manually select which data center they want to launch resources from by choosing the location-specific URL for the gateway they want to use.
- GSLB can be bypassed when GSLB or a DNS delegation is not working as expected. Users can continue to access remote resources at any data center using its location-specific URL until any GSLB related issues are resolved.

Use Case #2: Single NetScaler Gateway using a public or private URL

The administrator uses the same NetScaler Gateway for both external access using a public URL, and also internally using a private URL.

In this example:

- The administrator wants all access to published resources and HDX launch traffic to pass through a NetScaler Gateway even if the client is internal.
- The NetScaler is located in a DMZ.
- There are two different network routes to the NetScaler Gateway through the two firewalls on either side of the DMZ.
- The public-facing, external namespace is different from the internal namespace.
PowerShell cmdlet examples

Use the PowerShell cmdlets `Add-STFRoamingGateway` and `Set-STFRoamingGateway` with the parameter, `-gslburl`, to set the `GslbLocation` attribute on the StoreFront gateway object. For example:

```powershell
2 Set-STFRoamingGateway -Name "EMEAGateway" -GatewayUrl "https://emeagateway.example.com" -GSLBurl "https://gslb.example.com"
3 Get-STFRoamingGateway -Name "EMEAGateway" (returns just the EMEA gateway object)
4 Or
5 Get-STFRoamingGateway (returns all gateway object configured in StoreFront)
```

For use case #1, you can remove the GSLB from the “EMEAGateway” by setting its `GslbLocation` to NULL. The following PowerShell modifies the gateway object $EMEAGateway stored in memory. `Set-STFRoamingGateway` can then be passed $EMEAGateway to update the StoreFront config and remove the GSLBurl.

```powershell
1 $EMEAGateway = Get-STFRoamingGateway
2 $EMEAGateway.GslbLocation = $Null
3 Set-STFRoamingGateway -Name $EMEAGateway
```

For use case #1, the following gateways are returned using `Get-STFRoamingGateway`:

```powershell
1 Name: EMEAGateway
2 Location: https://emeagateway.example.com/ (Unique URL for the EMEA Gateway)
3 GSLBLocation: https://gslb.example.com/ (GSLB URL for all three gateways)
4 Name: USGateway
5 Location: https://USgateway.example.com/ (Unique URL for the US Gateway)
6 GSLBLocation: https://gslb.example.com/ (GSLB URL for all three gateways)
7 Name: APACGateway
```
For use case #2: the following gateways are returned using Get-STFRoamingGateway:

1. **Name:** EMEAGateway
2. **Location:** https://emeagateway.example.com (Public URL for the Gateway)
3. **GslbLocation:** https://emeagateway.example.net/ (Private URL for the Gateway)

For use case #1, Optimal Gateway Routing is returned using Get-STFStoreRegisteredOptimalLaunchGateway:

```powershell
$StoreObject = Get-STFStoreService -SiteId 1 -VirtualPath "\Citrix\<YourStore>"
Get-STFStoreRegisteredOptimalLaunchGateway -StoreService $StoreObject
```

Hostnames: 
- emeagateway.example.com, gslb.example.com
- usgateway.example.com, gslb.example.com
- apacgateway.example.com, gslb.example.com

GSLB URL or Internal URL for each Gateway is stored in the Roaming service web.config file

StoreFront does not display the GSLB URL or internal URL for each Gateway within the StoreFront management console, however it is possible to view the configured GSLBLocation path for all GSLB gateways by opening the roaming service Web.Config file location in C:\inetpub\wwwroot\Citrix\Roaming\web.config on the StoreFront server.

Use Case #1 Gateways in Roaming web.config file

```xml
<gateway id="cca13269-18c1-10fd-a0df-7931b3897aa8" name="EMEAGateway" default="false" edition="Enterprise" version="Version10_0_69_1" auth ="DomainAndRSA" smartcardfallback="None" ipaddress="10.0.0.1" rmode ="NONE" deployment="Appliance" callbackurl=https://emeagateway.
```
example.com/CitrixAuthService/AuthService.asmx sessionreliability="true" requesttickettwosta="false" stasUseLoadBalancing="false" stasBypassDuration="01:00:00">
  <location path="https://emeagateway.example.com/" />
</gslbLocation>
  <clusternodes>
    <clear />
  </clusternodes>
</gateway>

<gateway id="b8ec720c-d85e-1889-8188-1cf08a2cf762" name="USGateway"
  default="true" edition="Enterprise" version="Version10_0_69_1" auth="DomainAndRSA" smartcardfallback="None" ipaddress="10.0.0.2" rwmode="NONE" deployment="Appliance" callbackurl="https://usgateway.example.com/CitrixAuthService/AuthService.asmx" sessionreliability="true" requesttickettwosta="false" stasUseLoadBalancing="false" stasBypassDuration="01:00:00">
  <location path="https://emea-controller.example.com/scripts/ctxsta.dll" />
  <location path="https://us-controller.example.com/scripts/ctxsta.dll" />
  <location path="https://apac-controller.example.com/scripts/ctxsta.dll" />
  <silentauthenticationurls>
    <clear />
  </silentauthenticationurls>
  <secureticketauthorityurls>
    <clear />
  </secureticketauthorityurls>
  <clusternodes>
    <clear />
  </clusternodes>
</gateway>
<silentauthenticationurls/>
<secureticketauthorityurls/>
<location path="https://emea-controller.example.com/scripts/ctxsta.dll"/>
<location path="https://us-controller.example.com/scripts/ctxsta.dll"/>
<location path="https://apac-controller.example.com/scripts/ctxsta.dll"/>
</secureticketauthorityurls>
</gateway>

Use Case #2: Gateways in Roaming web.config file

<gateway id="cca13269-18c1-10fd-a0df-7931b3897aa8" name="EMEAGateway"
    default="false" edition="Enterprise" version="Version10_0_69_1" auth="Domain"
smartcardfallback="None" ipaddress="10.0.0.1" rwmode="NONE"
deployment="Appliance" callbackurl="https://emeagateway.example.com/CitrixAuthService/AuthService.asmx" sessionreliability="true"
requesttickettwosta=false" stasUseLoadBalancing="false"
stasBypassDuration="01:00:00"><location path="https://emeagateway.example.com/" />
<gslbLocation path="https://gslb.example.com/" />
</clusternodes>
</gateway>
Configure Delegated Form Authentication (DFA) between NetScaler and StoreFront

February 21, 2019

Extensible authentication provides a single customization point for extension of NetScaler’s and StoreFront’s form-based authentication. To achieve an authentication solution using the Extensible Authentication SDK, you must configure Delegated Form Authentication (DFA) between NetScaler and StoreFront. The Delegated Forms Authentication protocol allows generation and processing of authentication forms, including credential validation, to be delegated to another component. For example, NetScaler delegates its authentication to StoreFront, which then interacts with a third party authentication server or service.

Configuring Delegated Forms Authentication on Citrix Gateway is described in CTX200383.

Installation recommendations

- To ensure communication between NetScaler and StoreFront is protected, use HTTPS instead of HTTP protocol.
- For cluster deployment, ensure that all the nodes have the same server certificate installed and configured in IIS HTTPS binding prior to configuration steps.
- Ensure that Netscaler has the issuer of StoreFront’s server certificate as a trusted certificate authority when HTTPS is configured in StoreFront.

StoreFront cluster installation considerations

- Install a third party authentication plugin on all the nodes prior to joining them up together.
- Configure all the Delegated Forms Authentication related settings on one node and propagate the changes to the others. See the “Enable Delegated Forms Authentication.”
Enable Delegated Forms Authentication

Because there is no GUI to set up Citrix pre-shared key setting in StoreFront, use the PowerShell console to install Delegated Forms Authentication.

1. Install Delegated Forms Authentication. It is not installed by default and you need to install it using the PowerShell console.

```powershell
1 PS C:\Users\administrator.PTD.000> cd 'C:\Program Files\Citrix\Receiver StoreFront\Scripts'
2 PS C:\Program Files\Citrix\Receiver StoreFront\Scripts> & .\ImportModules.ps1
3 Adding snapins
4 Importing modules
5 Loading 'C:\Program Files\Citrix\Receiver StoreFront\Admin\Citrix.DeliveryServices.ConfigurationProvider.dll'
6 Loading 'C:\Program Files\Citrix\Receiver StoreFront\Admin\Citrix.DeliveryServices.ConfigurationProvider.dll'
7
8 PS C:\Program Files\Citrix\Receiver StoreFront\Scripts> Install-DSDFAServer
9 Id : bf694fbc-ae0a-4d56-8749-c94559e897a
10 ClassType : e1eb3668-9c1c-4ad8-bbae-c08b2682c1bc
12 ParentInstance : 8dd182c7-f970-466c-ad4c-27a5980f716c
13 RootInstance : 5d0cdc75-1dee-4df7-8069-7375d79634b3
14 TenantId : 860e9401-39c8-4f2c-928d-34251102b840
15 Data : {
16 }
17
18 ReadOnlyData : {
19 [Name, DelegatedFormsServer], [Cmdlet, Add-DSWebFeature], [Snapin, Citrix.DeliverySer
20 vices.Web.Commands], [Tenant, 860e9401-39c8-4f2c-928d-34251102b840] }
21
22 ParameterData : {
23 [FeatureClassId, e1eb3668-9c1c-4ad8-bbae-c08b2682c1bc], [
2. Add Citrix Trusted Client. Configure the shared secret key (passphrase) between StoreFront and Netscaler. Your passphrase and client ID must be identical to what you configured in NetScaler.

```
PS C:\Program Files\Citrix\Receiver StoreFront\Scripts> Add-DSCitrixPSKTrustedClient -clientId netscaler.fqdn.com -passphrase secret
```

3. Set the Delegated Forms Authentication conversation factory to route all the traffic to the custom form. To find the conversation factory, look for ConversationFactory in \C:\inetpub\wwwroot\Citrix\Authentication\web.config. This is an example of what you might see.

```
<example connectorURL="http://Example.connector.url:8080/adapters-sf-aconnector-webapp">
  <routeTable order="1000">
    <routes>
      <route name="StartExampleAuthentication" url="/Example-Bridge-Forms/Start">
        <defaults>
          <add param="controller" value="ExplicitFormsAuthentication" />
          <add param="action" value="AuthenticateStart" />
          <add param="postbackAction" value="Authenticate" />
          <add param="cancelAction" value="CancelAuthenticate" />
          <add param="conversationFactory" value="ExampleBridgeAuthentication" />
          <add param="changePasswordAction" value="StartChangePassword" />
          <add param="changePasswordController" value="ChangePassword" />
          <add param="protocol" value="CustomForms" />
        </defaults>
      </route>
    </routes>
  </routeTable>
</example>
```
4. In PowerShell, set the Delegated Forms Authentication conversation factory. In this example, to ExampleBridgeAuthentication.

