

# App Volumes Entitlement Sync Tool

## User Guide

### Introduction

The App Volumes Entitlement Sync Tool will read, compare and sync entitlements from one App Volumes instance to another. For App Volumes 4 implementations, several new capabilities have been added. Along with entitlements, the assignment types (marker or package) will be synced. In addition, the ability to build matching Application to Package relationships has been added.

Previous versions of the App Volumes Entitlement Sync Tool pertained only to App Volumes 2.x implementations. With App Volumes 2.x you created AppStacks, or virtual disks containing one or more programs, and entitled AD entities directly to them.

App Volumes 4 creates a separation of the packaging and entitlement process. With App Volumes 4, you create Packages containing one or more programs, and associated Applications to handle entitlements. While this separation improves administrative workflows, it affects the workflow when syncing Packages and entitlements to secondary App Volumes sites.

Version 4 of the App Volumes Entitlement Sync Tool supports both the new App Volumes v4 and older App Volumes v2.x entitlements.

### Terminology

- AppStack
  - App Volumes 2.x
  - Virtual disk file containing one or more programs, directly entitled to AD entities.
- Package
  - App Volumes 4
  - Virtual disk file containing one or more programs, associated with an Application.
- Application
  - App Volumes 4
  - Construct containing one or more Packages, used to entitle AD entities to Packages.
- Application Package
  - App Volumes 4
  - Refers to the combination of an Application and one of its included Packages.
- Marker
  - App Volumes 4
  - Attribute of an Application used to designate which of the associated Packages is *current*.
  - Used to simplify application lifecycle management tasks.

- App Volumes Instance
  - A complete App Volumes deployment comprised of a database and one or more App Volumes Manager servers.
  - An instance is bounded by the database.
- Primary App Volumes Server
  - Any App Volumes Manager server at the primary site.
  - Entitlements are read from the primary server and written to secondary server(s).
- Secondary App Volumes Server
  - Any App Volumes Manager server at the secondary site.
  - Entitlements are read from the primary server and written to secondary server(s).
- Site
  - A site is defined by a datacenter.
  - A site may be on-premises or in the cloud.
- **Note:** *Primary App Volumes Server* and *Primary Site* may be used interchangeably in this document. Whether you have multiple App Volumes instances deployed in a single site, or have one App Volumes instance per site across several datacenters, the Entitlement Sync Tool works the same way.
- Entitlement and assignment may be used interchangeably. In this context, both terms refer to the concept of granting access to Packages (version 4) or AppStacks (version 2.x).

## Prerequisites

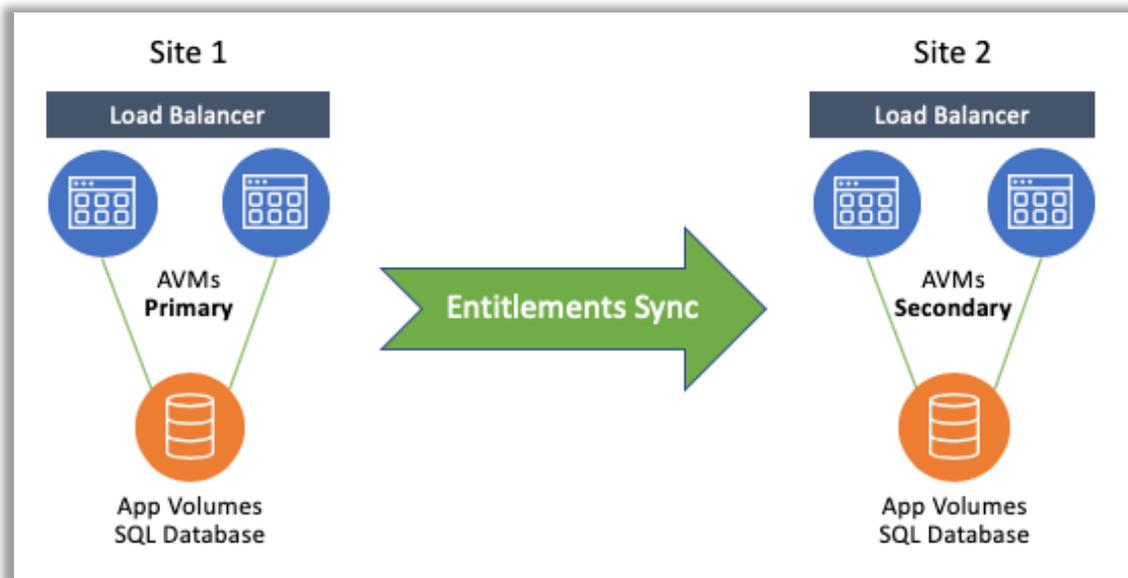
Before running App Volumes Entitlement Sync Tool, check your environment and make sure the following requirements are met.

- Connectivity
  - Sites must be able to communicate with where you run the tool from.
- App Volumes Instances
  - You should have two or more App Volumes instances deployed. Both versions should be the same major version of App Volumes (2.x or 4.x)
  - Instances can be in a single site, or span multiple sites.
- Permissions
  - You will need an account with permissions to read App Volumes entitlements at the primary site, and to read/write/delete entitlements at the secondary site(s).
- Administrative PC
  - Install the .NET Framework 4.6.1
  - Download the App Volumes Entitlements Sync executable

## About the App Volumes Entitlement Sync Tool

This tool is designed to sync entitlements from one App Volumes instance to another. Before using this tool, consider the following:

- As seen in the following illustration, AppStack (2.x) and Package (v4) entitlements from the primary server will sync to the secondary server.
- The default behavior is to add all entitlements from the primary server to the secondary server, and **delete** any entitlements from the secondary server.
- The Selective Sync option provides granular control over which entitlements are added from the primary server to the secondary server, and which entitlements are deleted from the secondary server.
  - This feature is intended for customers who may maintain some common and some different AppStack or Package assignments per site.
  - If you manage independent App Volumes instances, with unique AppStack or Package entitlements at each site, be cautious when using the Entitlement Sync Tool, as you may overwrite entitlements as the secondary site. Be sure you understand the workflow associated with the Selective Sync feature before using this tool.



## Syncing AppStack Entitlements

This section is specific to App Volumes 2.x Managers.

**Note:** The current version of the tool has minor changes and enhancements to the user interface. Some of the screenshots in this section of the user guide will differ slightly from the new UI.

If you are using App Volumes 4 Managers, see [Syncing Package Entitlements](#).

## Assumptions

AppStack entitlement sync works by enumerating the AppStacks at each site, comparing the entitlements, then syncing entitlements from the primary instance to the secondary instance.

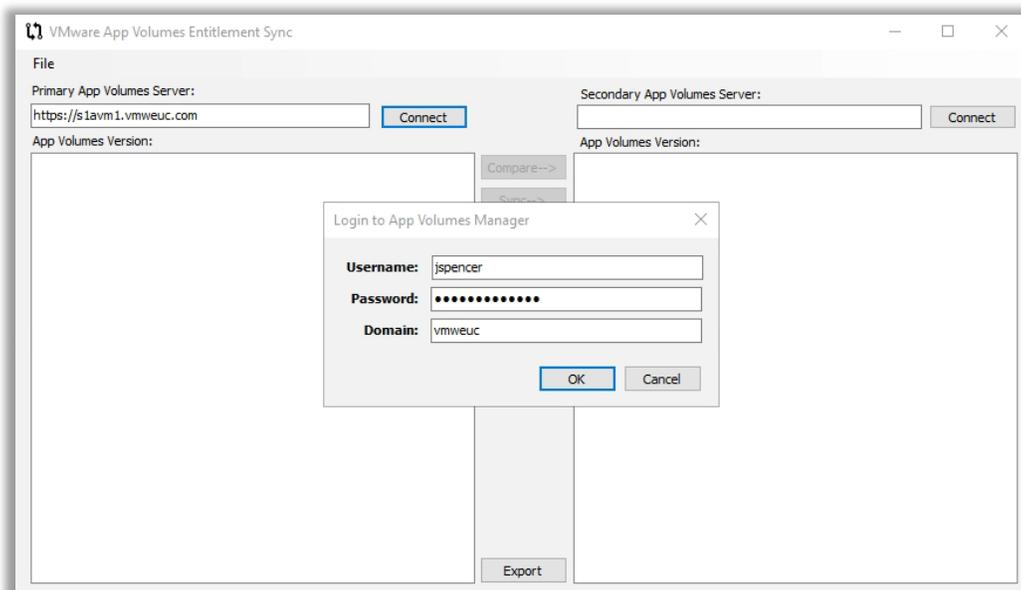
AppStacks must be available for each App Volumes instance in order for the Entitlement Sync Tool to work. That is, AppStacks created and entitled at one site should be replicated to the other site. Replicating AppStacks can be accomplished manually or using automated processes. See the [VMware Workspace ONE and Horizon 7 Enterprise Edition Reference Architecture](#) for more information on replicating AppStacks between sites.

## Running the App Volumes Entitlement Sync Tool

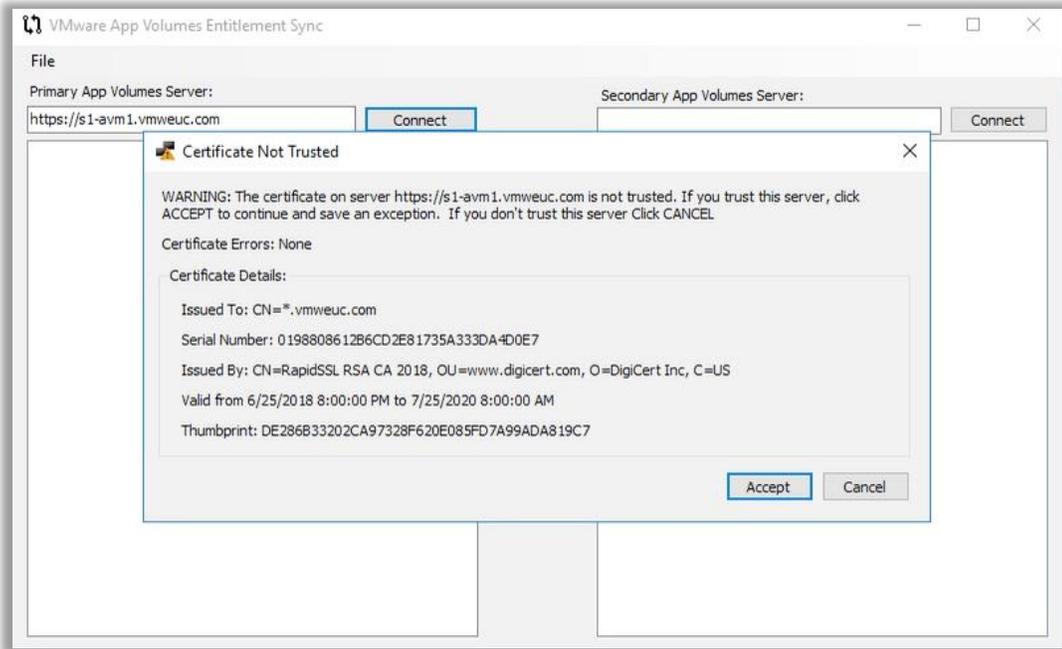


- 
- Open **AppVolumes\_Entitlement\_sync.exe**

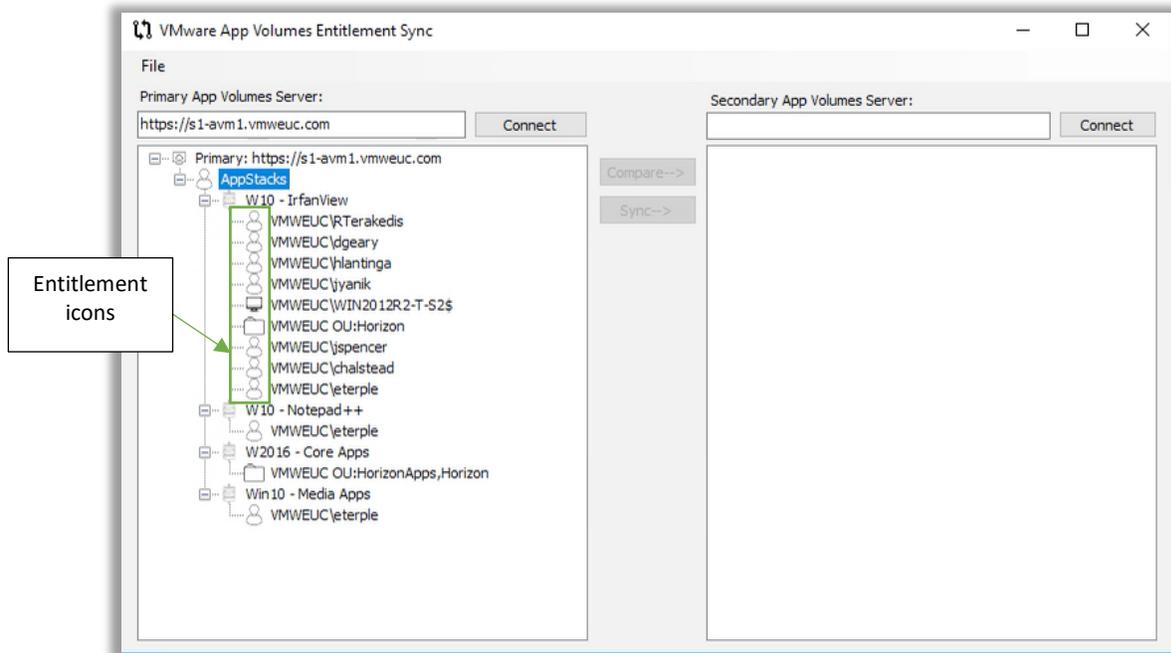
## Connecting to Primary and Secondary App Volumes Instances