```powershell
PS C:\Program Files\Citrix\Receiver StoreFront\Scripts> Set-DSDFAProperty -ConversationFactory ExampleBridgeAuthentication
```

PowerShell arguments are not case-sensitive: `-ConversationFactory` is identical to `-conversationfactory`.

**Uninstall StoreFront**

Before you uninstall StoreFront, uninstall any third party authentication plugin, as it will impact the functionality of StoreFront.

**Authenticate using different domains**

July 30, 2018

Some organizations have policies in place that do not allow you to give third-party developers or contractors access to published resources in a production environment. This article shows you how to give access to published resources in a test environment by authenticating through NetScaler Gateway with one domain. You can then use a different domain to authenticate to StoreFront and the Receiver for Web site. Authentication through NetScaler Gateway described in this article is supported for users logging on through the Receiver for Web site. This authentication method is not supported for users of native desktop or mobile Citrix Receivers.

**Set up a test environment**

This example uses a production domain called production.com and a test domain called development.com.

**production.com domain**

The `production.com` domain in this example is set up as follows:

- NetScaler Gateway with `production.com` LDAP authentication policy configured.
- Authentication through the gateway occurs using a `production\testuser1` account and password.
development.com domain

The development.com domain in this example is set up as follows:

- StoreFront, XenApp and XenDesktop 7.0 or higher and VDAs are all on the development.com domain.
- Authentication to the Citrix Receiver for Web site occurs using a development\testuser1 account and password.
- There is no trust relationship between the two domains.

Configure a NetScaler Gateway for the store

To configure a NetScaler Gateway for the store:

1. Select Stores in the left pane of the Citrix StoreFront management console, and in the Actions pane, click Manage NetScaler Gateways.
2. On the Manage NetScaler Gateways screen, click Add.
3. Complete the General Settings, Secure Ticket Authority, and Authentication steps.
Add NetScaler Gateway Appliance

Secure Ticket Authority

General Settings

Secure Ticket Authority

Authentication Settings

Summary

Secure Ticket Authority (STA)

STA is hosted on XenDesktop, XenApp, and VDI-in-a-Box servers and issues session tickets in response to connection requests. These session tickets form the basis of authentication and authorization for access to XenDesktop, XenApp, and VDI-in-a-Box resources.

Secure Ticket Authority URLs:

Add | Edit | Remove

Load balance multiple STA servers

Bypass failed STA for: 1 hour 0 minutes 0 seconds

Enable session reliability

Request tickets from two STAs, where available

Edit NetScaler Gateway appliance - Production Gateway

Authentication Settings

These settings specify how the remote user provides authentication credentials

Version: 10.0 (Build 69.4) or later

VServer IP address: (optional)

Login type: Domain

Smart card fallback: None

Callback URL (optional):

https://callback.production.com/CitrixAuthService/AuthService.asmx
Note:
DNS conditional forwarders may need to be added so that the DNS servers in use on both domains can resolve FQDNs on the other domain. The NetScaler must be able to resolve the STA server FQDNs on the development.com domain using its production.com DNS server. StoreFront should also be able to resolve the callback URL on the production.com domain using its development.com DNS server. Alternatively, a development.com FQDN can be used which resolves to the NetScaler Gateway vServer virtual IP (VIP).

Enable pass-through from NetScaler Gateway

1. Select Stores in the left pane of the Citrix StoreFront management console, and in the Actions pane, click Manage Authentication Methods.
2. On the Manage Authentication Methods screen, select Pass-through from NetScaler Gateway.
3. Click OK.

Configure the store for remote access using the Gateway

1. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the results pane, select a store. In the Actions pane, click Configure Remote Access Settings.
2. Select **Enable Remote Access**.
3. Ensure that you have registered the NetScaler Gateway with your store. If you do not register the NetScaler Gateway, the STA ticketing will not work.

### Configure Remote Access Settings - Store

Enabling remote access allows users outside the firewall to securely access resources. After you enable remote access, add a NetScaler Gateway appliance.

- **Enable Remote Access**
- Select the permitted level of access to internal resources
  - Allow users to access only resources delivered through StoreFront (No VPN tunnel)
  - Allow users to access all resources on the internal network (Full VPN tunnel)
- Users may require the NetScaler Gateway Plug-in to establish a full VPN tunnel.

### Disable token consistency

1. Select the **Stores** node in the left pane of the Citrix StoreFront management console and, in the results pane, select a store. In the **Actions** pane, click **Configure Store Settings**.
2. On the Configure Store Settings page, select **Advanced Settings**.
3. Clear the **Require token consistency** check box. For more information, see Advanced store settings.
4. Click **OK**.
Note

The Require token consistency setting is selected (on) by default. If you disable this setting, SmartAccess features used for NetScaler End Point Analysis (EPA) stop working. For more information on SmartAccess, see CTX138110.

Disable pass-through from NetScaler Gateway for the Receiver for Web site

Important:

Disabling pass-through from NetScaler Gateway prevents Receiver for Web from trying to use the incorrect credentials from the production.com domain passed from NetScaler. Disabling pass-through from NetScaler Gateway causes Receiver for Web to prompt the user to enter credentials. These credentials are different from the credentials used to log on through the NetScaler Gateway.

1. Select the Stores node in the left pane of the Citrix StoreFront management console.
2. Select the store that you want to modify.
3. In the Actions pane, click Manage Receiver for Web Sites.
4. In Authentication Methods, clear the Pass-through from NetScaler Gateway check box.
5. Click OK.

Log on to Gateway using a production.com user and credentials

To test, log on to Gateway using a production.com user and credentials.

After logon, the user is prompted to enter development.com credentials.
Add a trusted domain drop-down list in StoreFront (optional)

This setting is optional, but it may help prevent the user from accidentally entering the wrong domain to authenticate through the NetScaler Gateway.

If the user name is the same for both domains, entering the wrong domain is more likely. New users may also be used to leaving out the domain when they log on through the NetScaler Gateway. Users may then forget to enter domain\username for the second domain when they are prompted to log on to the Receiver for Web site.

1. Select Stores in the left pane of the Citrix StoreFront management console, and in the Actions pane, click Manage Authentication Methods.
2. Select the drop-down arrow next to User name and password.
3. Click Add to add development.com as a trusted domain, and select the Show domains list in logon page check box.
4. Click OK.

Configure Trusted Domains

![Image of trusted domain configuration interface]
Note:
Browser password caching is not recommended in this authentication scenario. If users have different passwords for the two different domain accounts, password caching can lead to a poor experience.

NetScaler clientless VPN (CVPN) session action policy

- If Single Sign-on to web applications is enabled within your NetScaler session policy, incorrect credentials sent by NetScaler to Receiver for Web are ignored because you disabled the Pass-through from NetScaler Gateway authentication method on the Receiver for Web site. Receiver for Web prompts for credentials regardless of what this option is set to.
- Populating the Single Sign-on entries in the Client Experience and Published App tabs in NetScaler does not change the behavior described in this article.
Configure beacon points

July 30, 2018

Use the Manage Beacons task to specify URLs inside and outside your internal network to be used as beacon points. Citrix Receiver attempts to contact beacon points and uses the responses to determine whether users are connected to local or public networks. When a user accesses a desktop or application, the location information is passed to the server providing the resource so that appropriate connection details can be returned to Citrix Receiver. This ensures that users are not prompted to log on again when they access a desktop or application.
For example, if the internal beacon point is accessible, this indicates that the user is connected to the local network. However, if Citrix Receiver cannot contact the internal beacon point and receives responses from both the external beacon points, this means that the user has an Internet connection but is outside the corporate network. Therefore, the user must connect to desktops and applications through NetScaler Gateway. When the user accesses a desktop or application, the server providing the resource is notified to provide details of the NetScaler Gateway appliance through which the connection must be routed. This means that the user does not need to log on to the appliance when accessing the desktop or application.

By default, StoreFront uses the server URL or load-balanced URL of your deployment as the internal beacon point. The Citrix website and the virtual server or user logon point (for Access Gateway 5.0) URL of the first NetScaler Gateway deployment you add are used as external beacon points by default.

If you change any beacon points, ensure that users update Citrix Receiver with the modified beacon information. Where a Receiver for Website is configured for a store, users can obtain an updated Citrix Receiver provisioning file from the site. Otherwise, you can export a provisioning file for the store and make this file available to your users.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. On the Windows Start screen or Apps screen, locate and click the Citrix StoreFront tile.
2. Select the Stores node in the left pane of the Citrix StoreFront management console and, in the Actions pane, click Manage Beacons.
3. Specify the URL to use as the internal beacon point.
   - To use the server URL or load-balanced URL of your StoreFront deployment, select Use the service URL.
   - To use an alternative URL, select Specify beacon address and enter a highly available URL within your internal network.
4. Click Add to enter the URL of an external beacon point. To modify a beacon point, select the URL in the External beacons list and click Edit. Select a URL in the list and click Remove to stop using that address as a beacon point.

You must specify at least two highly available external beacon points that can be resolved from public networks. The beacon URLs should be fully qualified domain names (http://example.com) and not the abbreviated NetBIOS name (http://example). This enables Citrix Receiver to determine whether users are located behind an Internet paywall, such as in a hotel or Internet café. In such cases, all the external beacon points connect to the same proxy.
Advanced configurations

August 16, 2018

Note:
Learn about product name changes in What’s new.

You can configure the following advanced options using the StoreFront console, PowerShell, certificate properties, or configuration files.

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Configure Desktop Appliance sites

July 30, 2018

The tasks below describe how to create, remove, and modify Desktop Appliance sites. To create or remove sites, you execute Windows PowerShell commands. Changes to Desktop Appliance site settings are made by editing the site configuration files.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

Note:
The StoreFront and PowerShell consoles cannot be open at the same time. Always close the
StoreFront admin console before using the PowerShell console to administer your StoreFront configuration. Likewise, close all instances of PowerShell before opening the StoreFront console.

**To create or remove Desktop Appliance sites**

Only a single store can be accessed through each Desktop Appliance site. You can create a store containing all the resources you want to make available to users with non-domain-joined desktop appliances. Alternatively, create separate stores, each with a Desktop Appliance site, and configure your users’ desktop appliances to connect to the appropriate site.

1. Use an account with local administrator permissions to start Windows PowerShell and, at a command prompt, type the following command to import the StoreFront modules.

   ```
   & "installationlocation\Scripts\ImportModules.ps1"
   ```

   Where `installationlocation` is the directory in which StoreFront is installed, typically C:\Program Files\Citrix\Receiver StoreFront.

2. To create a new Desktop Appliance site, type the following command.

   ```
   Install-DSDesktopAppliance -FriendlyName sitename -SiteId iisid
   -VirtualPath sitepath -UseHttps { $False | $True }
   -StoreUrl storeaddress [-EnableMultiDesktop { $False | $True }]
   [-EnableExplicit { $True | $False }]
   [-EnableSmartCard { $False | $True }]
   [-EnableEmbeddedSmartCardSSO { $False | $True }]
   ```

   Where `sitename` is a name that helps you to identify your Desktop Appliance site. For iisid, specify the numerical ID of the Microsoft Internet Information Services (IIS) site hosting StoreFront, which can be obtained from the Internet Information Services (IIS) Manager console. Replace `sitepath` with the relative path at which the site should be created in IIS, for example, /Citrix/DesktopAppliance. Note that Desktop Appliance site URLs are case sensitive.

   Indicate whether StoreFront is configured for HTTPS by setting `UseHttps` to the appropriate value.
To specify the absolute URL of the store service used by the Desktop Appliance Connector site, use `-StoreUrl storeaddress`. This value is displayed for the Store summary in the administration console.

By default, when a user logs on to a Desktop Appliance site, the first desktop available to the user starts automatically. To configure your new Desktop Appliance site to enable users to choose between multiple desktops, if available, set `-EnableMultiDesktop` to `$True`.

Explicit authentication is enabled by default for new sites. You can disable explicit authentication by setting the `-EnableExplicit` argument to `$False`. Enable smart card authentication by setting `-EnableSmartCard` to `$True`. To enable pass-through with smart card authentication, you must set both `-EnableSmartCard` and `-EnableEmbeddedSmartCardSSO` to `$True`. If you enable explicit and either smart card or pass-through with smart card authentication, users are initially prompted to log on with a smart card, but can fall back to explicit authentication if they experience any issues with their smart cards.

The optional arguments configure settings that can also be modified after the Desktop Appliance site has been created by editing the site configuration file.

**Example:**

Create a Desktop Appliance Connector site at virtual path `/Citrix/DesktopAppliance1` in the default IIS web site.

```bash
1 Install-DSDesktopAppliance ' -FriendlyName DesktopAppliance1 ' -SiteId 1 ' -VirtualPath /Citrix/DesktopAppliance1 ' -UseHttps $false ' -StoreUrl https://servername/Citrix/Store ' -EnableMultiDesktop $true ' -EnableExplicit $true ' -EnableSmartCard $true ' -EnableEmbeddedSmartCardSSO $false
```

3. To remove an existing Desktop Appliance site, type the following command.

   ```bash
   Remove-DSDesktopAppliance -SiteId iid -VirtualPath sitepath
   ```

   Where iid is the numerical ID of the IIS site hosting StoreFront and sitepath is the relative path of the Desktop Appliance site in IIS, for example, `/Citrix/DesktopAppliance`.

4. To list the Desktop Appliance sites currently available from your StoreFront deployment, type the following command.

   ```bash
   Get-DSDesktopAppliancesSummary
   ```
To configure user authentication

Desktop Appliance sites support explicit, smart card, and pass-through with smart card authentication. Explicit authentication is enabled by default. If you enable explicit and either smart card or pass-through with smart card authentication, the default behavior initially prompts users to log on with a smart card. Users who experience issues with their smart cards are given the option of entering explicit credentials. If you configure IIS to require client certificates for HTTPS connections to all StoreFront URLs, users cannot fall back to explicit authentication if they cannot use their smart cards.

To configure the authentication methods for a Desktop Appliance site, you edit the site configuration file.

1. Use a text editor to open the web.config file for the Desktop Appliance site, which is typically located in the \C:\inetpub\wwwroot\Citrix\storename\DesktopAppliance directory, where storename is the name specified for the store when it was created.

2. Locate the following element in the file.

   <explicitForms enabled="true"/>

3. Change the value of the enabled attribute to false to disable explicit authentication for the site.

4. Locate the following element in the file.

   <certificate enabled="false" useEmbeddedSmartcardSso="false" embeddedSmartcardSsoPinTimeout="00:00:20"/>

5. Set the value of the enabled attribute to true to enable smart card authentication. To enable pass-through with smart card authentication, you must also set the value of the useEmbeddedSmartcardSso attribute to true. Use the embeddedSmartcardSsoPinTimeout attribute to set the time in hours, minutes, and seconds for which the PIN entry screen is displayed before it times out. When the PIN entry screen times out, users are returned to the logon screen and must remove and reinsert their smart cards to access the PIN entry screen again. The timeout period is set to 20 seconds by default.

To enable users to choose between multiple desktops

By default, when a user logs on to a Desktop Appliance site, the first desktop (in alphabetical order) available to the user in the store for which the site is configured starts automatically. If you provide users with access to multiple desktops in a store, you can configure the Desktop Appliance site to display the available desktops so users can choose which one to access. To change these settings, you edit the site configuration file.

1. Use a text editor to open the web.config file for the Desktop Appliance site, which is typically located in the \C:\inetpub\wwwroot\Citrix\storename\DesktopAppliance directory, where storename is the name specified for the store when it was created.
2. Locate the following element in the file.

   `<resources showMultiDesktop="false"/>

3. Change the value of the showMultiDesktop attribute to true to enable users to see and select from all the desktops available to them in the store when they log on to the Desktop Appliance site.

Create a single Fully Qualified Domain Name (FQDN) to access a store internally and externally

December 17, 2018

Note:

To use this feature with native desktop receivers, the following versions are required:

• Windows Receiver 4.2
• MAC Receiver 11.9

You can provide access to resources from within your corporate network and from the Internet through a NetScaler Gateway and simplify the user experience by creating a single FQDN for both internal and roaming external clients.

Creating a single FQDN is helpful to users who configure any of the native Receivers. They need remember only a single URL whether they are currently connected to an internal or public network.

StoreFront beacons for native Receivers

Citrix Receiver attempts to contact beacon points and uses the responses to determine whether users are connected to local or public networks. When a user accesses a desktop or application, the location information is passed to the server providing the resource so that appropriate connection details can be returned to Citrix Receiver. This ensures that users are not prompted to log on again when they access a desktop or application. For information about configuring beacon points, see Configure beacon points.

Configure the NetScaler Gateway vServer and SSL Certificate

The shared FQDN resolves either to an external firewall router interface IP or NetScaler Gateway vServer IP in the DMZ when external clients try to access resources from outside of the corporate network. Ensure the Common Name and Subject Alternative Name fields of the SSL certificate contain the shared FQDN to be used to access the store externally. By using a third party root CA such
as Verisign instead of an enterprise Certification Authority (CA) to sign the gateway certificate, any external client automatically trusts the certificate bound to the gateway vServer. If you use a third party root CA such as Verisign, no additional root CA certificates need to be imported on to external clients.

To deploy a single certificate with the Common Name of the shared FQDN to both the NetScaler Gateway and the StoreFront server, consider whether you want to support remote discovery. If so, make sure the certificate follows the specification for the Subject Alternative Names.

NetScaler Gateway vServer example certificate: storefront.example.com

1. Ensure that the shared FQDN, the callback URL, and the accounts alias URL are included in the DNS field as Subject Alternative Name (SANs).

2. Ensure that the private key is exportable so the certificate and key can be imported into the NetScaler Gateway.
3. Ensure that Default Authorization is set to Allow.

4. Sign the certificate using a third party CA such as Verisign or an enterprise root CA for your organization.

Two-node server group example SANs

storefront.example.com (mandatory)
storefrontcb.example.com (mandatory)
accounts.example.com (mandatory)
storefrontserver1.example.com (optional)
storefrontserver2.example.com (optional)

Sign the Netscaler Gateway vServer SSL certificate using a Certification Authority (CA)

Based on your requirements, you have two options for choosing the type of CA signed certificate.

- **Option 1 - Third Party CA signed certificate:** If the certificate bound to the Netscaler Gateway vServer is signed by a trusted third party, external clients will likely NOT need any root CA certificates copied to the their trusted root CA certificate stores. Windows clients ship with the root CA certificates of the most common signing agencies. Examples of commercial third party CAs that could be used include DigiCert, Thawte, and Verisign. Note that mobile devices such as iPads, iPhones, and Android tablets and phones might still require the root CA to be copied onto the device to trust the NetScaler Gateway vServer.

- **Option 2 - Enterprise Root CA signed certificate:** If you choose this option, every external client requires the enterprise root CA certificate copied to their trusted root CA stores. If using portable devices with native Receiver installed, such as iPhones and iPads, create a security profile on these devices.

Import the root certificate into portable devices

- iOS devices can import .CER x.509 certificate files using email attachments, because accessing the local storage of iOS devices is usually not possible.
- Android devices require the same .CER x.509 format. The certificate can be imported from the device local storage or email attachments.
**External DNS: storefront.example.com**

Ensure that the DNS resolution provided by your organization's Internet service provider resolves to the externally facing IP of the firewall router on the outside edge of DMZ or to the NetScaler Gateway vServer VIP.

**Split view DNS**

- When split-view DNS is correctly configured, the source address of the DNS request should send the client to the correct DNS A record.
- When clients roam between public and corporate networks, their IP should change. Depending on the network to which they are currently connected, they should receive the correct A record when they query storefront.example.com.

**Import certificates issued from a Windows CA to NetScaler Gateway**

WinSCP is a useful and free third party tool to move files from a Windows machine to a NetScaler Gateway file system. Copy certificates for import to the /nsconfig/ssl/ folder within the NetScaler Gateway file system. You can use the OpenSSL tools on the NetScaler Gateway to extract the certificate and key from a PKCS12/PFX file to create two separate .CER and .KEY X.509 files in PEM format that can be used by the NetScaler Gateway.

1. Copy the PFX file into /nsconfig/ssl on the NetScaler Gateway appliance or VPX.
2. Open the NetScaler Gateway command line interface.
3. To switch to the FreeBSD shell, type `Shell` to exit the NetScaler Gateway command line interface.
4. To change directory, use `cd /nsconfig/ssl`.
5. Run `openssl pkcs12 -in <imported cert file>.pfx -nokeys -out <certfilename>.cer` and enter the PFX password when prompted.
6. Run `openssl pkcs12 -in <imported cert file>.pfx -nocerts -out <keyfilename>.key`
7. Enter the PFX password when prompted and then set a private key PEM passphrase to protect the .KEY file.
8. To ensure that the .CER and .KEY files were successfully created inside /nsconfig/ssl/, run `ls -al`.
9. To return to the NetScaler Gateway command line interface, type `Exit`.

**Native Windows/Mac Receiver Gateway session policy**

REQ.HTTP.HEADER User-Agent CONTAINS CitrixReceiver && REQ.HTTP.HEADER X-Citrix-Gateway EXISTS
**Receiver for Web Gateway session policy**

REQ.HTTP.HEADER User-Agent NOTCONTAINS CitrixReceiver && REQ.HTTP.HEADER Referer EXISTS

**cVPN and Smart Access Settings**

If you use SmartAccess, enable smart access mode on the NetScaler Gateway vServer properties page. Universal Licenses are required for every concurrent user who accesses remote resources.

**Receiver profile**

Configure the session profile accounts service URL to be `https://accounts.example.com/Citrix/Roaming/Accounts` NOT `https://storefront.example.com/Citrix/Roaming/`
Also add this URL as an additional <allowedAudiences> in the authentication and roaming web.config files on the StoreFront server. For more information, see the “Configure the StoreFront server host base URL, gateway, and SSL certificate” section below.
Receiver for Web profile

Configure NetScaler Gateway Session Profile

Name: Receiver

Unchecked Override Global check box indicates that the value is inherited from
Global NetScaler Gateway Parameters.

Network Configuration | Client Experience | Security | Published Applications

Override Global

Home Page: none
URL for Web-Based Email: OFF
Split Tunnel: OFF
Session Time-out (mins): 60
Client Idle Time-out (mins): Off
Clientless Access: On
Clientless Access URL Encoding: Clear
Clientless Access Persistent Co.: ALLOW
Plug-in Type: Windows/Mac OS X

Single Sign-on to Web Applications: On
Credential Index: PRIMARY
KCD Account: PRIMARY

Single Sign-on with Windows: Off
Client Cleanup Prompt: Off

Advanced
ICA Proxy & Basic Mode settings

If you use ICA proxy, enable basic mode on the NetScaler Gateway vServer properties page. Only a NetScaler platform license is required.
## Receiver profile

### Configure NetScaler Gateway Session Profile

<table>
<thead>
<tr>
<th>Name</th>
<th>Receiver ICAProxy</th>
</tr>
</thead>
</table>

Unchecked Override Global check box indicates that the value is inherited from Global NetScaler Gateway Parameters.

**Network Configuration**

- **Override Global**
  - **Home Page**: none
  - **URL for Web-Based Email**: OFF
  - **Split Tunnel**: OFF
  - **Session Time-out (mins)**: 60
  - **Client Idle Time-out (mins)**: Off
  - **Clientless Access**: Off
  - **Clientless Access URL Encoding**: Clear
  - **Clientless Access Persistent Co**: DENY
  - **Plug-in Type**: Java

**Configure NetScaler Gateway Session Profile**

<table>
<thead>
<tr>
<th>Name</th>
<th>Receiver ICAProxy</th>
</tr>
</thead>
</table>

Unchecked Override Global check box indicates that the value is inherited from Global NetScaler Gateway Parameters.

**Network Configuration**

- **ICA Proxy**: ON
- **Web Interface Address**: https://storefront.example.com
- **Web Interface Portal Mode**: NORMAL
- **Single Sign-on Domain**: ptd
- **Citrix Receiver Home Page**: none
- **Account Services Address**: https://storefront.example.com
StoreFront 1811

Receiver for Web profile

Configure NetScaler Gateway Session Profile

Name*: WebReceiver ICA Proxy

Unchecked Override Global check box indicates that the value is inherited from Global NetScaler Gateway Parameters.

Network Configuration  Client Experience  Security  Published Applications

Override Global

Home Page  https://storefront.ptd.com/Citrix/StoreWeb
Display Home Page

URL for Web-Based Email

Split Tunnel  OFF

Session Time-out (mins)  60
Client Idle Time-out (mins)

Clientless Access  Off

Clientless Access URL Encoding  Clear

Clientless Access Persistent Co...

Plug-in Type  Windows/Mac OS X

Single Sign-on to Web Applications

Configure NetScaler Gateway Session Profile

Name*: WebReceiver

Unchecked Override Global check box indicates that the value is inherited from Global NetScaler Gateway Parameters.

Network Configuration  Client Experience  Security  Published Applications

Override Global

ICA Proxy  ON

Web Interface Address  https://storefront.example.com/Citrix/StoreWeb

Web Interface Portal Mode  NORMAL

Single Sign-on Domain  ptd

Citrix Receiver Home Page

Account Services Address
Configure the StoreFront server host base URL, gateway, and SSL certificate

The same shared FQDN that resolves to the NetScaler Gateway vServer should also resolve directly to the StoreFront load balancer, if a StoreFront cluster was created or a single StoreFront IP that hosts the store.

Internal DNS: Create three DNS A records

- storefront.example.com should resolve to the storefront load balancer or single StoreFront server IP.
- storefrontcb.example.com should resolve to the gateway vServer VIP so if a firewall exists between the DMZ and the enterprise local network, allow for this.
- accounts.example.com — create as a DNS alias for storefront.example.com. It also resolves to the load balancer IP for the StoreFront cluster or a single StoreFront server IP.

StoreFront server example certificate: storefront.example.com

1. Create a suitable certificate for the StoreFront server or server group before installing StoreFront.

2. Add the shared FQDN to the Common name and DNS fields. Ensure this matches the FQDN used in the SSL certificate bound to the NetScaler Gateway vServer that you created earlier or use the same certificate bound to the NetScaler Gateway vServer.

3. Add the account's alias (accounts.example.com) as another SAN to the certificate. Note that the accounts alias used in the SAN is the one used in the Netscaler Gateway Session Profile in the earlier procedure - Native Receiver Gateway session policy and profile.
4. Ensure that the private key is exportable so the certificate can be transferred to another server or to multiple StoreFront server group nodes.
5. Sign the certificate using a third party CA such as VeriSign, your enterprise root CA, or intermediate CA.

6. Export the certificate in PFX format including the private key.

7. Import the certificate and private key into the StoreFront server. If deploying a Windows NLB StoreFront cluster, import the certificate into every node. If using an alternative load balancer such as a Netscaler LB vServer, import the certificate there instead.

8. Create an HTTPS binding in IIS on the StoreFront server and bind the imported SSL certificate to it.
9. Configure the host base URL on the StoreFront server to match the already chosen shared FQDN.

**Note:** StoreFront always auto selects the last Subject Alternative Name in the list of SANs within the certificate. This is merely a suggested host base URL to assist StoreFront administrators and is usually correct. You can manually set it to any valid HTTPS://<FQDN> provided it exists within the certificate as a SAN. Example: https://storefront.example.com.

### Change the server base URL from HTTP to HTTPS

The host base URL option is available when configuring Single Server deployment or Server Group deployment on Citrix StoreFront. This applies to customers who have installed and configured Citrix StoreFront without a server certificate. After installing the certificate, ensure StoreFront and its services use a secure connection moving forward.

**Note:**

The IT Administrator must generate and install a server certificate on Citrix StoreFront server before running this procedure. In addition, an IIS binding needs to be created over HTTPS (443) to secure any new connection.

Complete the following steps to change the base URL on StoreFront 3.x:
1. In the StoreFront, click **Server Group** on the left panel.
2. Click **Change Base URL** on the right panel.
3. Type the base URL and click **OK**.

Configure the Gateway on the StoreFront server: storefront.example.com

1. From the **Stores** node, click on **Manage NetScaler Gateways** in the **Actions** pane.
2. Select the **Gateway** from the list and click **Edit**.

1. On the **General Settings** page, type the shared FQDN in the **NetScaler Gateway URL** field.
2. Select the **Authentication Settings** tab and type the callback FQDN into the **Callback URL** field.
1. Select the Secure Ticket Authority tab and ensure that the Secure Ticket Authority (STA) servers match the list of delivery controllers already configured within the Store node.

2. Enable remote access for the store.

3. Manually set the internal beacon to the accounts alias (accounts.example.com) and it must not be resolvable from outside the gateway. This FQDN must be distinct from the external beacon that is shared by the StoreFront hostbase URL and NetScaler Gateway vServer (store-front.example.com). DO NOT use the shared FQDN, as this creates a situation where both the internal and external beacons are identical.
Note:

that if you want to support discovery using FQDNs, follow these steps. If the provisioning file configuration is enough or if you are using only Receiver for Web, you can skip the following steps.

Add an additional `<allowedAudiences>` entry in C:\inetpub\wwwroot\Citrix\Authentication\web.config. There are two `<allowedAudiences>` entries in this file. Only the first entry in the file for the Authentication Token Producer requires you to add an additional `<allowedAudience>` entry.

1. Find the `<allowedAudiences>` string. Locate the following `<service id>` section and add the line shown in bold, save, and close the web.config file.

   `<service id="abd6f54b-7d1c-4a1b-a8d7-14804e6c8c64" displayName="Authentication Token Producer">

   ...

   `<allowedAudiences`

   `<add name="https-storefront.example.com" audience="https://storefront.example.com"/>

   `<add name="https-accounts.example.com" audience="https://accounts.example.com"/>
2. In C:\inetpub\wwwroot\Citrix\Roaming\web.config, locate the <tokenManager> section and add the line shown in bold, save, and close the web.config file.