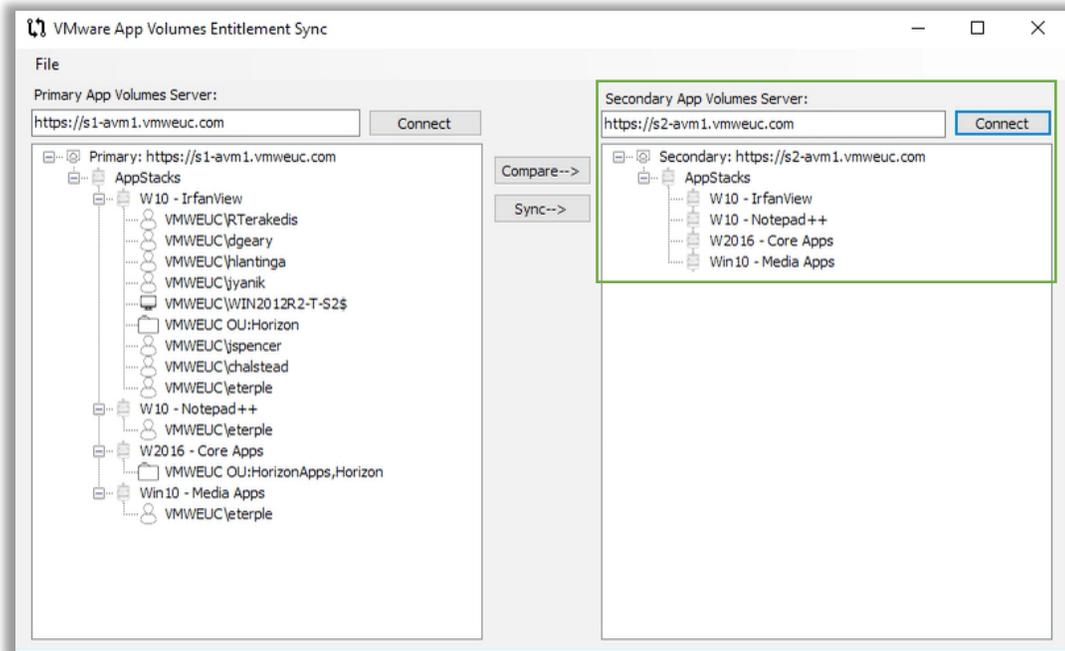
- 
- Enter the **Primary App Volumes Server**
- Select **Connect**
- Provide credentials to authenticate to App Volumes Manager.



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- Accept the certificate

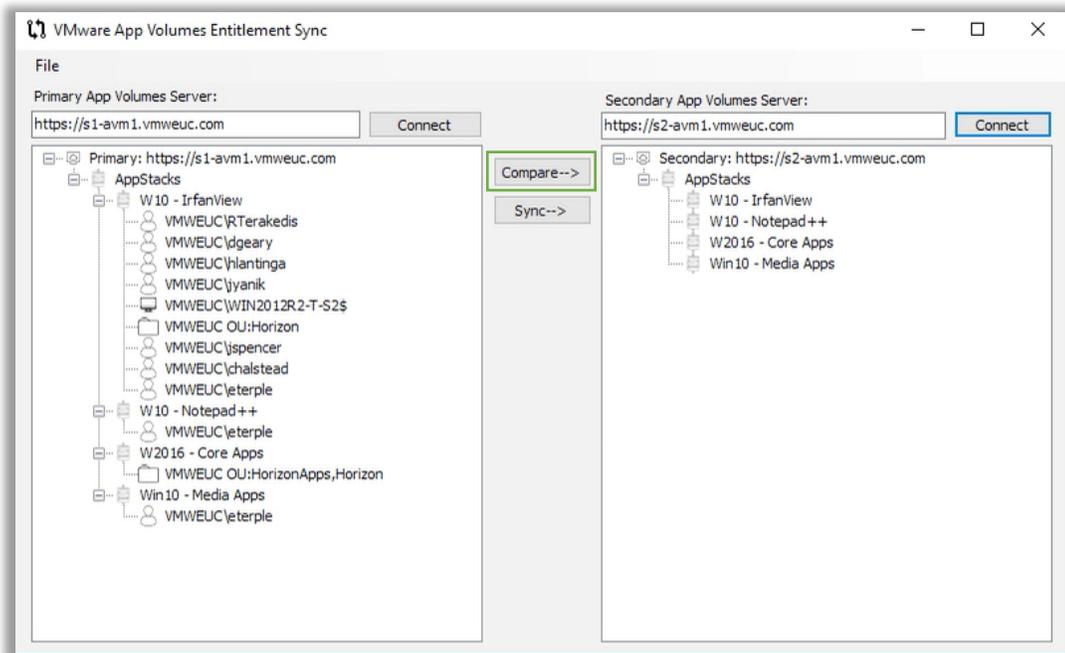


- 
- Review AppStacks and the associated entitlements.
  - **Note:** Entitlements may be assigned to users, computers, OUs, or groups. The *entitlement icons* indicate which type is used.

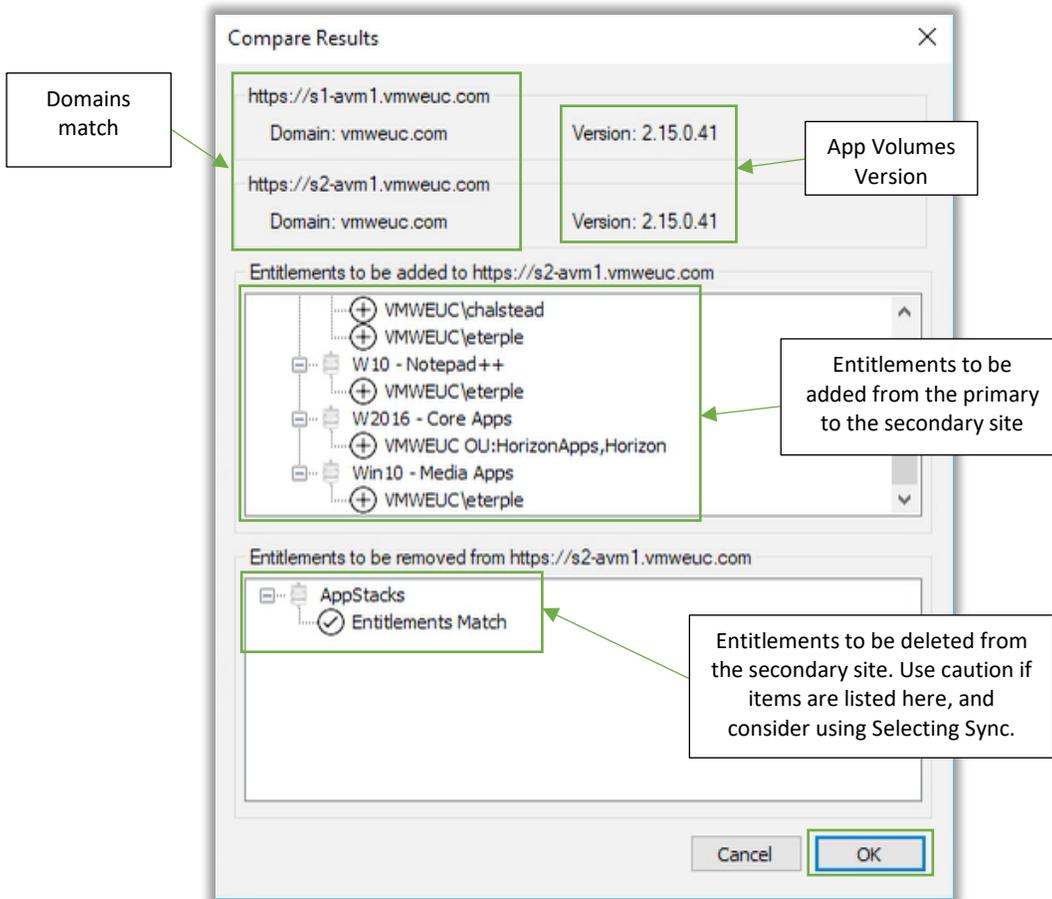


- 
- Repeat the process to authenticate to the **Secondary App Volumes Server**.

### Compare AppStack Assignments Between Sites



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- Select **Compare** to determine whether entitlements are out of sync.

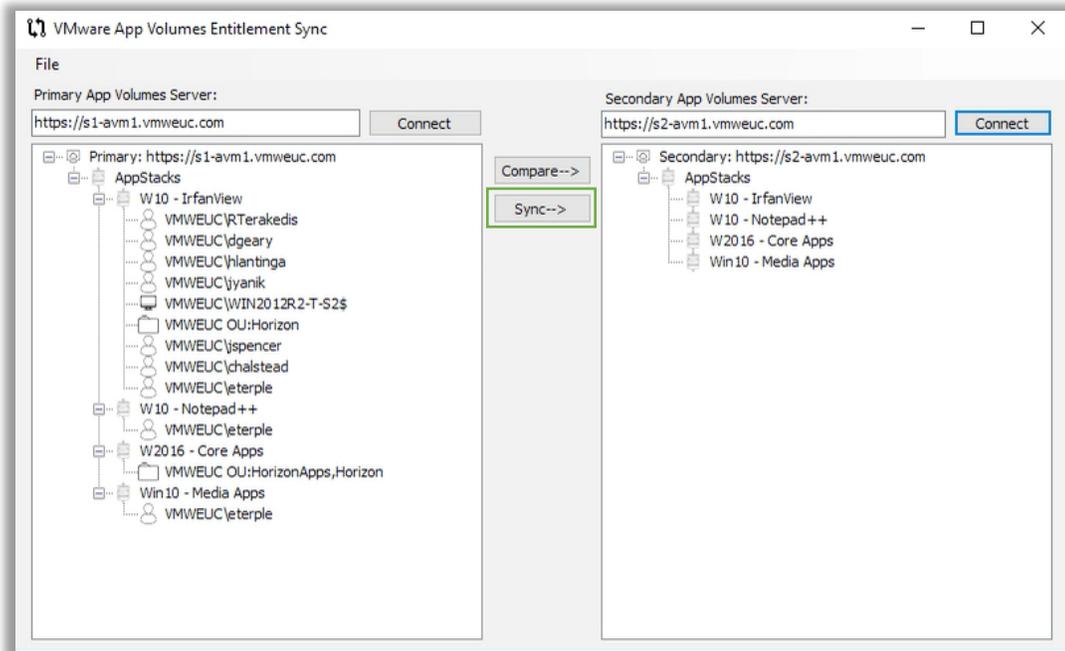


- Click **OK** when you are done reviewing the information.

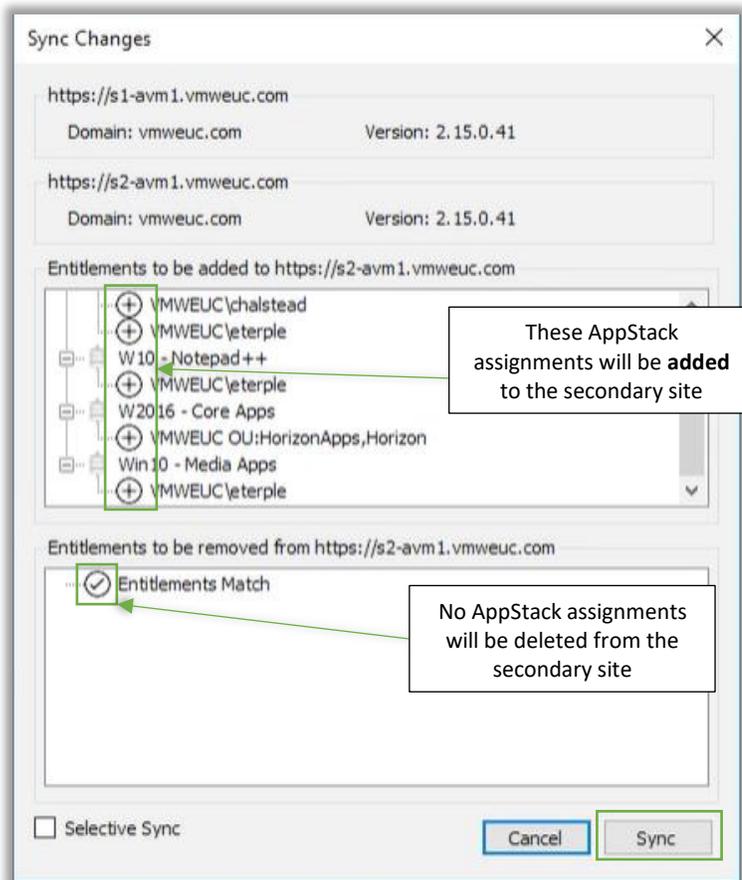
### Sync AppStack Assignments from Primary to Secondary Site

This section demonstrates the default behavior of syncing entitlements from the primary to the secondary site.

For more granular control over which entitlements are replicated, see [Sync AppStack or Package using Selective Sync](#).

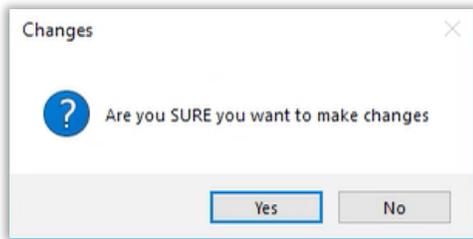


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- Select **Sync** to begin the process of syncing AppStack assignments from the primary to the secondary site.

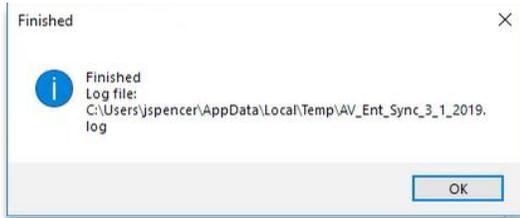


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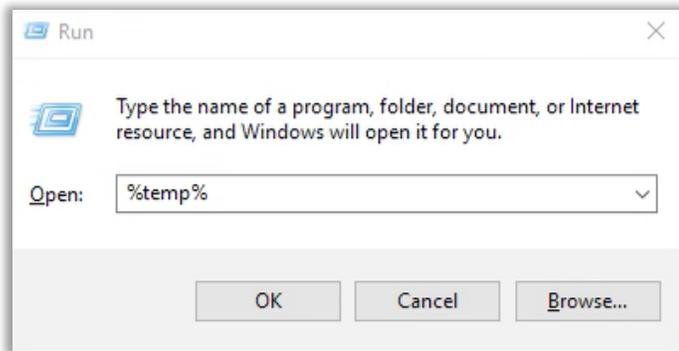
- Confirm the proposed changes.
- Select **Sync** when you are ready to replicate AppStack entitlements from the primary site to the secondary site.



- 
- Confirm you are ready to begin the sync process.



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- Sync is complete.



- 
- Click **Start > Run** and type **%temp%**

```
AV_Ent_Sync_3_1_2019.log - Notepad
File Edit Format View Help
3/1/2019 3:26:03 PM,Adding: CN=Robert Terakedis,CN=Users,DC=vmweuc,DC=com to: W10 - IrfanView
3/1/2019 3:26:03 PM,{"successes":["Assigned 1 AppStack(s)"]}
3/1/2019 3:26:03 PM,Adding: CN=Donal Geary,CN=Users,DC=vmweuc,DC=com to: W10 - IrfanView
3/1/2019 3:26:03 PM,{"successes":["Assigned 1 AppStack(s)"]}
3/1/2019 3:26:03 PM,Adding: CN=Hilko Lantinga,CN=Users,DC=vmweuc,DC=com to: W10 - IrfanView
3/1/2019 3:26:03 PM,{"successes":["Assigned 1 AppStack(s)"]}
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3/1/2019 3:26:04 PM,{"successes":["Assigned 1 AppStack(s)"]}
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3/1/2019 3:26:04 PM,{"successes":["Assigned 1 AppStack(s)"]}
3/1/2019 3:26:04 PM,Adding: CN=Eric Terple,OU=EndUsers,DC=vmweuc,DC=com to: W10 - Notepad++
3/1/2019 3:26:04 PM,{"successes":["Assigned 1 AppStack(s)"]}
3/1/2019 3:26:04 PM,Adding: OU=HorizonApps,OU=Horizon,DC=vmweuc,DC=com to: W2016 - Core Apps
3/1/2019 3:26:04 PM,{"successes":["Assigned 1 AppStack(s)"]}
3/1/2019 3:26:04 PM,Adding: CN=Eric Terple,OU=EndUsers,DC=vmweuc,DC=com to: Win10 - Media Apps
3/1/2019 3:26:04 PM,{"successes":["Assigned 1 AppStack(s)"]}
```

- 
- Open the log file to review changes.

## Syncing Package Entitlements

This section is specific to App Volumes 4 Managers. If you are running version 4 Managers in co-existence mode (v4 Packages and v2.18 AppStacks) you should use this section as well.

This section demonstrates the default behavior of syncing entitlements from the primary to the secondary site.

For more granular control over which entitlements are replicated, see [Sync AppStack or Package using Selective Sync](#).

If you are using App Volumes 2.x Managers, see [Syncing AppStack Entitlements](#).

### Assumptions

Packages must be available for each App Volumes instance in order for the Entitlement Sync Tool to work. That is, Packages created at one site should be replicated to the other site. Replicating Packages can be accomplished manually or using automated processes. It is important to note when importing replicated Packages at a secondary site, the default behavior of the App Volumes Manager is to create a new Application for each Package, which will likely cause issues when trying to sync entitlements.

The following is an example of the default behavior:

Application **Notepad++** is created at site 1 containing three Packages: **Notepad++ 7.6.1**, **Notepad++ 7.6.2**, and **Notepad++ 7.6.3**.

Applications Packages Programs Assignments Attachment

## Applications

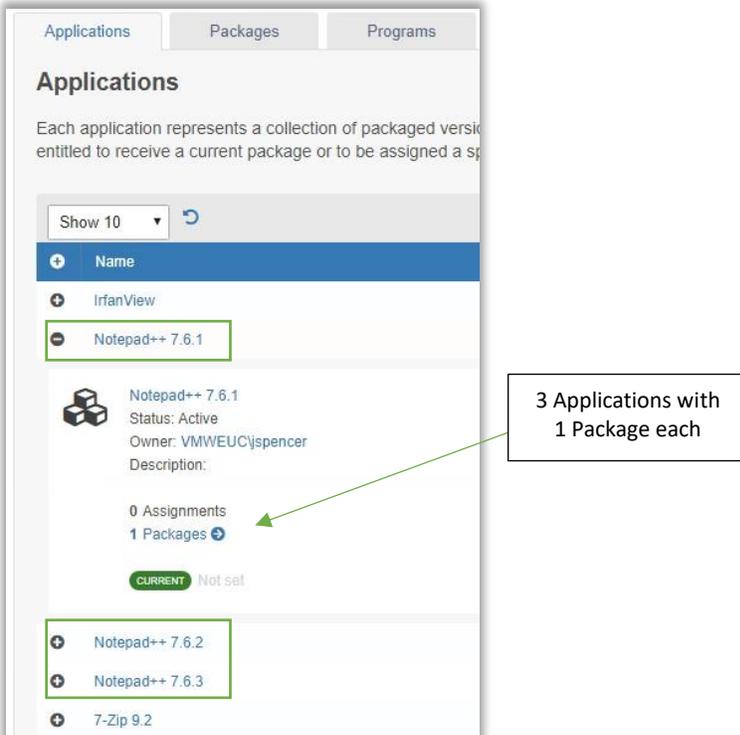
Each application represents a collection of packaged versions of that application. Users, Group entitled to receive a current package or to be assigned a specific package.

Show 10

Name	Status
Notepad++	Active
<div> <p>Notepad++</p> <p>Status: Active</p> <p>Owner: VMWEUC\jspencer</p> <p>Description: Notepad++ app</p> <p>7 Assignments</p> <p>3 Packages</p> <p><b>CURRENT</b> Notepad++ 7.6.3 (Set by Chris Halstead on May 26 2020 05:08:39 PM Eastern Daylight Time)</p> </div>	<ul style="list-style-type: none"> <li>Notepad++ 7.6.3 <b>CURRENT</b></li> <li>Notepad++ 7.6.2</li> <li>Notepad++ 7.6.1</li> </ul>
IrfanView	Active
FileZilla	Active
7-Zip	Active

Showing 1 to 4 of 4 Applications

Using a storage group or other means of replication, you replicate the three packages to site 2 and import them Manager. The *desired* behavior is for the three Packages to be imported, and one Application **Notepad++** to be created. Instead, the three Packages are imported, and three new Applications are created with a name matching that of the Package.



The App Volumes Entitlement Sync Tool not only syncs entitlements, but it can correct the Application to Package relationship issues caused by replicating and importing to a secondary site.

**Note:** It is important the Application to Package relationships are consistent between App Volumes sites before you attempt to sync entitlements.

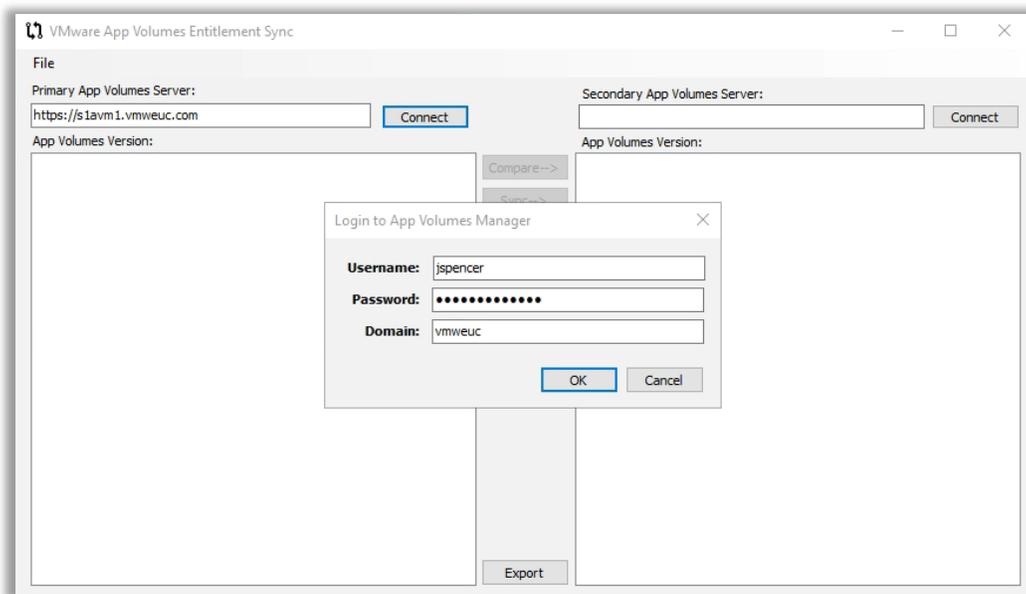
Application Package entitlement sync works by enumerating the Packages at each site. This includes gathering data such as the associated Application, Package marker, Package owner and Package description. An initial **Compare** is performed and will report if Application and Package relationships are inconsistent between sites. When inconsistencies are found, you have the option to **Fix Apps** which creates Applications at the secondary site matching those at the primary site, moves the imported Packages to the new Applications, then deletes any remaining, empty Applications. Once the Application to Package relationships are consistent, you then **Sync** entitlements from site 1 Applications to their matching site 2 Applications.