```xml
<tokenManager>
  <services>
    <clear/>
    ...
  </trustedIssuers>
  <allowedAudiences>
    <add name="https-storefront.example.com" audience="https://storefront.example.com/">
    <add name="https-accounts.example.com" audience="https://accounts.example.com/" />
    </add>
  </allowedAudiences>
</services>
</tokenManager>
```

Alternatively, it is possible to export the native receiver .CR provisioning file for the store. This eliminates the need for First Time Use configuration of native Receivers. Distribute this file to all Windows and MAC Receiver clients.
If a Receiver is installed on the client, the .CR file type is recognized and double clicking on the provisioning file triggers it to be automatically imported.
Configure Resource Filtering

July 30, 2018

This topic explains how to filter enumeration resources based on resource type and keywords. You can use this type of filtering with the more advanced customization offered by the Store Customization SDK. Using this SDK, you can control which apps and desktops are displayed to users, modify access conditions, and adjust launch parameters. For more information, see the Store Customization SDK.

Note:
The StoreFront and PowerShell consoles cannot be open at the same time. Always close the StoreFront admin console before using the PowerShell console to administer your StoreFront configuration. Likewise, close all instances of PowerShell before opening the StoreFront console.

Configure filtering

Configure the filter using PowerShell cmdlets defined within the StoresModule. Use the following PowerShell snippet to load the required modules:

```
$dsInstallProp = Get-ItemProperty 'HKLM:\SOFTWARE\Citrix\DeliveryServicesManagement -Name InstallDir
$dsInstallDir = $dsInstallProp.InstallDir
& $dsInstallDir\..\Scripts\ImportModules.ps1
```

Filter by type

Use this to filter the resource enumeration by resource type. This is an inclusive filter, meaning it removes any resources that are not of the specified types from the resource enumeration result. Use the following cmdlets:

**Set-DSResourceFilterType**: Sets up enumeration filtering based on resource types.

**Get-DSResourceFilterType**: Gets the list of resource types that Storefront is allowed to return in enumeration.

Note: Resource types are applied before keywords.

Filter by keywords

Use this to filter resources based on keywords, such as resources derived from XenDesktop or XenApp. Keywords are generated from mark-up in the description field of the corresponding resource.
The filter can operate either in inclusive or exclusive mode, but not both. The inclusive filter allows enumeration of resources matching the configured keywords and removes non matching resources from the enumeration. The exclusive filter removes resources matching the configured keywords from the enumeration. Use the following cmdlets:

**Set-DSResourceFilterKeyword**: Sets up enumeration filtering based on resource keywords.

**Get-DSResourceFilterKeyword**: Gets the list of filter keywords.

The following keywords are reserved and must not be used for filtering:

- Auto
- Mandatory

For more information on keywords, see Optimize the user experience and Configuring application delivery.

**Examples**

This command sets filtering to exclude workflow resources from enumeration:

```
Set-DSResourceFilterKeyword -SiteId 1 -VirtualPath "\Citrix\Store" -ExcludeKeywords @("WFS")
```

This example sets allowed resource types to applications only:

```
Set-DSResourceFilterType -SiteId 1 -VirtualPath "\Citrix\Store" -IncludeTypes @("Applications")
```

**Configure using configuration files**

August 16, 2018

**Note:**

Learn about product name changes in What's new.

You can use configuration files to configure additional settings for Citrix StoreFront and Citrix Receiver for Web that cannot be set with the Citrix StoreFront management console.

The **Citrix StoreFront** settings you can configure include:

- Enable ICA file signing
- Disable file type association
- Customize the Citrix Receiver logon dialog box
- Prevent Receiver for Windows from caching passwords and usernames

The Citrix Receiver for Web settings you can configure include:

- How resources are displayed for users
- Disable the My Apps Folder View

Configure StoreFront using the configuration files

September 4, 2018

This article describes additional configuration tasks that cannot be carried out using the Citrix StoreFront management console.

Enable ICA file signing

StoreFront provides the option to digitally sign ICA files so that versions of Citrix Receiver that support this feature can verify that the file originates from a trusted source. When file signing is enabled in StoreFront, the ICA file generated when a user starts an application is signed using a certificate from the personal certificate store of the StoreFront server. ICA files can be signed using any hash algorithm supported by the operating system running on the StoreFront server. The digital signature is ignored by clients that do not support the feature or are not configured for ICA file signing. If the signing process fails, the ICA file is generated without a digital signature and sent to Citrix Receiver, the configuration of which determines whether the unsigned file is accepted.

To be used for ICA file signing with StoreFront, certificates must include the private key and be within the allowed validity period. If the certificate contains a key usage extension, this must allow the key to be used for digital signatures. Where an extended key usage extension is included, it must be set to code signing or server authentication.

For ICA file signing, Citrix recommends using a code signing or SSL signing certificate obtained from a public certification authority or from your organization’s private certification authority. If you are unable to obtain a suitable certificate from a certification authority, you can either use an existing SSL certificate, such as a server certificate, or create a new root certification authority certificate and distribute it to users’ devices.

ICA file signing is disabled by default in stores. To enable ICA file signing, you edit the store configuration file and execute Windows PowerShell commands. For more information about enabling ICA file signing in Citrix Receiver, see ICA File Signing to protect against application or desktop launches from untrusted servers.

Note: The StoreFront and PowerShell consoles cannot be open at the same time. Always close the
StoreFront 1811

StoreFront admin console before using the PowerShell console to administer your StoreFront configuration. Likewise, close all instances of PowerShell before opening the StoreFront console.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. Ensure that the certificate you want to use to sign ICA files is available in the Citrix Delivery Services certificate store on the StoreFront server and not the current user’s certificate store.

2. Use a text editor to open the web.config file for the store, which is typically located in the C:\inetpub\wwwroot\Citrix\storename\ directory, where storename is the name specified for the store when it was created.

3. Locate the following section in the file.

```xml
<certificateManager>
  <certificates>
    <clear />
  </certificates>
</certificateManager>
```

4. Include details of the certificate to be used for signing.

```xml
<certificateManager>
  <certificates>
    <clear />
    <add id="certificateid" thumb="certificatethumbprint" />
    <add ... />
  </certificates>
</certificateManager>
```

Where `certificateid` is a value that helps you to identify the certificate in the store configuration file and `certificatethumbprint` is the digest (or thumbprint) of the certificate data produced by the hash algorithm.

5. Locate the following element in the file.

```xml
<icaFileSigning enabled="False" certificateId="" hashAlgorithm="sha1" />
```
6. Change the value of the enabled attribute to True to enable ICA file signing for the store. Set the value of the certificateid attribute to the ID you used to identify the certificate, that is, certificateid in Step 4.

7. If you want to use a hash algorithm other than SHA-1, set the value of the hashAlgorithm attribute to sha256, sha384, or sha512, as required.

8. Using an account with local administrator permissions, start Windows PowerShell and, at a command prompt, type the following commands to enable the store to access the private key.

```
1 Add-PSSnapin Citrix.DeliveryServices.Framework.Commands
2 $certificate = Get-DSCertificate "certificateThumbprint"
3 Add-DSCertificateKeyReadAccess -certificate $certificates[0] -accountName "IIS APPPOOL\Citrix Delivery Services Resources"
```

Where certificateThumbprint is the digest of the certificate data produced by the hash algorithm.

**Disable file type association**

By default, file type association is enabled in stores so that content is seamlessly redirected to users’ subscribed applications when they open local files of the appropriate types. To disable file type association, you edit the store configuration file.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. Use a text editor to open the web.config file for the store, which is typically located in the C:\inetpub\wwwroot\Citrix\storename\ directory, where storename is the name specified for the store when it was created.

2. Locate the following element in the file.