## Running the App Volumes Entitlement Sync Tool

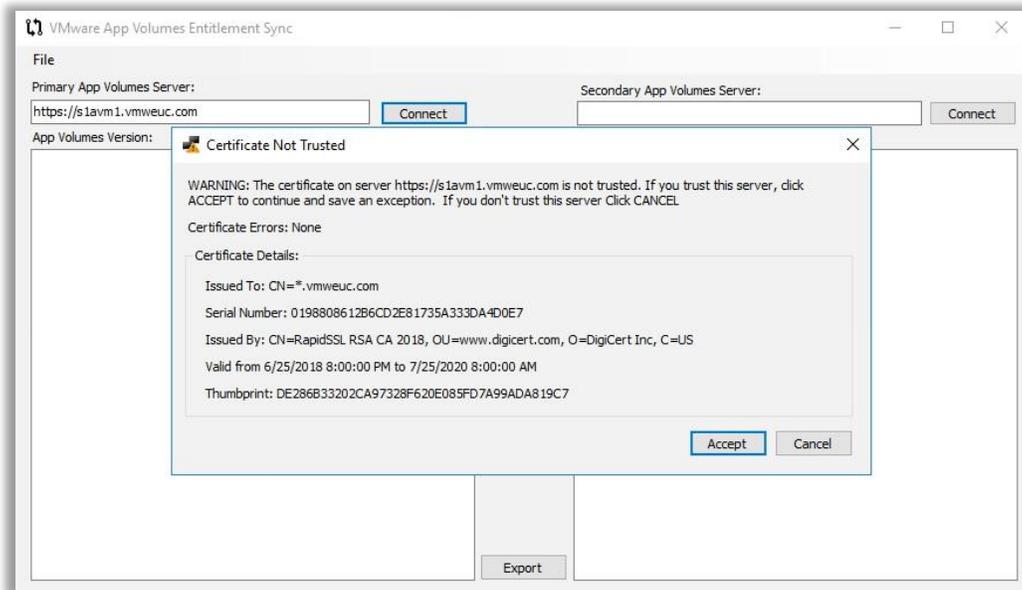


- 
- Open **AppVolumes\_Entitlement\_sync.exe**

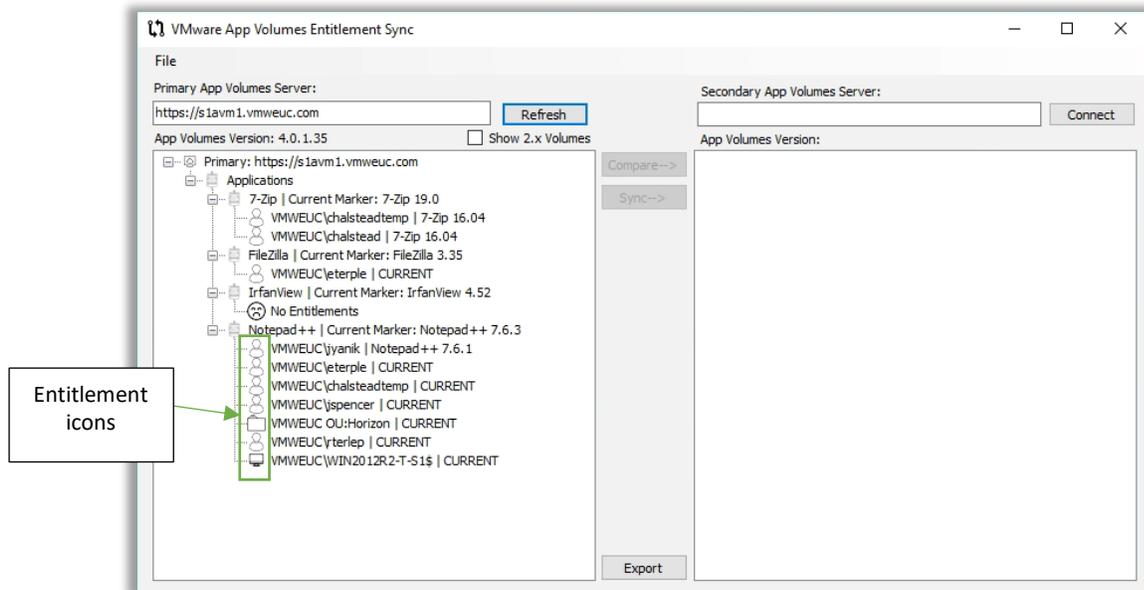
## Connecting to Primary and Secondary App Volumes Instances



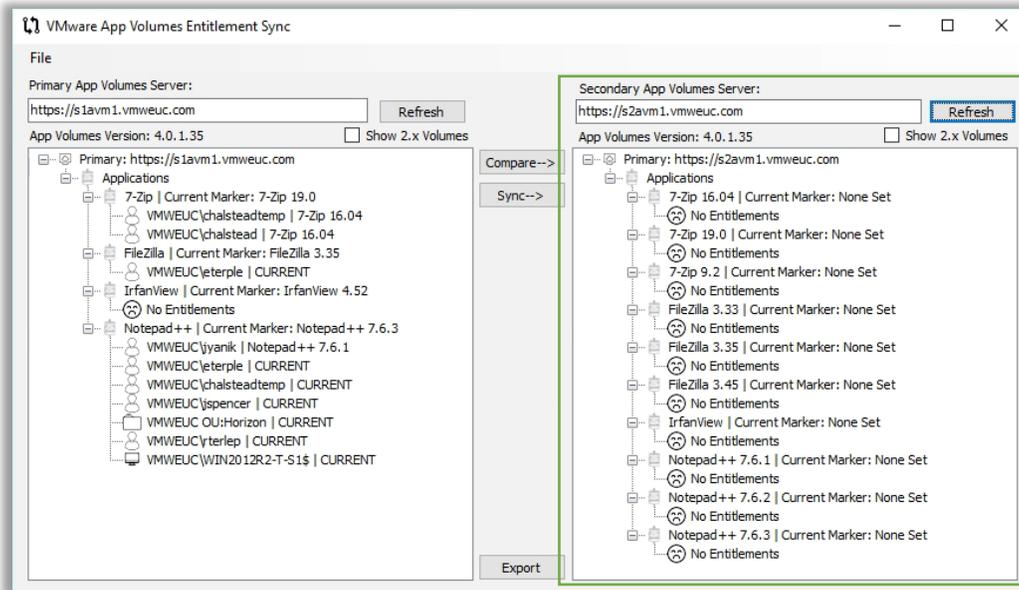
- 
- Enter the **Primary App Volumes Server**
- Select **Connect**
- Provide credentials to authenticate to App Volumes Manager.



- 
- Accept the certificate

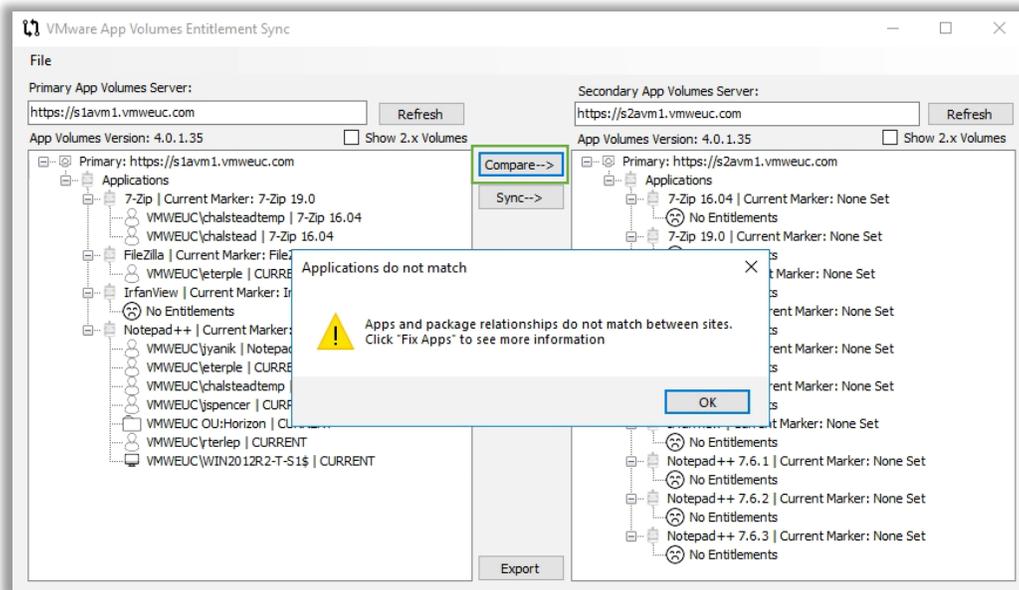


- 
- Review Applications, Packages, and the associated entitlements.
  - **Note:** Entitlements may be assigned to users, computers, OUs, or groups. The *entitlement icons* indicate which type is used.

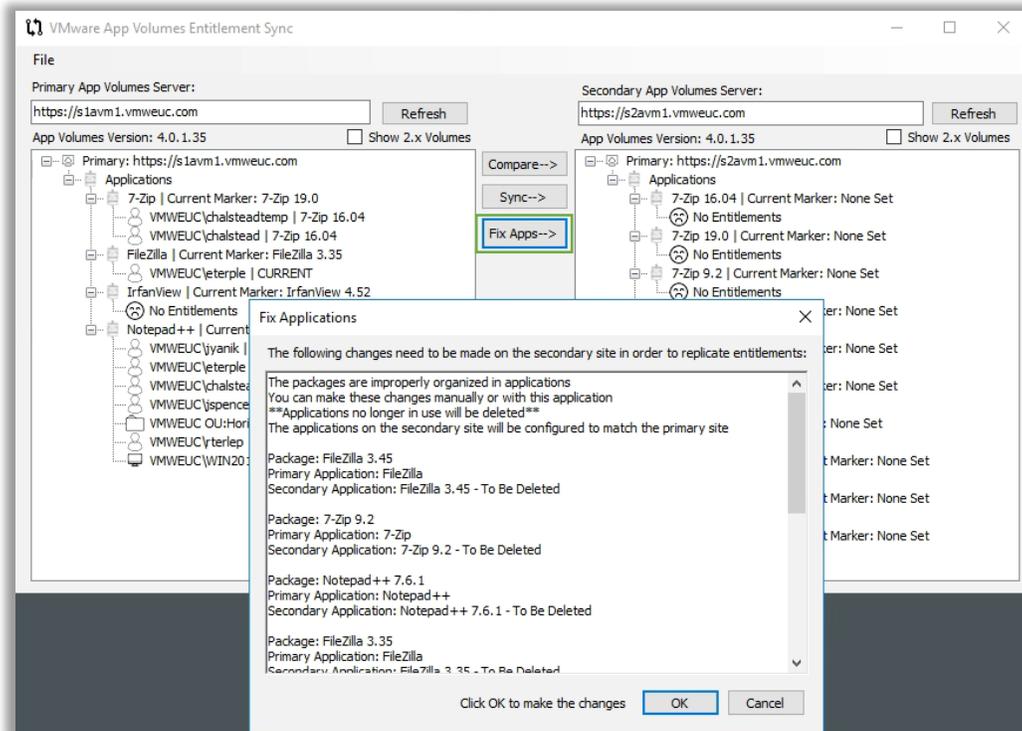


- Repeat the process to authenticate to the **Secondary App Volumes Server**.

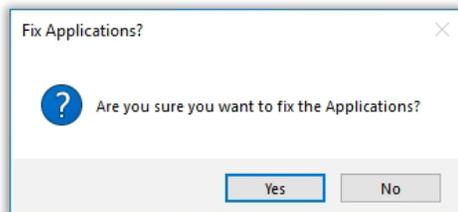
### Compare Application and Package Relationships Between Sites



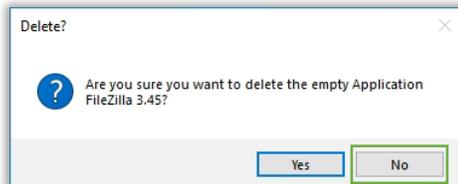
- Select **Compare** to enumerate a list of Application to Package relationships that are inconsistent between sites.



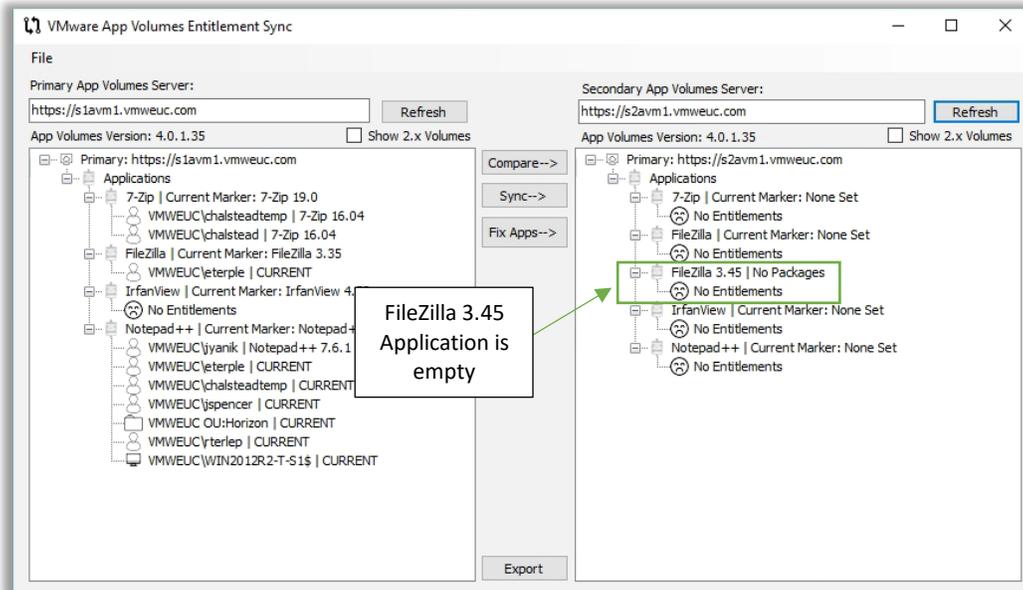
- 
- Select **Fix Apps** to begin the process of updating Applications and Packages at the secondary site to match the primary site.
- Review the list of changes to be made.



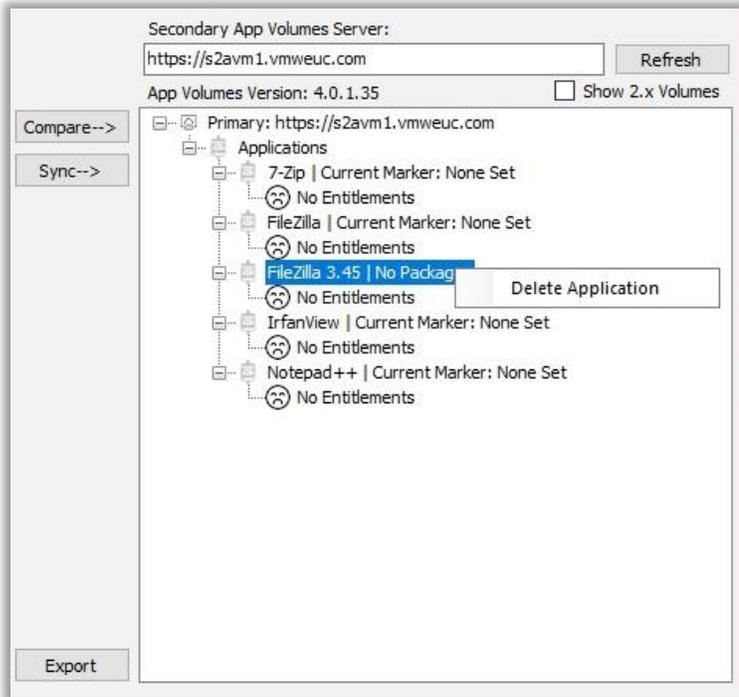
- 
- When ready, proceed with the changes.



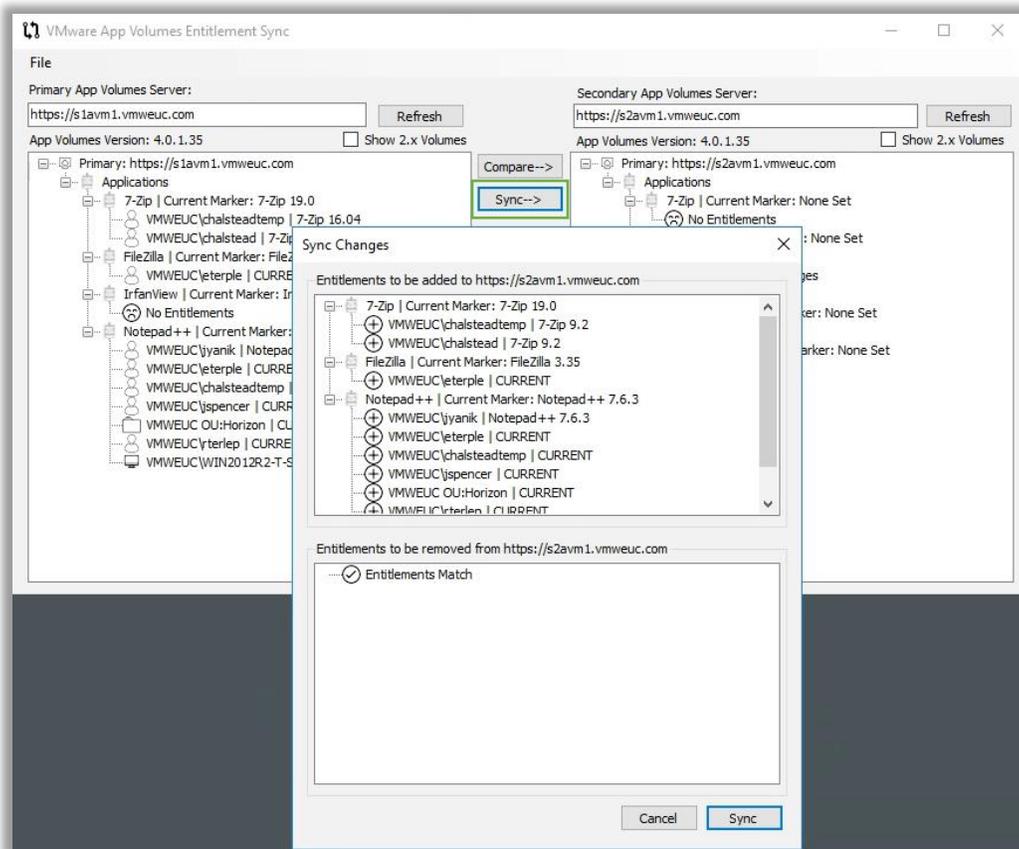
- 
- A new Application is created, the Package is moved to the new Application, and the old Application is now empty. You may let the tool delete the empty Application object, or manually do so at a later time.
- For the purposes of this user guide, the Application **FileZilla 3.45** was not automatically deleted by the tool. All other empty Applications were automatically deleted.



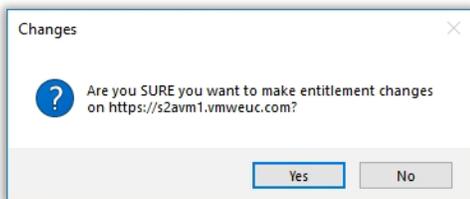
- 
- New Applications were created in the secondary site with names that match those in the primary site.
- Note the **FileZilla 3.45** Application is still listed but contains no Packages.



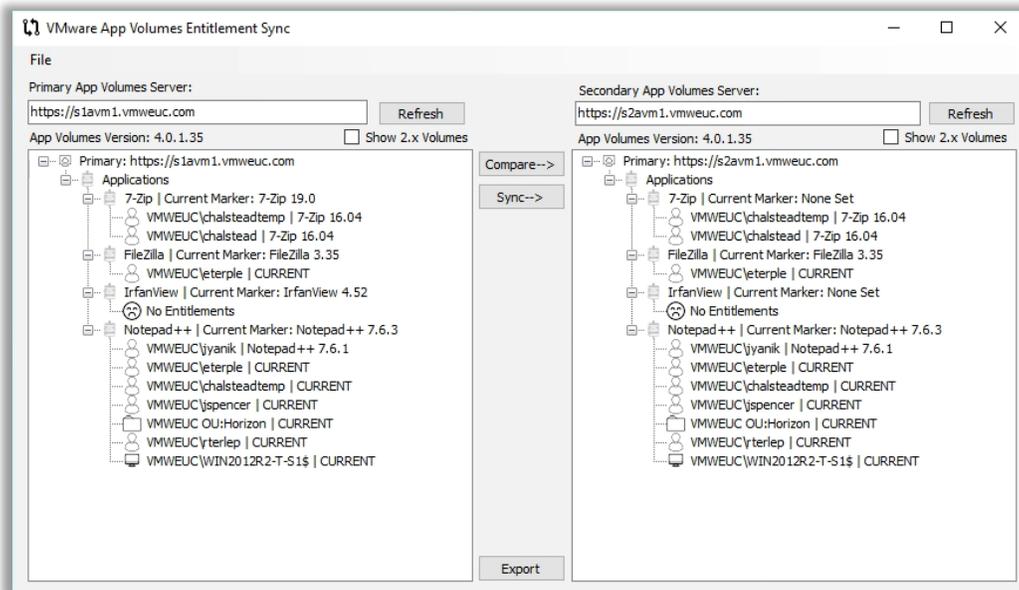
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- You can right-click the empty Application to delete it or use the App Volumes Manager console to do so.



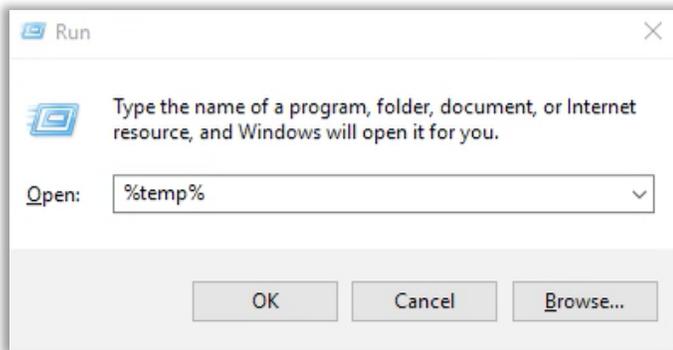
- 
- Select **Sync** to begin syncing entitlements.
- Remember, this is a one-way sync from the primary site to the secondary site. Any entitlements or markers at the secondary site will be deleted or modified to reflect the primary site configuration.



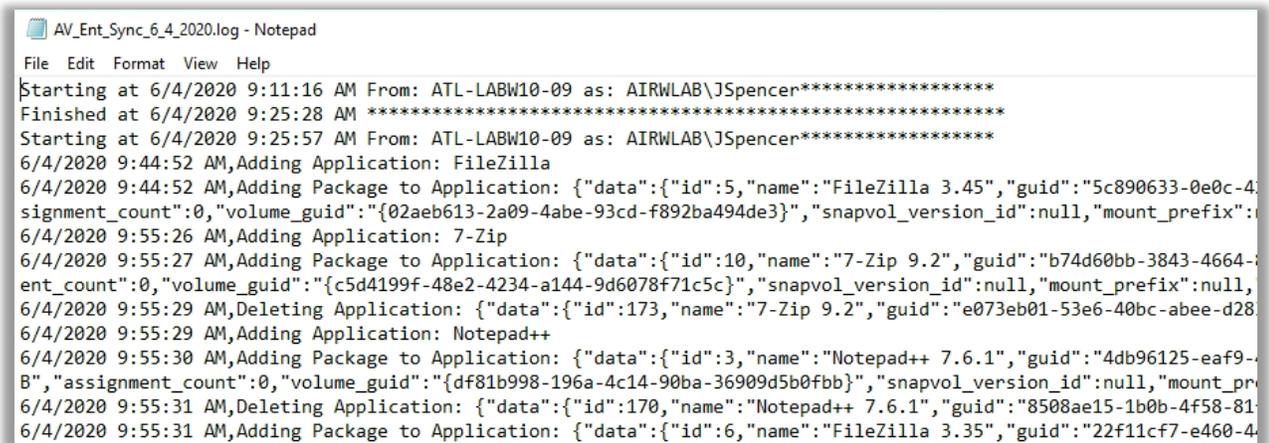
- 
- Select **Yes** when you are ready to proceed.



- 
- When the sync is complete, markers and entitlements at site 2 should match site 1.



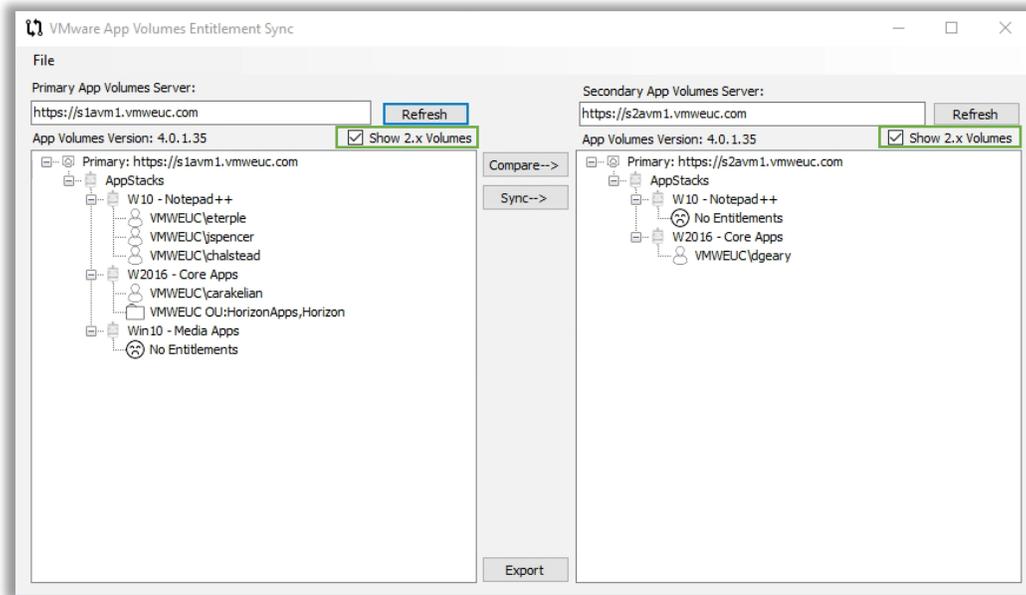
- 
- Click **Start > Run** and type **%temp%**