```
1 <farmset ... enableFileTypeAssociation="on" ... >
```

3. Change the value of the enableFileTypeAssociation attribute to off to disable file type association for the store.

**Customize the Citrix Receiver logon dialog box**

When Citrix Receiver users log on to a store, no title text is displayed on the logon dialog box, by default. You can display the default text “Please log on” or compose your own custom message. To
display and customize the title text on the Citrix Receiver logon dialog box, you edit the files for the authentication service.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. Use a text editor to open the UsernamePassword.tfrm file for the authentication service, which is typically located in the C:\inetpub\wwwroot\Citrix\Authentication\App_Data\Templates\ directory.

2. Locate the following lines in the file.

   ```
   @* @Heading("ExplicitAuth:AuthenticateHeadingText") *@
   ```

3. Uncomment the statement by removing the leading and trailing leading @* and trailing *@.

   ```
   @Heading("ExplicitAuth:AuthenticateHeadingText")
   ```

   Citrix Receiver users see the default title text “Please log on”, or the appropriate localized version of this text, when they log on to stores that use this authentication service.

4. To modify the title text, use a text editor to open the ExplicitFormsCommon.xx.resx file for the authentication service, which is typically located in the C:\inetpub\wwwroot\Citrix\Authentication\App_Data\resources\ directory.

5. Locate the following elements in the file. Edit the text enclosed within the <value> element to modify the title text that users see on the Citrix Receiver logon dialog box when they access stores that use this authentication service.

   ```
   <data name="AuthenticateHeadingText" xml:space="preserve">
   <value>My Company Name</value>
   </data>
   ```

   To modify the Citrix Receiver logon dialog box title text for users in other locales, edit the localized files ExplicitAuth.languagecode.resx, where languagecode is the locale identifier.

**Prevent Citrix Receiver for Windows from caching passwords and usernames**

By default, Citrix Receiver for Windows stores users’ passwords when they log on to StoreFront stores. To prevent Citrix Receiver for Windows, but not Citrix Receiver for Windows Enterprise, from caching users’ passwords, you edit the files for the authentication service.
Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

1. Use a text editor to open the file inetpub\wwwroot\Citrix\Authentication\App_Data\Templates\UsernamePassword.tfrm.

2. Locate the following line in the file.

   ```
   @SaveCredential(id: @GetTextValue("saveCredentialsId"), labelKey: "ExplicitFormsCommon:SaveCredentialsLabel", initiallyChecked: ControlValue("SaveCredentials"))
   ```

3. Comment the statement as shown below.

   ```
   <!-- @SaveCredential(id: @GetTextValue("saveCredentialsId"), labelKey: "ExplicitFormsCommon:SaveCredentialsLabel", initiallyChecked: ControlValue("SaveCredentials")) -->
   ```

Citrix Receiver for Windows users must enter their passwords every time they log on to stores that use this authentication service. This setting does not apply to Citrix Receiver for Windows Enterprise.

Warning:
Using Registry Editor incorrectly can cause serious problems that can require you to reinstall the operating system. Citrix cannot guarantee that problems resulting from incorrect use of Registry Editor can be solved. Use Registry Editor at your own risk. Make sure you back up the registry before you edit it.

By default, Citrix Receiver for Windows automatically populated the last username entered. To suppress population of the username field, edit the registry on the user device:

1. Create a REG_SZ value HKLM\SOFTWARE\Citrix\AuthManager\RememberUsername.
2. Set its value “false”.

### Configure Citrix Receiver for Web sites using the configuration files

July 31, 2018

This article describes additional configuration tasks for Citrix Receiver for Web sites that cannot be carried out using the Citrix StoreFront management console.
Configure how resources are displayed for users

When both desktops and applications are available from a Citrix Receiver for Web site, separate desktop and application views are displayed by default. Users see the desktop view first when they log on to the site. If only a single desktop is available for a user, regardless of whether applications are also available from a site, that desktop starts automatically when the user logs on. To change these settings, you edit the site configuration file.

**Important:**
In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, **propagate your configuration changes to the server group** so that the other servers in the deployment are updated.

1. Use a text editor to open the web.config file for the Citrix Receiver for Web site, which is typically located in the C:\inetpub\wwwroot\Citrix\storenameWeb\ directory, where storename is the name specified for the store when it was created.

2. Locate the following element in the file.

   ```xml
   <uiViews showDesktopsView="true" showAppsView="true" defaultView="desktops" />
   ```

3. Change the value of the `showDesktopsView` and `showAppsView` attributes to false to prevent desktops and applications, respectively, being displayed to users, even if they are available from the site. When both the desktop and application views are enabled, set the value of the `defaultView` attribute to `apps` to display the application view first when users log on to the site.

4. Locate the following element in the file.

   ```xml
   <userInterface ... autoLaunchDesktop="true">
   ```

5. Change the value of the `autoLaunchDesktop` attribute to `false` to prevent Citrix Receiver for Web sites from automatically starting a desktop when a user logs on to the site and only a single desktop is available for that user.

   When the `autoLaunchDesktop` attribute is set to `true` and a user for whom only one desktop is available logs on, that user’s applications are not reconnected, regardless of the workspace control configuration.

**Note:**

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To enable Citrix Receiver for Web sites to start their desktops automatically, users accessing the site through Internet Explorer must add the site to the Local intranet or Trusted sites zones.

**Disable the My Apps Folder View**

By default, Citrix Receiver for Web displays the My Apps Folder View for unauthenticated (access for unauthenticated users) and mandatory (all published applications are available in the Home screen without users subscribing to them) stores. This view displays applications in a folder hierarchy and includes a breadcrumb path.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, **propagate your configuration changes to the server group** so that the other servers in the deployment are updated.

1. Use a text editor to open the web.config file for the Citrix Receiver for Web site, which is typically located in the C:\inetpub\wwwroot\Citrix\storenameWeb\ directory, where storename is the name specified for the store when it was created.

2. Locate the following element in the file.

```
<userInterface enableAppsFolderView="true"/>
```

3. Change the value of the `enableAppsFolderView` attribute to `false` to disable Citrix Receiver for Web My Apps Folder View.

**Secure your StoreFront deployment**

February 22, 2019

Note:

Learn about product name changes in What's new.

This article highlights areas that may have an impact on system security when deploying and configuring StoreFront.

**Configure Microsoft Internet Information Services (IIS)**

You can configure StoreFront with a restricted IIS configuration. Note that this is not the default IIS configuration.
Filename extensions

You can disallow unlisted file name extensions.

StoreFront requires the following file name extensions in Request Filtering:

- . (blank extension)
- .appcache
- .aspx
- .cr
- .css
- .dtd
- .gif
- .htm
- .html
- .ica
- .ico
- .jpg
- .js
- .png
- .svg
- .txt
- .xml

If download or upgrade of Citrix Receiver is enabled for Citrix Receiver for Web, StoreFront also requires these file name extensions:

- .dmg
- .exe

If Citrix Receiver for HTML5 is enabled, StoreFront also requires these file name extensions:

- .eot
- .ttf
- .woff

MIME Types

You can remove MIME Types corresponding to the following file types:

- .exe
- .dll
- .com
- .bat
Request Filtering

StoreFront requires the following HTTP verbs in Request Filtering. You can disallow unlisted verbs.

- GET
- POST
- HEAD

Other Microsoft IIS settings

StoreFront does not require:

- ISAPI filters
- ISAPI extensions
- CGI programs
- FastCGI programs

Important:

- Do not configure IIS Authorization Rules. StoreFront supports authentication directly, and does not use or support IIS authentication.
- Do not select Client certificates: Require, in the SSL Settings for the StoreFront site. StoreFront installation configures the appropriate pages of the StoreFront site with this setting.
- StoreFront requires cookies. The Use Cookies setting must be selected. Do not select the cookieless/Use URI setting.
- StoreFront requires Full Trust. Do not set the global .NET trust level to High or lower.
- StoreFront does not support a separate application pool for each site. Do not modify these site settings. However, you can set the application pool idle time-out, and the amount of virtual memory an application pool uses.

Configure user rights

Note:

Microsoft IIS is enabled as part of StoreFront installation. Microsoft IIS grants the logon right Log on as a batch job, and the privilege Impersonate a client after authentication to the built-in group IIS_IUSRS. This is normal Microsoft IIS installation behavior. Do not change these user rights. Refer to Microsoft documentation for details.

When you install StoreFront, its application pools are granted the logon right Log on as a service and the privileges Adjust memory quotas for a process, Generate security audits, and Replace a
**process level token.** This is normal installation behavior when application pools are created. The application pools are Citrix Configuration Api, Citrix Delivery Services Resources, Citrix Delivery Services Authentication, and Citrix Receiver for Web.

You do not need to change these user rights. These privileges are not used by StoreFront and are automatically disabled.

StoreFront installation creates the following Windows services:

- Citrix Configuration Replication (NT SERVICE\CitrixConfigurationReplication)
- Citrix Cluster Join (NT SERVICE\CitrixClusterService)
- Citrix Peer Resolution (NT SERVICE\Citrix Peer Resolution Service)
- Citrix Credential Wallet (NT SERVICE\CitrixCredentialWallet)
- Citrix Subscriptions Store (NT SERVICE\CitrixSubscriptionsStore)
- Citrix Default Domain Services (NT SERVICE\CitrixDefaultDomainService)

If you configure StoreFront Kerberos constrained delegation for XenApp 6.5, this creates the Citrix StoreFront Protocol Transition service (NT SERVICE\SYSTEM). This service requires a privilege not normally granted to Windows services.

**Configure service settings**

The StoreFront Windows services listed above in the “Configure user rights” section are configured to log on as the NETWORK SERVICE identity. The Citrix StoreFront Protocol Transition service logs on as SYSTEM. Do not change this configuration.

**Configure group memberships**

When you configure a StoreFront server group, the following services are added to the Administrators security group:

- Citrix Configuration Replication (NT SERVICE\CitrixConfigurationReplication)
- Citrix Cluster Join (NT SERVICE\CitrixClusterService). This service is only seen on servers which are part of a group, and only runs while the join is in progress.

These group memberships are required for StoreFront to operate correctly, to:

- Create, export, import and delete certificates, and set access permissions on them
- Read and write the Windows registry
- Add and remove Microsoft .NET Framework assemblies in the Global Assembly Cache (GAC)
- Access the folder `Program Files\Citrix\<StoreFrontLocation>`
- Add, modify, and remove IIS app pool identities and IIS web applications
- Add, modify, and remove local security groups and firewall rules
- Add and remove Windows services and PowerShell snap-ins

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Register Microsoft Windows Communication Framework (WCF) endpoints

In updates to StoreFront, this list of operations might change without notice.

StoreFront installation also creates the following local security groups:

- CitrixClusterMembers
- CitrixCWServiceReadUsers
- CitrixCWServiceWriteUsers
- CitrixDelegatedAuthenticatorUsers
- CitrixDelegatedDirectoryClaimFactoryUsers
- CitrixPNRSUsers
- CitrixStoreFrontPTServiceUsers
- CitrixSubscriptionServerUsers
- CitrixSubscriptionsStoreServiceUsers
- CitrixSubscriptionsSyncUsers

StoreFront maintains the membership of these security groups. They are used for access control within StoreFront, and are not applied to Windows resources such as files and folders. Do not modify these group memberships.

Certificates in StoreFront

Server certificates

Server certificates are used for machine identification and Transport Layer Security (TLS) transport security in StoreFront. If you decide to enable ICA file signing, StoreFront can also use certificates to digitally sign ICA files.

To enable email-based account discovery for users installing Citrix Receiver on a device for the first time, you must install a valid server certificate on the StoreFront server. The full chain to the root certificate must also be valid. For the best user experience, install a certificate with a Subject or Subject Alternative Name entry of `discoverReceiver.domain`, where domain is the Microsoft Active Directory domain containing your users’ email accounts. Although you can use a wildcard certificate for the domain containing your users’ email accounts, you must first ensure that the deployment of such certificates is permitted by your corporate security policy. Other certificates for the domain containing your users’ email accounts can also be used, but users will see a certificate warning dialog box when Citrix Receiver first connects to the StoreFront server. Email-based account discovery cannot be used with any other certificate identities. For more information, see Configure email-based account discovery.

If your users configure their accounts by entering store URLs directly into Citrix Receiver and do not use email-based account discovery, the certificate on the StoreFront server need only be valid for that server and have a valid chain to the root certificate.
Token management certificates

Authentication services and stores each require certificates for token management. StoreFront generates a self-signed certificate when an authentication service or store is created. Self-signed certificates generated by StoreFront should not be used for any other purpose.

Citrix Delivery Services certificates

StoreFront holds a number of certificates in a custom Windows certificate store (Citrix Delivery Services). The Citrix Configuration Replication service, Citrix Credential Wallet service, and Citrix Subscriptions Store service use these certificates. Each StoreFront server in a cluster has a copy of these certificates. These services do not rely on TLS for secure communications, and these certificates are not used as TLS server certificates. These certificates are created when a StoreFront store is created or StoreFront is installed. Do not modify the contents of this Windows certificate store.

Code signing certificates

StoreFront includes a number of PowerShell scripts (.ps1) in the folder in `<InstallDirectory>\Scripts`. The default StoreFront installation does not use these scripts. They simplify the configuration steps for specific and infrequent tasks. These scripts are signed, allowing StoreFront to support PowerShell execution policy. We recommend the AllSigned policy. (The Restricted policy is not supported, as this prevents PowerShell scripts from executing.) StoreFront does not alter the PowerShell execution policy.

Although StoreFront does not install a code signing certificate in the Trusted Publishers store, Windows can automatically add the code signing certificate there. This happens when the PowerShell script is executed with the Always run option. (If you select the Never run option, the certificate is added to the Untrusted Certificates store, and StoreFront PowerShell scripts will not execute.) Once the code signing certificate has been added to the Trusted Publishers store, its expiration is no longer checked by Windows. You can remove this certificate from the Trusted Publishers store after the StoreFront tasks have been completed.

StoreFront communications

In a production environment, Citrix recommends using the Internet Protocol security (IPsec) or HTTPS protocols to secure data passing between StoreFront and your servers. IPsec is a set of standard extensions to the Internet Protocol that provides authenticated and encrypted communications with data integrity and replay protection. Because IPsec is a network-layer protocol set, higher level protocols can use it without modification. HTTPS uses the Secure Sockets Layer (SSL) and Transport Layer Security (TLS) protocols to provide strong data encryption.
The SSL Relay can be used to secure data traffic between StoreFront and XenApp servers. The SSL Relay is a default component of XenApp that performs host authentication and data encryption.

Citrix recommends that you disable TLS 1.0 and 1.1 support in the Web Server hosting StoreFront. You should enforce this via group policy objects, which create the necessary registry settings on the StoreFront server to disable older protocols like TLS 1.0 and TLS 1.1. See also the Microsoft TLS/SSL Settings reference topic.

Citrix recommends securing communications between StoreFront and users’ devices using NetScaler Gateway and HTTPS. To use HTTPS, StoreFront requires that the Microsoft Internet Information Services (IIS) instance hosting the authentication service and associated stores is configured for HTTPS. In the absence of the appropriate IIS configuration, StoreFront uses HTTP for communications. Citrix strongly recommends that you do not enable unsecured user connections to StoreFront in a production environment.

**StoreFront security separation**

If you deploy any web applications in the same web domain (domain name and port) as StoreFront, then any security risks in those web applications could potentially reduce the security of your StoreFront deployment. Where a greater degree of security separation is required, Citrix recommends that you deploy StoreFront in a separate web domain.

**ICA file signing**

StoreFront provides the option to digitally sign ICA files using a specified certificate on the server so that versions of Citrix Receiver that support this feature can verify that the file originates from a trusted source. ICA files can be signed using any hash algorithm supported by the operating system running on the StoreFront server, including SHA-1 and SHA-256. For more information, see [Enable ICA file signing](#).

**User change password**

You can enable Receiver for Web site users logging on with Active Directory domain credentials to change their passwords, either at any time or only when they have expired. However, this exposes sensitive security functions to anyone who can access any of the stores that use the authentication service. If your organization has a security policy that reserves user password change functions for internal use only, ensure that none of the stores are accessible from outside your corporate network. When you create the authentication service, the default configuration prevents Receiver for Web site users from changing their passwords, even if they have expired. For more information, see [Optimize the user experience](#).
Customizations

To strengthen security, do not write customizations that load content or scripts from servers not under your control. Copy the content or script into the Citrix Receiver for Web site custom folder where you are making the customizations. If StoreFront is configured for HTTPS connections, ensure that any links to custom content or scripts also use HTTPS.

Export and import the StoreFront configuration

August 16, 2018

Note:
Learn about product name changes in What's new.

You can export the entire configuration of a StoreFront deployment. This includes both single server deployments and server group configurations. If an existing deployment is already present on the importing server, the current configuration is erased and then replaced by the configuration contained within the backup archive. If the target server is a clean factory default installation, a new deployment is created using the imported configuration stored within the backup. The exported configuration backup is in the form of a single .zip archive if unencrypted, or a .ctxzip if you choose to encrypt the backup file when it is created.

Things to consider when exporting and importing a StoreFront configuration

- Do you want to use the Host Base URL contained in the backup archive or specify a new Host Base URL to use on the importing server?
- Do you currently use any Citrix published authentication SDK examples, such as Magic Word authentication or third party authentication customizations? If so, you must install these packages on ALL importing servers BEFORE importing a configuration containing extra authentication methods. The configuration import fails if required authentication SDK packages are not installed on any of the importing servers. If importing a configuration into a server group, install the authentication packages on all members of the group.
- You can encrypt or decrypt your configuration backups. The exporting and importing PowerShell cmdlets support both use cases.
- You can decrypt encrypted backups (.ctxzip) later, but StoreFront cannot re-encrypt unencrypted backup files (.zip). If an encrypted backup is required, perform the export again using a PowerShell credential object containing a password of your choice.
- The SiteID of the website in IIS where StoreFront is currently installed (exporting server) must match the SiteID of the target website in IIS (importing server) where you want to restore the backed up StoreFront configuration.
PowerShell credential objects used for encryption and decryption of StoreFront backups

A PowerShell credential object comprises both a Windows account username and a password. PowerShell credential objects ensure that your password stays protected in memory.

Note:
To encrypt a configuration backup archive, you need only the password to perform encryption and decryption. The username stored within the credential object is not used. You must create a credential object containing the same password within the PowerShell sessions that is used on both the exporting and importing servers. Within the credential object you can specify any user.

PowerShell requires that you specify a user when creating a new credential object. This example code obtains only the currently logged on Windows user for convenience.