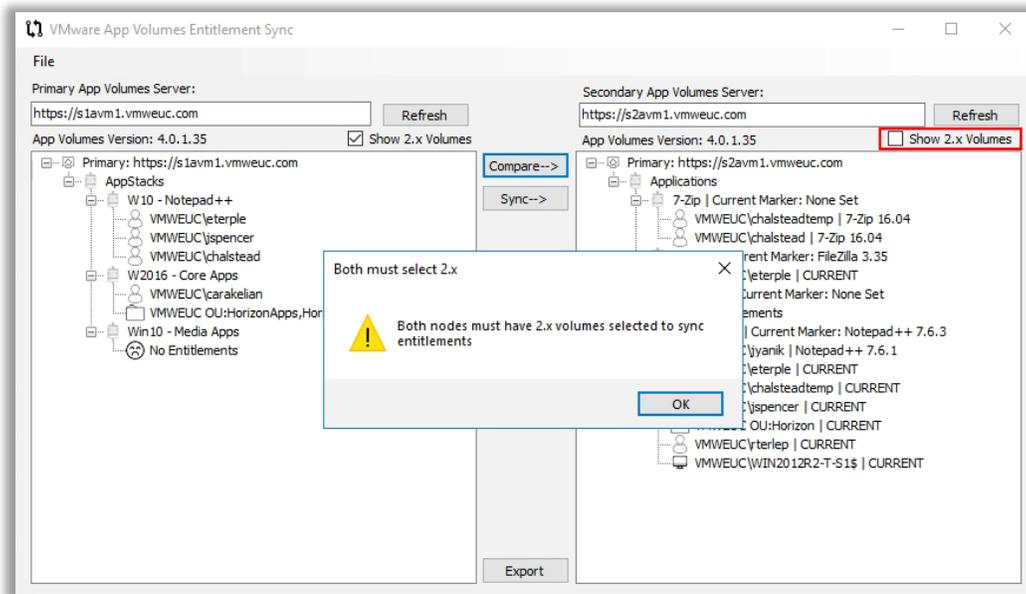
- 
- Open the log file to review changes.

## Syncing 2.18 AppStack Entitlements in Co-Existence Mode

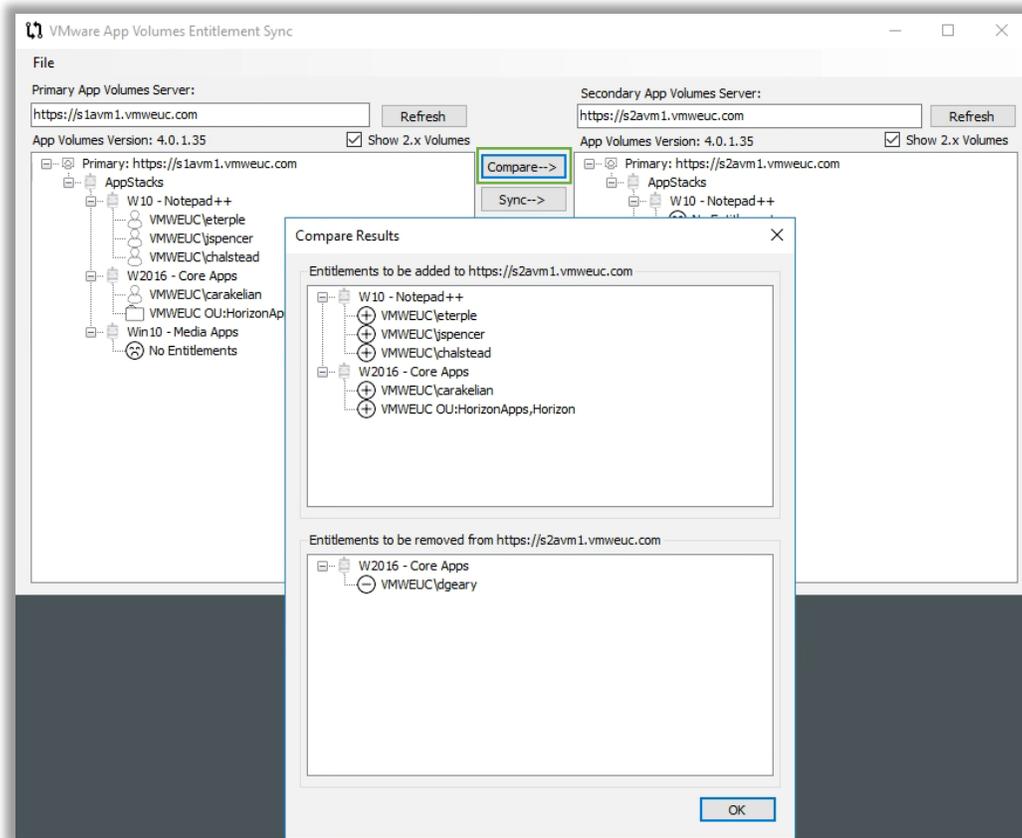
If you are running App Volumes 4 Managers in co-existence mode to maintain v4 Packages and v2.18 AppStacks, you can sync entitlements for both from a single interface. Once you switch to the **2.x Volumes** view, the flow is similar to that found in [Compare AppStack Assignments Between Sites](#). However, the Selective Sync feature is currently not available for App Volumes 4 Managers.



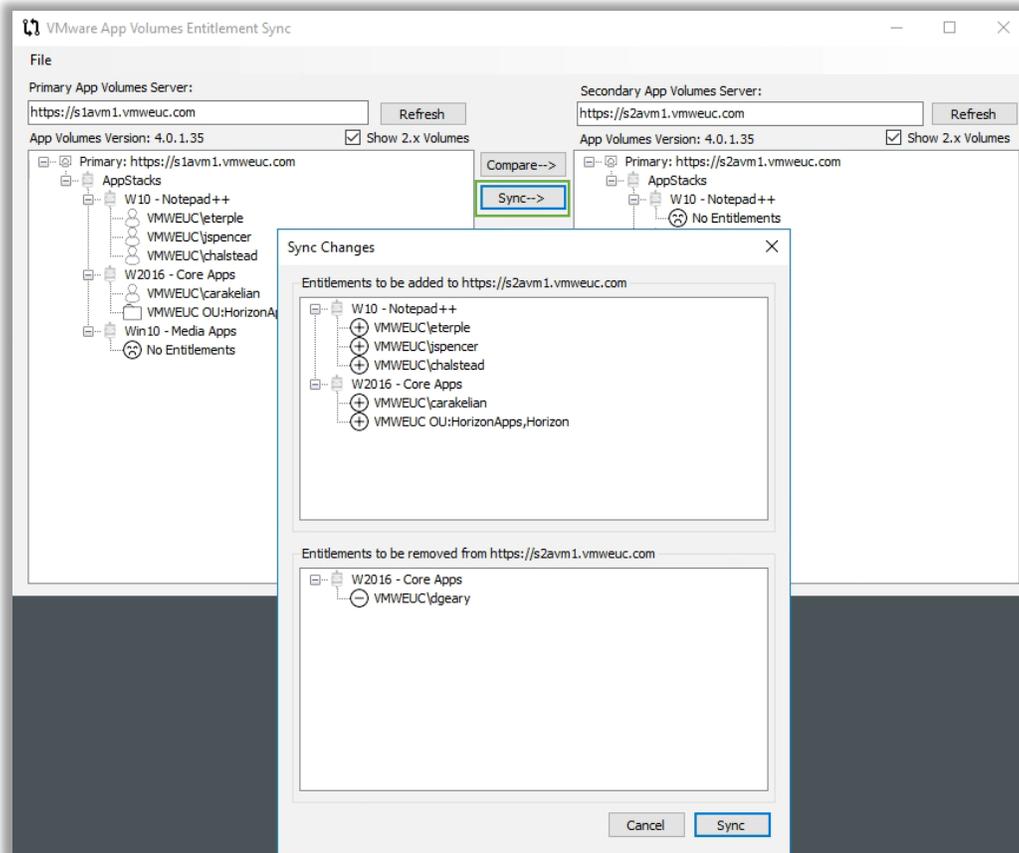
- 
- Select **Show 2.x Volumes** for **both** sites to view AppStacks and their associated entitlements.



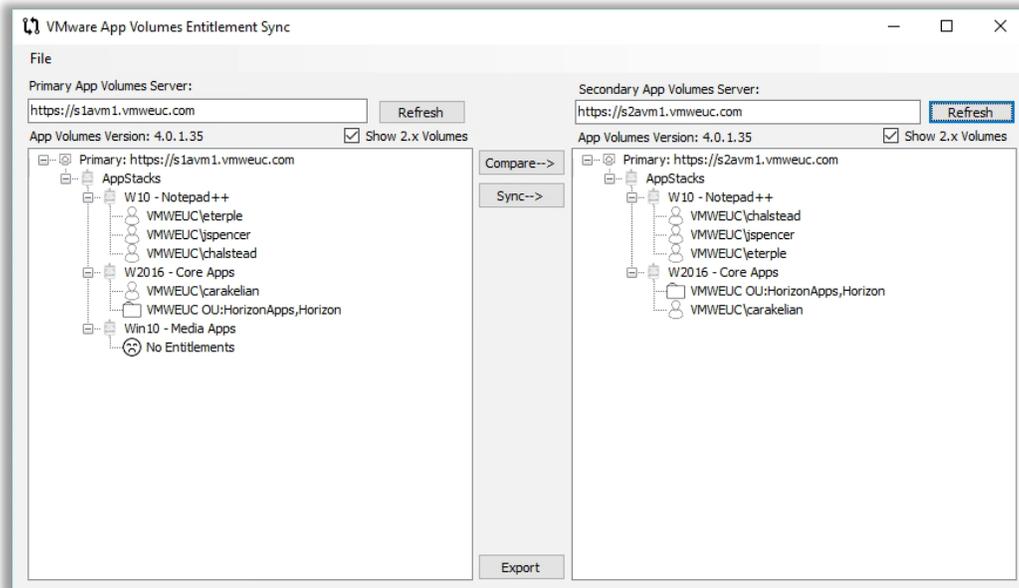
- 
- If you fail to select **Show 2.x Volumes** for both sites, the Compare and Sync operations will not run.



- 
- Select **Compare** to determine inconsistencies in AppStack entitlements between sites.



- 
- Select **Sync** when you are ready to begin updating entitlements at the secondary site.

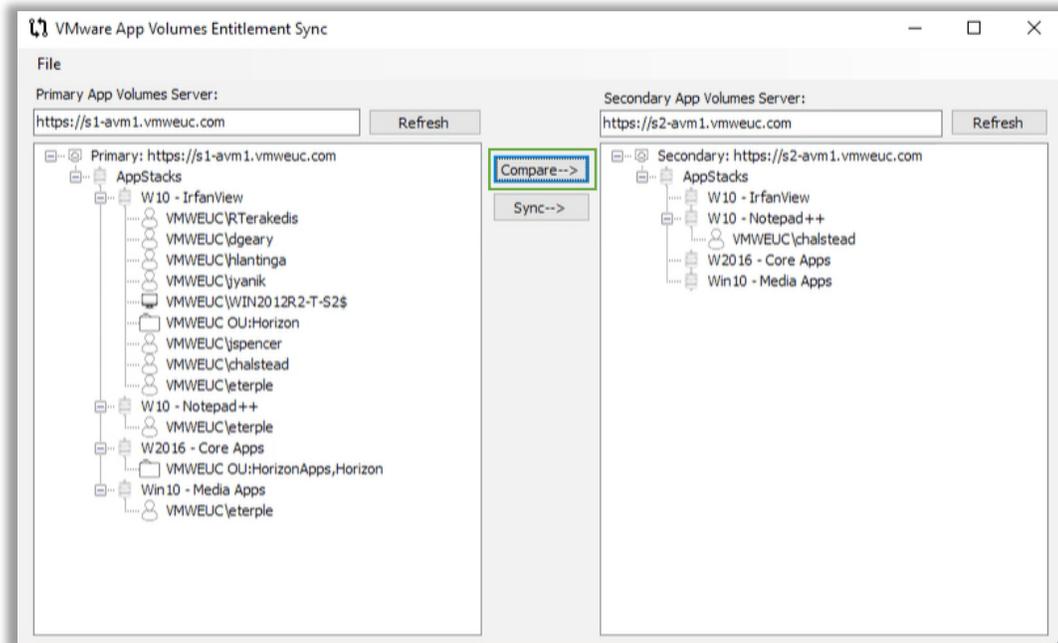


- 
- When the sync is complete AppStack entitlements on the secondary site should match entitlements on the primary site.

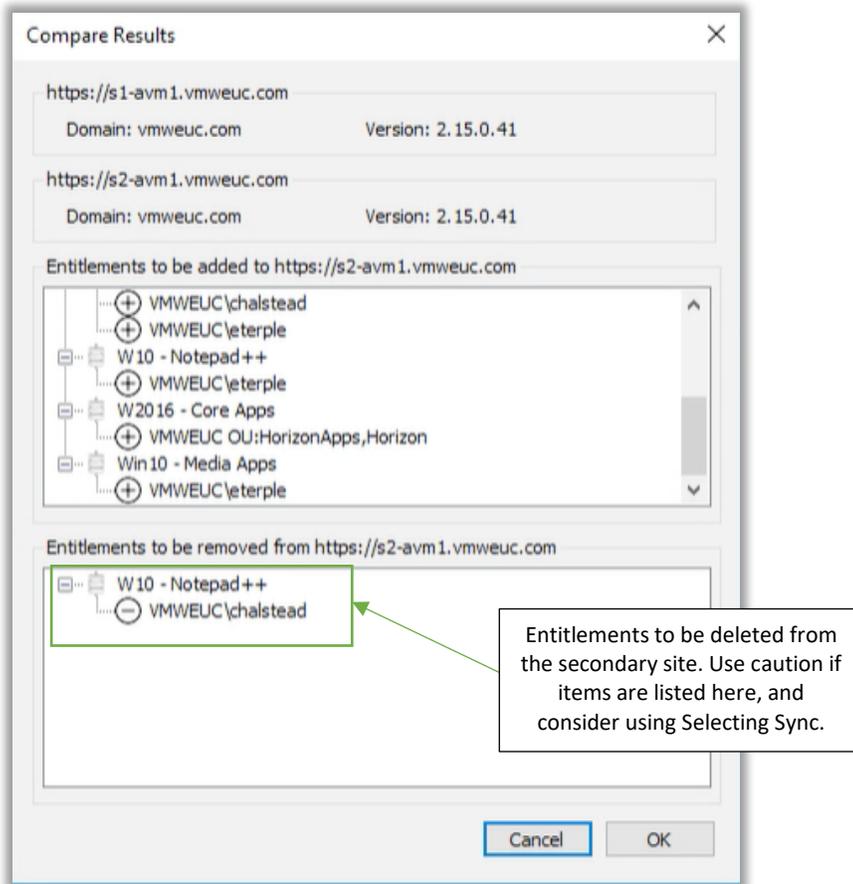
## Sync AppStack Assignments using Selective Sync

In this case, an App Volumes admin at site 1 has entitled **eterple** to the **W10 – Notepad++** AppStack, and an App Volumes admin at site 2 has entitled **chalstead** to the **W10 – Notepad++** AppStack.

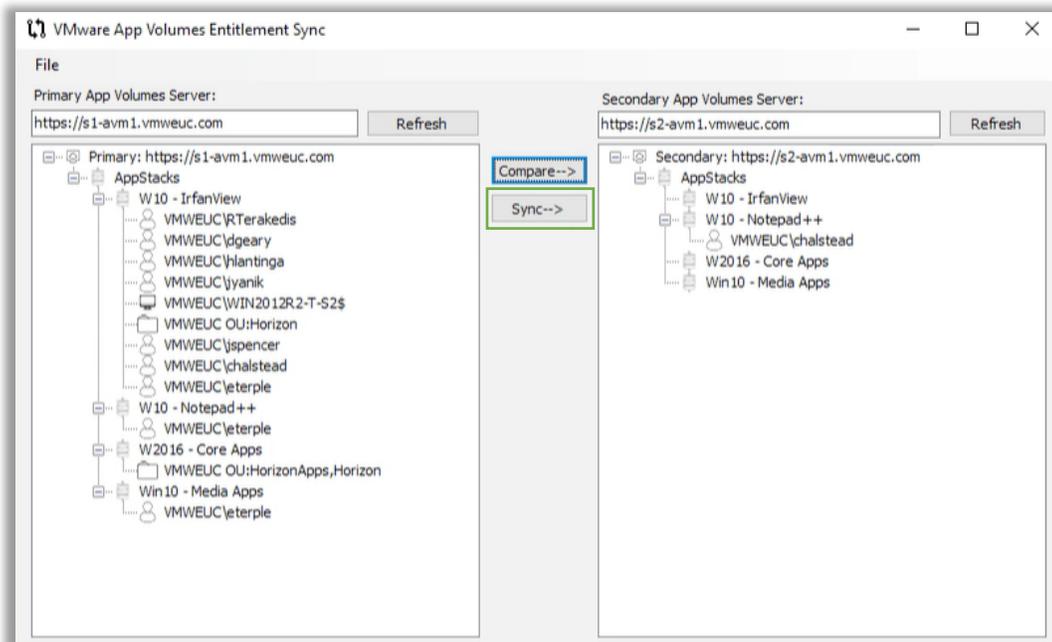
The goal of this exercise is to replicate the site 1 entitlements (eterple) while preserving the site 2 entitlements (chalstead).



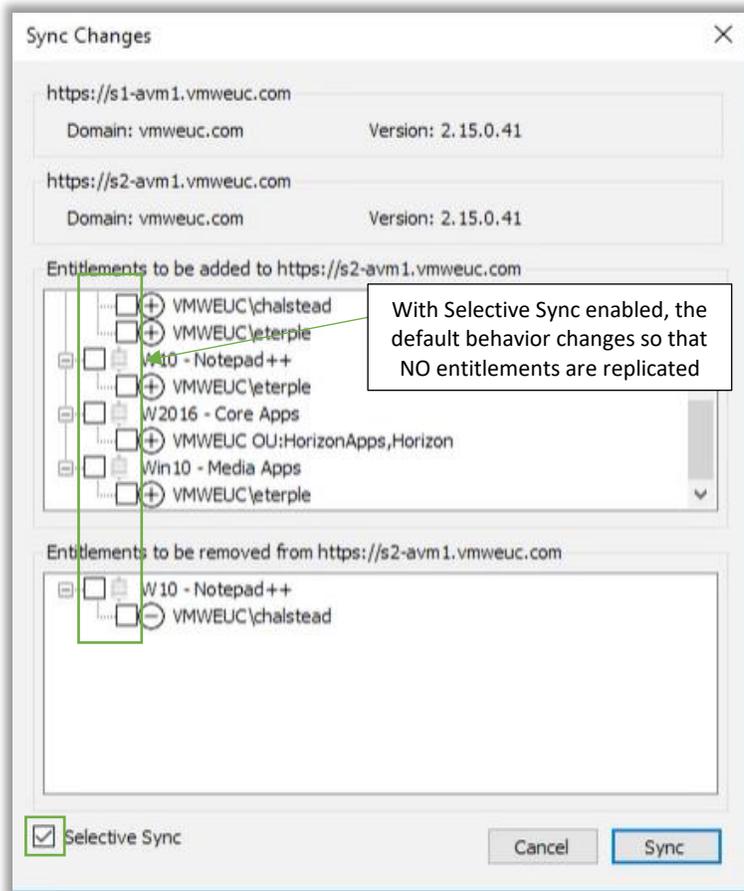
- 
- Select **Compare**.



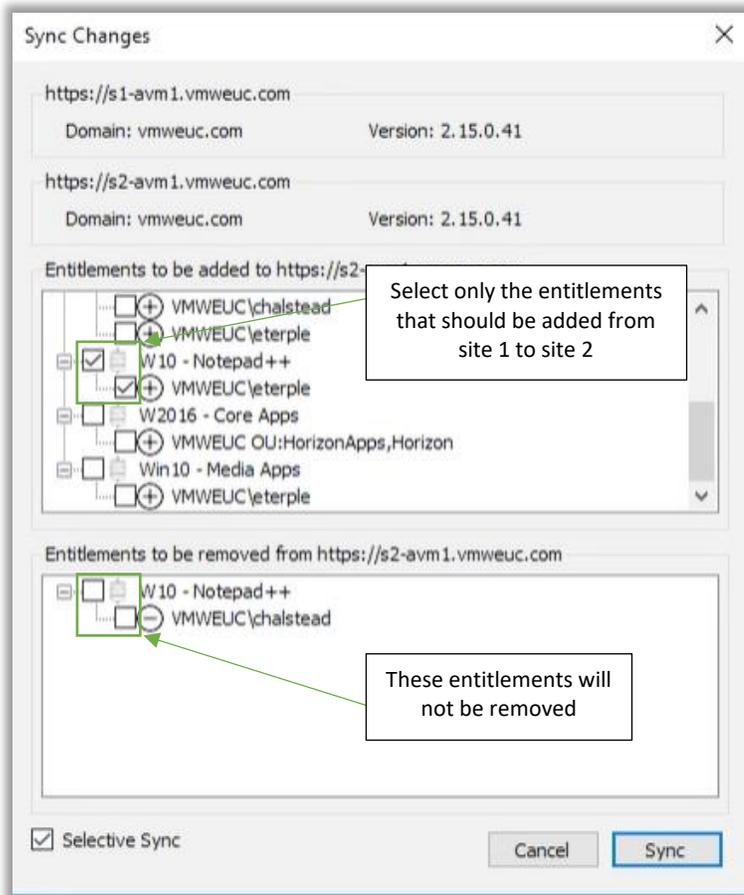
- 
- The default behavior is to replicate several entitlements from the primary to the secondary site. In addition, one entitlement will be removed from the secondary site.



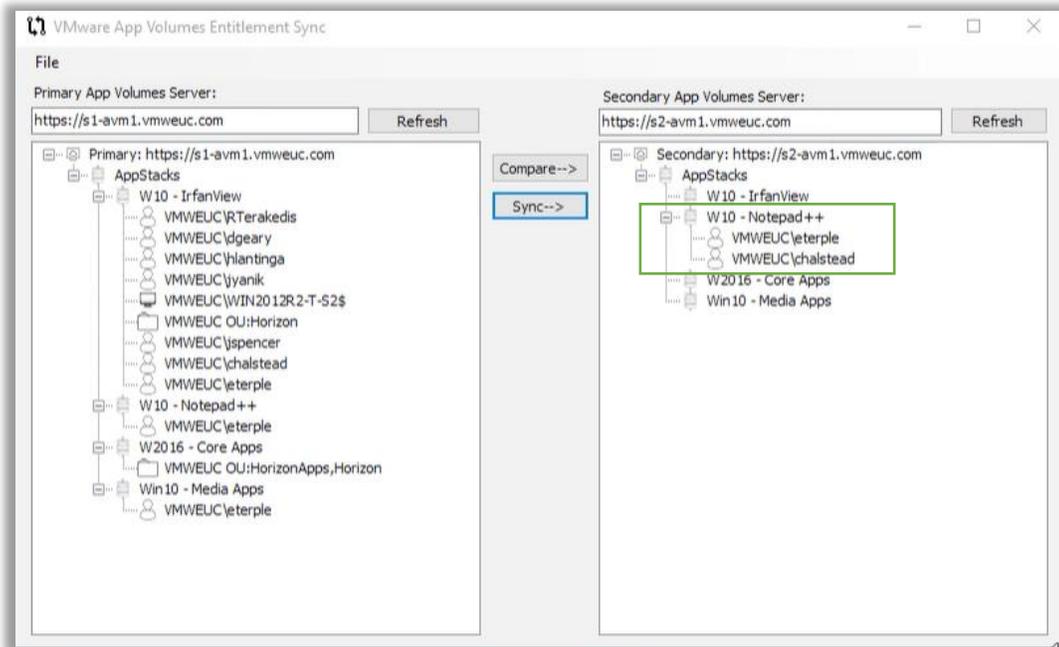
- 
- Select **Sync**.



- 
- Check the box for **Selective Sync**.



- 
- Select the entitlements to be added to the secondary site.
- To preserve the independent AppStack assignment at site 2, leave the Entitlements to be removed boxes cleared.
- Select **Sync** and complete the sync process.