```powershell
$Password = ”Pa55w0rd”
$Password = $Password | ConvertTo-SecureString -asPlainText -Force
$CredObject = New-Object System.Management.Automation.PSCredential($User,$Password)
```

PowerShell cmdlets

Export-STFConfiguration

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-TargetFolder (String)</td>
<td>The export path to the backup archive. Example: “$env:userprofile\desktop\”</td>
</tr>
<tr>
<td>-Credential (PSCredential Object)</td>
<td>Specify a credential object to create an encrypted .ctxzip backup archive during export. The PowerShell credential object should contain the password to use for encryption and decryption. Do not use -Credential at the same time as the -NoEncryption parameter. Example: $CredObject</td>
</tr>
<tr>
<td>-NoEncryption (Switch)</td>
<td>Specify that the backup archive should be an unencrypted .zip. Do not use -NoEncryption at the same time as the -Credential parameter.</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ZipFileName (String)</td>
<td>The name for the StoreFront configuration backup archive. Do not add a file extension, such as .zip or .ctxzip. The file extension is added automatically depending on whether the <strong>-Credential</strong> or <strong>-NoEncryption</strong> parameter is specified during export. Example: “backup”</td>
</tr>
<tr>
<td>-Force (Boolean)</td>
<td>This parameter automatically overwrites backup archives with the same file name as existing backup files already present in the specified export location.</td>
</tr>
</tbody>
</table>

**Important:**

The **SiteID** parameter found in StoreFront 3.5 was deprecated in version 3.6. It is no longer necessary to specify the **SiteID** when performing an import, as the SiteID contained within the backup archive is always be used. Ensure the SiteID matches the existing StoreFront website already configured within IIS on the importing server. **SiteID 1** to **SiteID 2** (or vice versa) configuration imports are NOT supported.

### Import-STFConfiguration

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ConfigurationZip (String)</td>
<td>The full path to the backup archive you want to import. This should also include the file extension. Use .zip for unencrypted and .ctxzip for encrypted backup archives. Example: <code>$env:UserProfile\Desktop\backup.ctxzip</code></td>
</tr>
<tr>
<td>-Credential (PSCredential Object)</td>
<td>Specify a credential object to decrypt an encrypted backup during import. Example: <code>$CredObject</code></td>
</tr>
<tr>
<td>-HostBaseURL (String)</td>
<td>If this parameter is included, the Host base URL you specify is used instead of the Host base URL from the exporting server. Example: <code>https://&lt;importingserver&gt;.example.com</code></td>
</tr>
</tbody>
</table>
Unprotect-STFConfigurationBackup

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-TargetFolder (String)</td>
<td>The export path to the backup archive. Example: $env:userprofile\desktop\</td>
</tr>
<tr>
<td>-Credential (PSCredential Object)</td>
<td>Use this parameter to create an unencrypted copy of the encrypted backup archive. Specify the PowerShell credential object containing the password to use for decryption. Example: $CredObject</td>
</tr>
<tr>
<td>-EncryptedConfigurationZip (String)</td>
<td>The full path of the encrypted backup archive you want to decrypt. You must specify the file extension .ctxzip. Example: $env:userprofile\desktop\backup.ctxzip</td>
</tr>
<tr>
<td>-OutputFolder (String)</td>
<td>The path to create an unencrypted copy (.zip) of the encrypted (.ctxzip) backup archive. The original encrypted copy of the backup is retained so it can be reused. Do not specify a file name and file extension for the unencrypted copy. Example: $env:userprofile\desktop\</td>
</tr>
<tr>
<td>-Force (Boolean)</td>
<td>This parameter automatically overwrites backup archives with the same file name as existing backup files already present in the specified export location.</td>
</tr>
</tbody>
</table>

Configuration export and import examples

Import the StoreFront SDK into the current PowerShell session

Open the PowerShell Integrated Scripting Environment (ISE) on the StoreFront server and run:

1. $SDKModules = 'C:\Program Files\Citrix\Receiver StoreFront\PowerShellSDK\Modules\Citrix.StoreFront'
2. Import-Module "$SDKModules\Citrix.StoreFront.psd1" -verbose
3. Import-Module "$SDKModules\Authentication\Citrix.StoreFront\Authentication.psd1" -verbose
4. Import-Module "$SDKModules\Roaming\Citrix.StoreFront.Roaming.psd1" -verbose

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Single server scenarios

Create an unencrypted backup of an existing configuration on Server A and restore it onto the same deployment

```
1 Export-STFConfiguration -targetFolder "$env:userprofile\desktop" -zipFileName "backup" -NoEncryption
2 Import-STFConfiguration -configurationZip "$env:userprofile\desktop\backup.zip"
```

Create an encrypted backup of an existing configuration on Server A and restore it onto the same deployment

```
$Password = "Pa55w0rd"
$Password = $Password | ConvertTo-SecureString -asPlainText -Force
$CredObject = New-Object System.Management.Automation.PSCredential( $User, $Password)
Export-STFConfiguration -targetFolder "$env:userprofile\desktop" -zipFileName "backup" -Credential $CredObject
Import-STFConfiguration -configurationZip "$env:userprofile\desktop\backup.ctxzip" -Credential $CredObject
```

Unprotect an existing encrypted backup archive

```
$Password = "Pa55w0rd"
$Password = $Password | ConvertTo-SecureString -asPlainText -Force
$CredObject = New-Object System.Management.Automation.PSCredential( $User, $Password)
Unprotect-STFConfigurationExport -encryptedConfigurationZip "$env:userprofile\desktop\backup.ctxzip" -credential $CredObject -outputFolder "c:\StoreFrontBackups" -Force
```
**Back up an existing configuration on Server A and restore it onto a new factory default installation on Server B**

Server B is a new deployment but intended to coexist alongside Server A. Specify the `-HostBaseURL` parameter. Server B is also a new factory default StoreFront installation.

1. Create a PowerShell credential object and export an encrypted copy of the Server A configuration.
2. Create a PowerShell credential object on Server B using the same password you used to encrypt the backup.
3. Decrypt and import the Server A configuration onto Server B using the `-HostBaseURL` parameter.

```
Import-STFConfiguration -configurationZip "$env:userprofile\desktop\backup.ctxzip" -Credential $CredObject -HostBaseURL "https://serverB.example.com"
```

**Back up an existing configuration on Server A and use it to overwrite an existing deployment on Server B**

Server B is an existing deployment with an outdated configuration. Use the Server A configuration to update Server B. Server B is intended to coexist alongside Server A. Specify the `-HostBaseURL` parameter.

1. Create a PowerShell credential object and export an encrypted copy of the Server A configuration.
2. Create a PowerShell credential object on Server B using the same password you used to encrypt the backup.
3. Decrypt and import the Server A configuration onto Server B using the `-HostBaseURL` parameter.

```
Import-STFConfiguration -configurationZip "$env:userprofile\desktop\backup.ctxzip" -Credential $CredObject -HostBaseURL "https://serverB.example.com"
```

**Create a clone of an existing deployment with the same host base URL such as when upgrading to a new server OS and decommissioning an obsolete StoreFront deployment**

2012R2 Server B is a new deployment intended to replace the obsolete 2008R2 Server A. Use the HostBaseURL from within the backup archive. Do not use the `-HostBaseURL` parameter during import. Server B is also a new factory default StoreFront installation.
1. Create a PowerShell credential object and export an encrypted copy of the 2008R2 Server A configuration.

2. Create a PowerShell credential object on 2012R2 Server B using the same password you used to encrypt the backup.

3. Decrypt and import the 2008R2 Server A configuration onto 2012R2 Server B without using the `-HostBaseURL` parameter.

   ```powershell
   Import-STFConfiguration -configurationZip "$env:userprofile\desktop\backup.ctxzip" -Credential $CredObject
   ```

**StoreFront is already deployed onto a custom website in IIS. Restore the configuration onto another custom website deployment**

Server A has StoreFront deployed on a custom website location rather than the usual default website within IIS. The IIS SiteID for the second website created in IIS is 2. The StoreFront website's physical path can be on another nonsystem drive such as d:\ or on the default c:\ system drive but should use an IIS SiteID greater than 1.

A new website called StoreFront has been configured within IIS, which uses SiteID = 2. StoreFront is already deployed on the custom website in IIS with its physical path on drive d:\inetpub\wwwroot.

1. Create a PowerShell credential object and export an encrypted copy of the Server A configuration.
2. On Server B, configure IIS with a new website called StoreFront, which also uses SiteID 2.

3. Create a PowerShell credential object on Server B using the same password you used to encrypt the backup.

4. Decrypt and import the Server A configuration onto Server B using the -HostBaseURL parameter. The site ID contained in the backup is used and must match the target website where you want to import the StoreFront configuration.

   ```powershell
   Import-STFConfiguration -configurationZip "$env:userprofile\desktop\backup.ctxzip" -Credential $CredObject -HostBaseURL "https://serverB.example.com"
   ```

Server group scenarios

Scenario 1: Backup an existing server group configuration and restore it later onto the same server group deployment

A previous configuration backup was taken while only two StoreFront servers, 2012R2-A and 2012R2-B, were members of the server group. Within the backup archive is a record of the CitrixClusterMembership at the time the backup was taken containing only the two original servers 2012R2-A and 2012R2-B. The StoreFront server group deployment has subsequently increased in size since the original backup was taken due to business demand, so an additional node 2012R2-C has been added to the server group. The underlying StoreFront configuration of the server group held in the backup has not changed. The current CitrixClusterMembership of three servers must be maintained even if an old backup containing only the two original server group nodes is imported. During import the current cluster membership is preserved and then written back once the configuration has been successfully imported onto the primary server. The import also preserves the current CitrixClusterMembership if server group nodes were removed from the server group since the original backup was taken.

1. Export the Server Group 1 configuration from 2012R2-A, which is the primary server used to manage the entire server group.
1. Later you add an additional server, 2012R2-C to the existing server group.

2. The configuration of the server group must be restored to a known previously working state. StoreFront backs up the current CitrixClusterMembership of three servers during the import process, and then restores it after the import has succeeded.

3. Import the Server Group 1 configuration back onto node 2012R2-A.

```
Import-STFConfiguration -configurationZip "$env:userprofile\desktop\backup.ctxzip" -Credential $CredObject
```

3. Propagate the newly imported configuration to the entire server group, so all servers have a consistent configuration after import.

**Scenario 2:** Backup an existing configuration from Server Group 1 and use it to create a new Server Group on a different factory default installation. You can then add other new server group members to the new primary server.
Server Group 2 is created containing two new servers, 2012R2-C and 2012R2-D. The Server Group 2 configuration will be based on the configuration of an existing deployment, Server Group 1, which also contains two servers 2012R2-A and 2012R2-B. The CitrixClusterMembership contained within the backup archive is not used when creating a new server group. The current CitrixClusterMembership is always backed up and then restored after the import is successful. When creating a new deployment using an imported configuration, the CitrixClusterMembership security group contains only the importing server until additional servers are joined to the new group. Server Group 2 is a new deployment and intended to coexist alongside Server Group 1. Specify the -HostBaseURL parameter. Server Group 2 will be created using a new factory default StoreFront installation.

1. Export the Server Group 1 configuration from 2012R2-A, which is the primary server used to manage the entire server group.

2. Import the Server Group 1 configuration onto node 2012R2-C, which will be the primary server used to manage the newly created Server Group 2.

   `Import-STFConfiguration -configurationZip "$env:userprofile\desktop\backup.ctxzip" -Credential $CredObject -HostBaseURL "https://servergroup2.example.com"`

3. Join any additional servers that will be part of the new Server Group 2 deployment. Propagation of the newly imported configuration from Server Group 1 to all new members of Server Group 2 is automatic, as this forms part of the normal join process when a new server is added.

**Scenario 3: Backup an existing configuration from Server Group A and use it to overwrite the existing Server Group B configuration**

Server Group 1 and Server Group 2 already exist in two separate data centers. Many StoreFront configuration changes are made on Server Group 1, which you should apply to Server Group 2 in the other data center. You can port the changes from Server Group 1 to Server Group 2. Do not use the CitrixClusterMembership within the backup archive on Server Group 2. Specify the -HostBaseURL parameter during import, as the Server Group 2 host base URL should not be changed to the same FQDN that is currently in use by Server Group 1. Server Group 2 is an existing deployment.

1. Export the Server Group 1 configuration from 2012R2-A, which is the primary server used to manage the entire server group.

2. Import the Server Group 1 configuration onto the factory default installation on node 2012R2-C, which will be the primary server of the new Server Group 2.

   `Import-STFConfiguration -configurationZip "$env:userprofile\desktop\backup.ctxzip" -Credential $CredObject -HostBaseURL "https://servergroup2.example.com"`
StoreFront SDK

August 16, 2018

Note:
Learn about product name changes in What’s new.

Citrix StoreFront provides an SDK based on a number of Microsoft Windows PowerShell version 3.0 modules. With the SDK, you can perform the same tasks as you would with the StoreFront MMC console, together with tasks you cannot do with the console alone.

For the SDK Reference, see StoreFront SDK.

Key differences between the StoreFront 3.0 and current StoreFront SDK

- **High-level SDK Examples** - This version provides high-level SDK scripts that enable you to script and automate StoreFront deployments quickly and easily. You can tailor the high-level examples to your particular requirements enabling you to create a new deployment simply by running one script.

- **New low-level SDK** - Citrix provides a documented low-level StoreFront SDK enabling the configuration of deployments including stores, authentication methods, Citrix Receiver for Web and Unified Citrix Receiver sites, as well as remote access with NetScaler Gateway.

- **Backwards Compatibility** - StoreFront 3.6 still contains the StoreFront 3.0 and earlier APIs so existing scripts can be gradually transitioned to the new SDK.

**Important:**
Backwards compatibility with StoreFront 3.0 has been maintained where possible and practicable. However, Citrix recommends when writing new scripts, use the new `Citrix.StoreFront.*` modules, as the StoreFront 3.0 SDK is deprecated and will eventually be removed.

Use the SDK

The SDK comprises of a number of PowerShell snap-ins installed automatically by the installation wizard when you install and configure various StoreFront components.

To access and run the cmdlets:

1. Start a shell in PowerShell 3.0.

   You must run the shell or script using a member of the local administrators group on the StoreFront server.
2. To use SDK cmdlets within scripts, set the execution policy in PowerShell.
   
   For more information about PowerShell execution policy, see your Microsoft documentation.

3. Add the modules you require into the PowerShell environment using the `Add -Module` command in the Windows PowerShell console. For example, type:

   ```powershell
   Import-Module Citrix.StoreFront
   ```

   To import all the cmdlets, type:

   ```powershell
   Get-Module -ListAvailable | Where-Object { $_.Name.StartsWith("Citrix.StoreFront") } | Import-Module
   ```

   After importing, you have access to the cmdlets and their associated help.

**Get started with the SDK**

To create a script, perform the following steps:

1. Take one of the provided SDK examples installed by StoreFront into the `%ProgramFiles\%\Citrix\Receiver StoreFront\PowerShellSDK\Examples` folder.
2. To help you customize your own script, review the example script to understand what each part is doing. For more information, see the example use case, which explains in detail the script’s actions.
3. Convert and adapt the example scripts to turn them into a script that is more consumable. To do this:
   - Use the PowerShell ISE or a similar tool to edit the script.
   - Use variables to assign values that are to be reused or modified.
   - Remove any commands that are not required.
   - Note that StoreFront cmdlets can be identified by the prefix STF.
   - Use the `Get-Help` cmdlet supplying the cmdlet name and `-Full` parameter for more information on a specific command.

**Examples**

**Note:**

When creating a script, to ensure you always get the latest enhancements and fixes, Citrix recommends you follow the procedure described above rather than copying and pasting the example scripts.
**Examples**

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**Example: Create a simple deployment**

The following example shows how to create a simple deployment configured with one XenDesktop controller.

Before you begin, make sure you follow the steps detailed in *Get Started with the SDK*. This example can be customized using the methods described to produce a script for automating StoreFront deployment.

**Note:**

To ensure you always get the latest enhancements and fixes, Citrix recommends you follow the procedure described in this document, rather than copying and pasting the example script.

**Understand the script**

This section explains what each part of the script produced by StoreFront is doing. This will help you with the customization of your own script.

- Sets the error handling requirements and imports the required StoreFront modules. Imports are not required in newer versions of PowerShell.

```powershell
Param([Parameter(Mandatory=$true)]
(Uri)$HostbaseUrl,
[long]$SiteId = 1,
[ValidateSet("XenDesktop","XenApp","AppController","VDIinaBox")]
[string]$Farmtype = "XenDesktop"),
```
Automates the virtual path of the authentication and Citrix Receiver for Web services based on the $StoreVirtualPath supplied.

- `Confirm:$false` supresses the requirement to confirm the deployment can proceed.
- Creates a new authentication service if one does not exist at the specified virtual path. The default authentication method of username and password is enabled.

```powershell
[# Determine if the authentication service at the specified virtual path exists
$authentication = Get-STFAuthenticationService -VirtualPath $authenticationVirtualPath
if(-not $authentication)
{
    [# Add an Authentication service using the IIS path of the Store appended with Auth
    $authentication = Add-STFAuthenticationService $authenticationVirtualPath
}
else
{
    Write-Output "An Authentication service already exists at the specified virtual path and will be used."
}
```

- Creates the new store service configured with one XenDesktop controller with the servers defined in the array $XenDesktopServers at the specified virtual path if one does not already exist.

```powershell
[# Determine if the store service at the specified virtual path exists
$store = Get-STFStoreService -VirtualPath $StoreVirtualPath
if(-not $store)
{
```
• Adds a Citrix Receiver for Web service at the specified IIS virtual path to access applications published in the store created above.
Write-Output ”A Web Receiver service already exists at the specified virtual path and will be used.”

- Enables XenApp services for the store so older Citrix Receiver clients can connect to published applications.

```powershell
\# Determine if PNA is configured for the Store service
$storePnaSettings = Get-STFStorePna -StoreService $store
if(-not $storePnaSettings.PnaEnabled)
{
  \# Enable XenApp services on the store and make it the default for this server
  Enable-STFStorePna -StoreService $store -AllowUserPasswordChange -DefaultPnaService
}
```

**Example: Create a remote access deployment**

The following example builds on the previous script to add a deployment with remote access.

Before you begin, make sure you follow the steps detailed in Get Started with the SDK. This example can be customized using the methods described to produce a script for automating StoreFront deployment.

**Note:**

To ensure you always get the latest enhancements and fixes, Citrix recommends you follow the procedure described in this document, rather than copying and pasting the example script.

**Understand the script**

This section explains what each part of the script produced by StoreFront is doing. This will help you with the customization of your own script.

- Sets the error handling requirements and import the required StoreFront modules. Imports are not required in newer versions of PowerShell.

```powershell
Param(
  [Parameter(Mandatory=$true)]
  [Uri]$HostbaseUrl,
  [Parameter(Mandatory=$true)]
  [long]$SiteId = 1,
)
Create an internal access StoreFront deployment by calling the previous examples script. The base deployment will be extended to support remote access.
• Gets services created in the simple deployment as they need to be updated to support the remote access scenario.

    1 \# Determine the Authentication and Receiver sites based on the Store
    2 $store = Get-STFStoreService -VirtualPath $StoreVirtualPath
    3 $authentication = Get-STFAuthenticationService -StoreService $store
    4 $receiverForWeb = Get-STFWebReceiverService -StoreService $store

• Enables CitrixAGBasic on the Citrix Receiver for Web service required for remote access using NetScaler Gateway. Get the Citrix Receiver for Web CitrixAGBasic and ExplicitForms authentication method from the supported protocols.

    1 \# Get the Citrix Receiver for Web CitrixAGBasic and ExplicitForms authentication method from the supported protocols
    2 \# Included for demonstration purposes as the protocol name can be used directly if known
    3 $receiverMethods = Get-STFWebReceiverAuthenticationMethodsAvailable | Where-Object {
        4 $_ -match "Explicit" -or $_ -match "CitrixAG"
    5
    6 \# Enable CitrixAGBasic in Receiver for Web (required for remote access)
    7 Set-STFWebReceiverService $receiverForWeb -AuthenticationMethods $receiverMethods

• Enables CitrixAGBasic on the authentication service. This is required for remote access.

    1 \# Get the CitrixAGBasic authentication method from the protocols installed.
    2 \# Included for demonstration purposes as the protocol name can be used directly if known
    3 $citrixAGBasic = Get-STFAuthenticationProtocolsAvailable | Where-Object {
        4 $_ -match "CitrixAGBasic"
    5
    6 \# Enable CitrixAGBasic in the Authentication service (required for remote access)
    7 Enable-STFAuthenticationServiceProtocol -AuthenticationService $authentication -Name $citrixAGBasic

• Adds a new remote access Gateway, adding the optional subnet ipaddress is supplied and registers it with the store to be accessed remotely.
Example: Create a remote access deployment with optimal launch Gateway

The following example builds on the previous script to add a deployment with optimal launch Gateway remote access.

Before you begin, make sure you follow the steps detailed in Get Started with the SDK. This example can be customized using the methods described to produce a script for automating StoreFront deployment.

Note:
To ensure you always get the latest enhancements and fixes, Citrix recommends you follow the procedure described in this document, rather than copying and pasting the example script.

Understand the script

This section explains what each part of the script produced by StoreFront is doing. This will help you with the customization of your own script.

- Sets the error handling requirements and imports the required StoreFront modules. Imports are not required in newer versions of PowerShell.
Calls into the remote access deployment script to configure the basic deployment and add remote access.

```
Set-StrictMode -Version 2.0

# Create a remote access deployment
```

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Add the preferred optimal launch gateway and get it from the list of configured gateways.

```
1 \# Add a new Gateway used for remote HDX access to desktops and apps
2 $gateway = Add-STFRoamingGateway -Name $OptimalGatewayName -LogonType UsedForHDXOnly -GatewayUrl $OptimalGatewayUrl -SecureTicketAuthorityUrls $OptimalGatewaySTAUrls -PassThru
```

- Gets the store service to use the optimal gateway, register it assigning it to launches from the farm named.

```
1 \# Get the Store configured by SimpleDeployment.ps1
2 $store = Get-STFStoreService -VirtualPath $StoreVirtualPath
3 \# Register the Gateway with the new Store for launch against all of the farms (currently just one)
4 $farmNames = @(($store.FarmsConfiguration.Farms | foreach {$_.FarmName })
5  )
6 7 Register-STFStoreOptimalLaunchGateway -Gateway $gateway -StoreService $store -FarmName $farmNames
```

Example: Create a deployment with a Desktop Appliance site

The following example builds on the simple deployment example to add a deployment with Desktop Appliance site.

Before you begin, make sure you follow the steps detailed in Get Started with the SDK. This example can be customized using the methods described to produce a script for automating StoreFront deployment.
Note:
To ensure you always get the latest enhancements and fixes, Citrix recommends you follow the procedure described in this document, rather than copying and pasting the example script.

Understand the script
This section explains what each part of the script produced by StoreFront is doing. This will help you with the customization of your own script.

- Sets the error handling requirements and import the required StoreFront modules. Imports are not required in newer versions of PowerShell.

```powershell
Param(
    [Parameter(Mandatory=$true)]
    [Uri]$HostbaseUrl,
    [long]$SiteId = 1,
    [string]$Farmtype = "XenDesktop",
    [Parameter(Mandatory=$true)]
    [string[]]$FarmServers,
    [string]$StoreVirtualPath = "/Citrix/Store",
    [bool]$LoadbalanceServers = $false,
    [int]$Port = 80,
    [int]$SSLRelayPort = 443,
    [ValidateSet("HTTP","HTTPS","SSL")]
    [string]$TransportType = "HTTP",
    [Parameter(Mandatory=$true)]
    [Uri]$GatewayUrl,
    [Parameter(Mandatory=$true)]
    [Uri]$GatewayCallbackUrl,
    [Parameter(Mandatory=$true)]
    [string[]]$GatewaySTAUrls,
    [string]$GatewaySubnetIP,
    [Parameter(Mandatory=$true)]
    [string]$GatewayName,
    [Parameter(Mandatory=$true)]
    [Uri]$OptimalGatewayUrl,
    [Parameter(Mandatory=$true)]
    [string[]]$OptimalGatewaySTAUrls,
    [Parameter(Mandatory=$true)]
    [string]$OptimalGatewayName
)
Set-StrictMode -Version 2.0
# Any failure is a terminating failure.
$ErrorActionPreference = 'Stop'
```
Automate a desktop appliance path based on that of the $StoreVirtualPath.

```bash
$desktopApplianceVirtualPath = "$(($StoreIISPath.TrimEnd('/')))Appliance"
```

Calls into the simple deployment script to configure a default deployment with the required services.

```bash
$scriptPath = Join-Path $scriptDirectory "RemoteAccessDeployment.ps1"
& $scriptPath -HostbaseUrl $HostbaseUrl -SiteId $SiteId -FarmServers $FarmServers -StoreVirtualPath $StoreVirtualPath -Farmtype $Farmtype -LoadbalanceServers $LoadbalanceServers -Port $Port -SSLRelayPort $SSLRelayPort -TransportType $TransportType -GatewayUrl $GatewayUrl -GatewayCallbackUrl $GatewayCallbackUrl -GatewaySTAUrls $GatewaySTAUrls -GatewayName $GatewayName
```

Gets the store service to use for the Desktop Appliance site. Use the `Add-STFDesktopApplianceService` cmdlet to add the new site with MultiDesktop and Explicit username and password authentication.

```bash
$store = Get-STFStoreService -VirtualPath $StoreVirtualPath
# Create a new Desktop Appliance site using the desktops published by the Store Service
Add-STFDesktopApplianceService -VirtualPath $desktopApplianceVirtualPath -StoreService $store -EnableExplicit
```
Example: Exchange metadata between the Identity Provider and the Service Provider (StoreFront) for SAML authentication

SAML authentication can be configured in the StoreFront management console (see Configure the authentication service) or using the following PowerShell cmdlets:

- Export-STFSamlEncryptionCertificate
- Export-STFSamlSigningCertificate
- Import-STFSamlEncryptionCertificate
- Import-STFSamlSigningCertificate
- New-STFSamlEncryptionCertificate
- New-STFSamlIdPCertificate
- New-STFSamlSigningCertificate

You can use the cmdlet, `Update-STFSamlIdPFromMetadata`, to exchange metadata (identifiers, certificates, endpoints and other configuration) between the Identity Provider and the Service Provider, which is StoreFront in this case.

For a StoreFront Store, named “Store”, with its dedicated authentication service, the metadata endpoint will be:

https://<storefront host>/Citrix/StoreAuth/SamlForms/ServiceProvider/Metadata

If your Identity Provider supports metadata import, then you can point it at the above URL. **Note:** This must be done over HTTPS.

For StoreFront to consume the metadata from an Identity Provider, the following PowerShell can be used:

```powershell
Get-Module ”Citrix.StoreFront*” -ListAvailable | Import-Module
# Remember to change this with the virtual path of your Store.
$StoreVirtualPath = ”/Citrix/Store"

$store = Get-STFStoreService -VirtualPath $StoreVirtualPath
$auth = Get-STFAuthenticationService -StoreService $store

# To read the metadata directly from the Identity Provider, use the following:
# Note again this is only allowed for https endpoints
Update-STFSamlIdPFromMetadata -AuthenticationService $auth -Url https://example.com/FederationMetadata/2007-06/FederationMetadata.xml

# If the metadata has already been download, use the following:
# Note: Ensure that the file is encoded as UTF-8
```
Example: List the metadata and ACS endpoints for a specified store for SAML authentication

You can use the following script to list out the metadata and ACS (Assertion Consumer Service) endpoints for a specified store.

```powershell
# Change this value for your Store
$storeVirtualPath = "/Citrix/Store"

$auth = Get-STFAuthenticationService -Store (Get-STFStoreService -
VirtualPath $storeVirtualPath)

$spId = $auth.AuthenticationSettings["samlForms"].SamlSettings.
ServiceProvider.Uri.AbsoluteUri

VirtualPath + "/SamlForms/AssertionConsumerService")

VirtualPath + "/SamlForms/ServiceProvider/Metadata")

VirtualPath + "/SamlTest")

Write-Host "SAML Service Provider information:
Service Provider ID: $spId
Assertion Consumer Service: $acs
Metadata: $md
Test Page: $samlTest"
```

Example of the output:

```
SAML Service Provider information:
Service Provider ID: https://storefront.example.com/Citrix/StoreAuth
Assertion Consumer Service: https://storefront.example.com/Citrix/StoreAuth/SamlForms/AssertionConsumerService
Metadata: https://storefront.example.com/Citrix/StoreAuth/SamlForms/ServiceProvider/Metadata
Test Page: https://storefront.example.com/Citrix/StoreAuth/SamlTest"
```

Troubleshoot StoreFront

December 20, 2018

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When StoreFront is installed or uninstalled, the following log files are created by the StoreFront installer in the C:\Windows\Temp\StoreFront directory. The file names reflect the components that created them and include time stamps.

- Citrix-DeliveryServicesRoleManager-*.log—Created when StoreFront is installed interactively.
- Citrix-DeliveryServicesSetupConsole-*.log—Created when StoreFront is installed silently and when StoreFront is uninstalled, either interactively or silently.
- CitrixMsi-CitrixStoreFront-x64-*.log—Created when StoreFront is installed and uninstalled, either interactively or silently.

StoreFront supports Windows event logging for the authentication service, stores, and Receiver for Websites. Any events that are generated are written to the StoreFront application log, which can be viewed using Event Viewer under either Application and Services Logs > Citrix Delivery Services or Windows Logs > Application. You can control the number of duplicate log entries for a single event by editing the configuration files for the authentication service, stores, and Receiver for Web sites.

The Citrix StoreFront management console automatically records tracing information. By default, tracing for other operations is disabled and must be enabled manually. Logs created by Windows PowerShell commands are stored in the \Admin\logs\ directory of the StoreFront installation, typically located at C:\Program Files\Citrix\Receiver StoreFront. The log file names contain command actions and subjects, along with time stamps that can be used to differentiate command sequences.

Important: In multiple server deployments, use only one server at a time to make changes to the configuration of the server group. Ensure that the Citrix StoreFront management console is not running on any of the other servers in the deployment. Once complete, propagate your configuration changes to the server group so that the other servers in the deployment are updated.

To configure log throttling

1. Use a text editor to open the web.config file for the authentication service, store, or Receiver for Web site, which are typically located in the C:\inetpub\wwwroot\Citrix\Authentication\, C:\inetpub\wwwroot\Citrix\storename\, and C:\inetpub\wwwroot\Citrix\storenameWeb\ directories, respectively, where storename is the name specified for the store when it was created.

2. Locate the following element in the file.

   <logger duplicateInterval="00:01:00" duplicateLimit="10"/>

By default, StoreFront is configured to limit the number of duplicate log entries to 10 per minute.
3. Change the value of the duplicateInterval attribute to set the time period in hours, minutes, and seconds over which duplicate log entries are monitored. Use the duplicateLimit attribute to set the number of duplicate entries that must be logged within the specified time interval to trigger log throttling.

When log throttling is triggered, a warning message is logged to indicate that further identical log entries will be suppressed. Once the time limit elapses, normal logging resumes and an informational message is logged indicating that duplicate log entries are no longer being suppressed.

To enable tracing for debugging

Important:

The StoreFront and PowerShell consoles cannot be open at the same time. Always close the StoreFront admin console before using the PowerShell console to administer your StoreFront configuration. Likewise, close all instances of the PowerShell console before opening the StoreFront console.

Trace output is sent to \Program Files\Citrix\Receiver StoreFront\admin\trace

Note:

Run Get-Help Set-STFDiagnostics -detailed to obtain PowerShell help and instructions on how to use the Set-STFDiagnostics cmdlet.

Use an account with local administrator permissions to start Windows PowerShell and, at a command prompt, specify the following mandatory parameters to enable or disable tracing.
- **All.** A flag indicating that tracing should be updated for all instances and services.
- **-TraceLevel.** In increasing levels of tracing detail, allowed values for -TraceLevel are: Off, Error, Warning, Info, or Verbose. Due to the large amount of data that can be generated, tracing may significantly impact the performance of StoreFront. The Info or Verbose levels are not recommended unless specifically required for troubleshooting.

Optional parameters:

- **-FileSizeKb.** The trace file size in KB.
- **-FileCount.** The number of trace files to maintain on disk at a time.
- **-confirm:$False.** Suppresses Windows prompts to allow the StoreFront cmdlet to run each time.

**Examples**

To enable Verbose level tracing for all service for debugging purposes:

```
Set-STFDiagnostics -All -TraceLevel "Verbose" -confirm:$False
```

To disable Verbose level tracing, and set the tracing level back to the default value for all services:

```
Set-STFDiagnostics -All -TraceLevel "Error" -confirm:$False
```

For more information on the Set-STFDiagnostics cmdlet, see the [StoreFront PowerShell SDK documentation](https://storefront.poweruser.com).

**To enable logging of the launch.ica file**

Save the information in the launch.ica file to the client computer to troubleshoot multiple issues. The launch.ica file is generated by Citrix Web Interface or Citrix StoreFront Servers.

To enable logging of the launch.ica file, complete the following steps:

1. Navigate to the following registry key by using the registry editor:

   **32-bit Systems:**
   
   HKEY_LOCAL_MACHINE\SOFTWARE\Citrix\ICA Client\Engine\Configuration\Advanced\Modules\Logging

   **64-bit Systems:**
   
   HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Citrix\ICA Client\Engine\Configuration\Advanced\Modules\Logging

2. Set the following string value:

   LogFile=<path to the log file, use following format C:\ica\ica.log>
   LogICAFile=true
Additional resources

Note:
The use of an ICA file in your environment for anything other than troubleshooting purposes is further outlined in CTX200126.