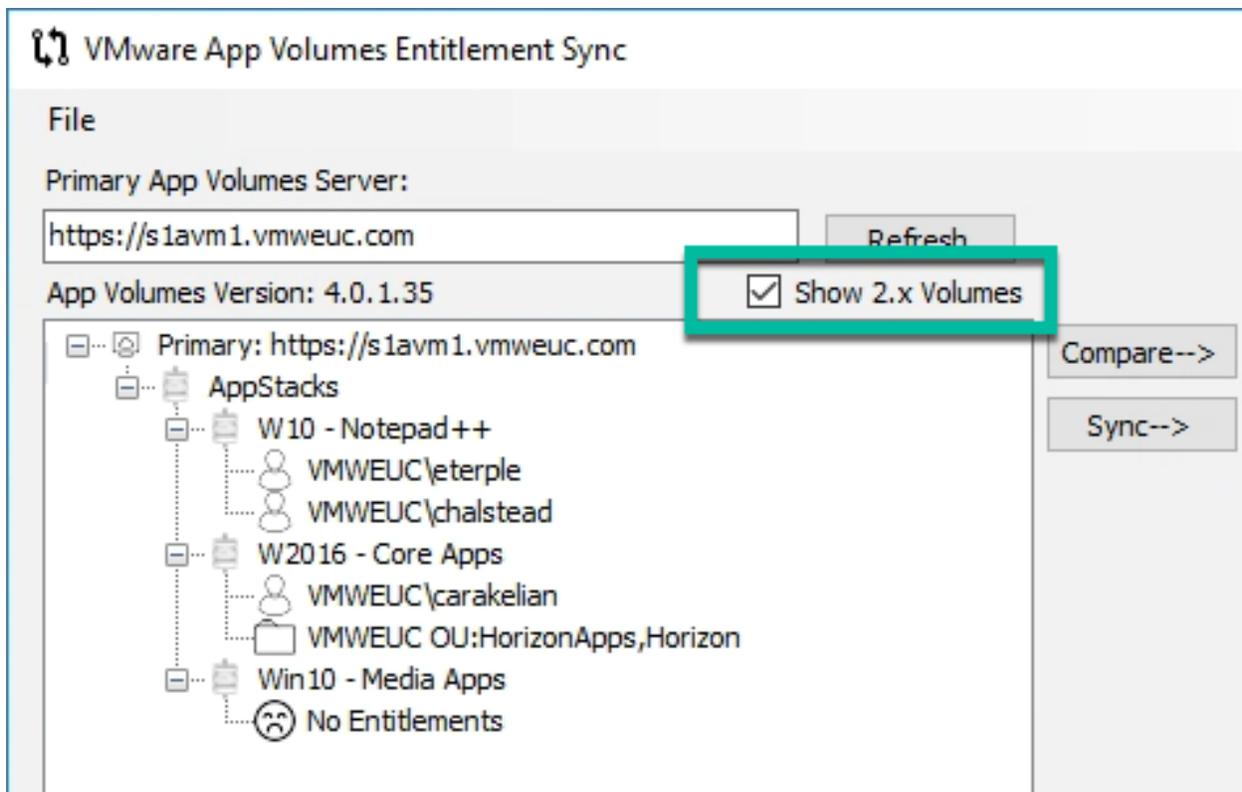


• The user entitlement for **eterple** was added to the secondary site, and the entitlement for **chalstead** was preserved.

## Sync AppStack or Package Assignments using Selective Sync

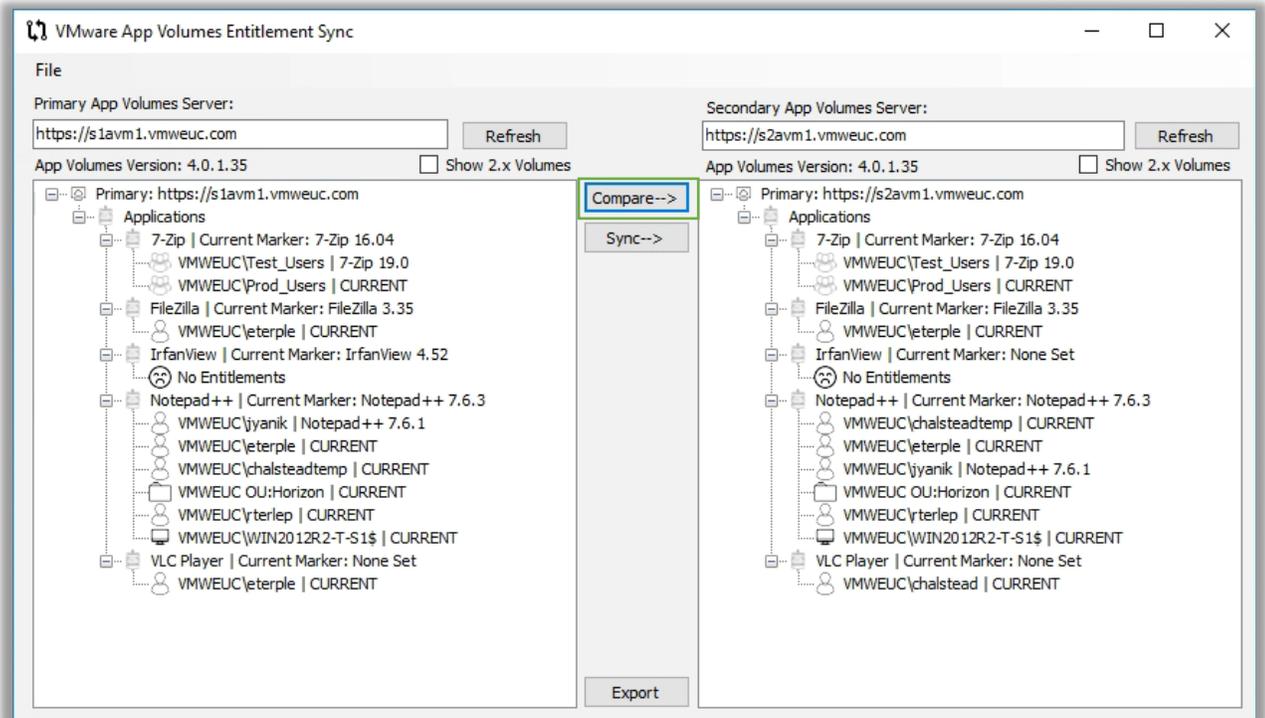
While the default behavior of the Entitlement Sync Tool is to sync assignments from the primary site to the secondary site, the Selective Sync feature provides granular control over which assignments are added and removed in the secondary site. This capability is useful for customers who want to entitle some AppStacks or Packages independently at each site.

Selective Sync works for both AppStacks and Packages. The following example using App Volumes 4 Packages, but works the same way by simply selecting the **Show 2.x Volumes** option.

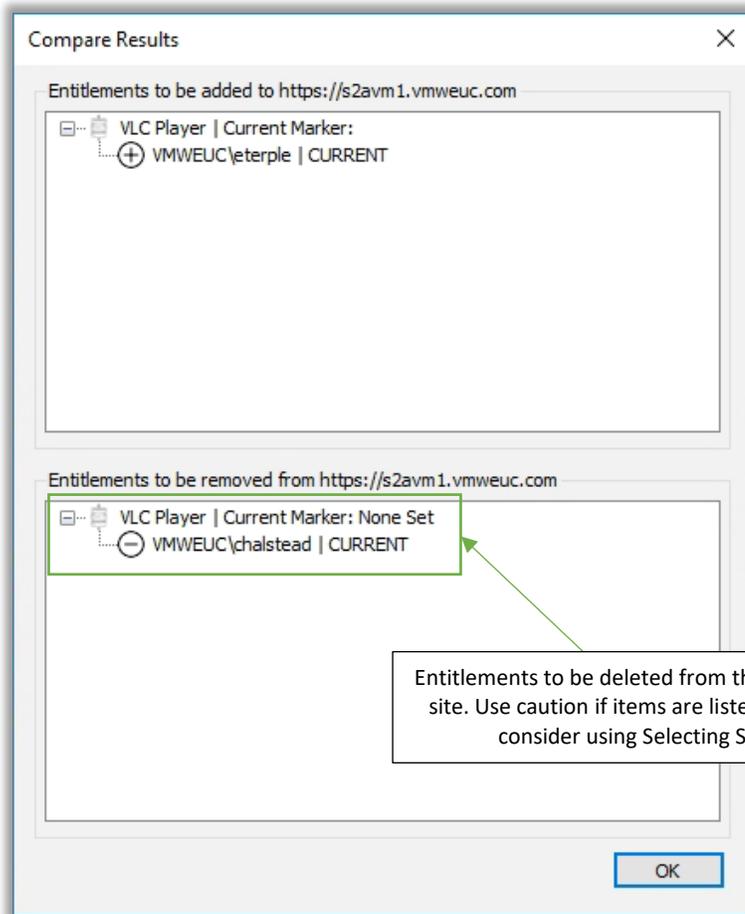


In this example, an App Volumes admin at site 1 has entitled **eterple** to the **VLC Player** Package, and an App Volumes admin at site 2 has entitled **chalstead** to the **VLC Player** Package.

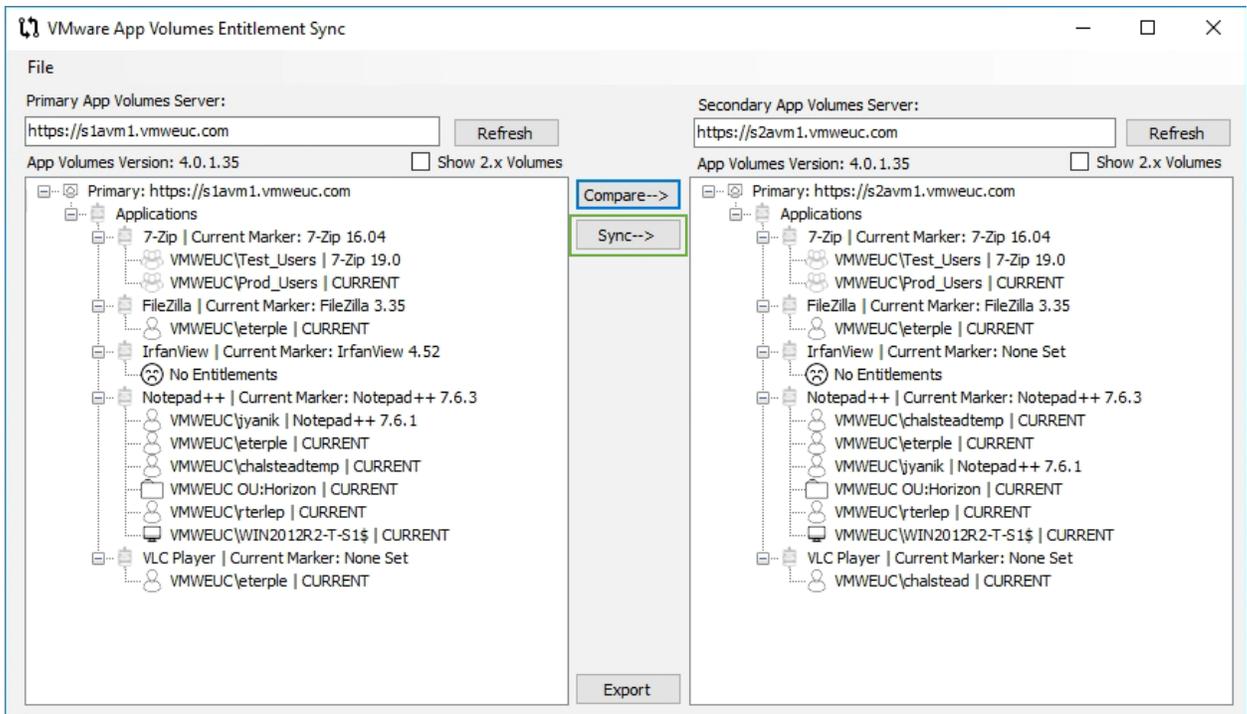
The goal of this exercise is to replicate the site 1 entitlements (eterple) while preserving the site 2 entitlements (chalstead).



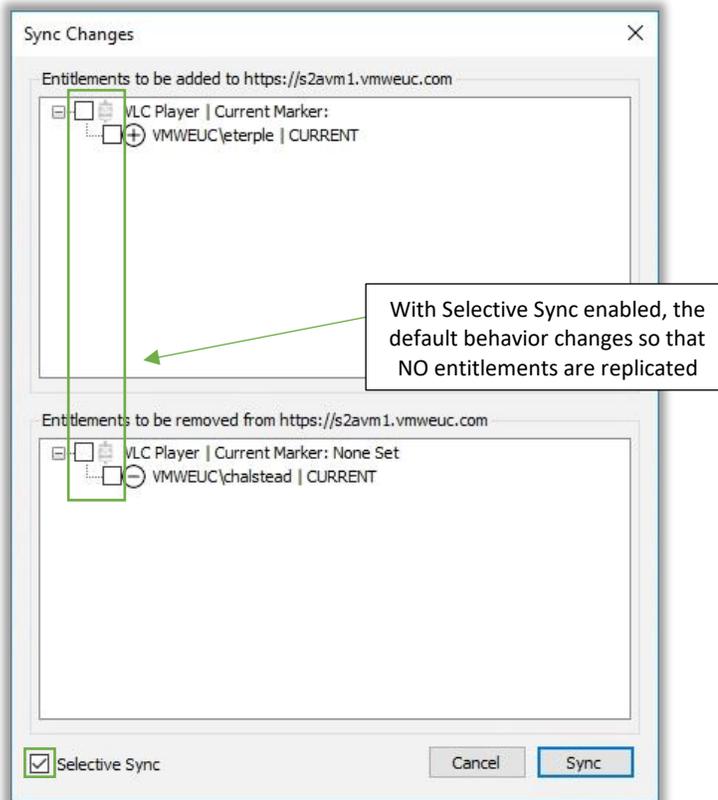
- 
- Select **Compare**.



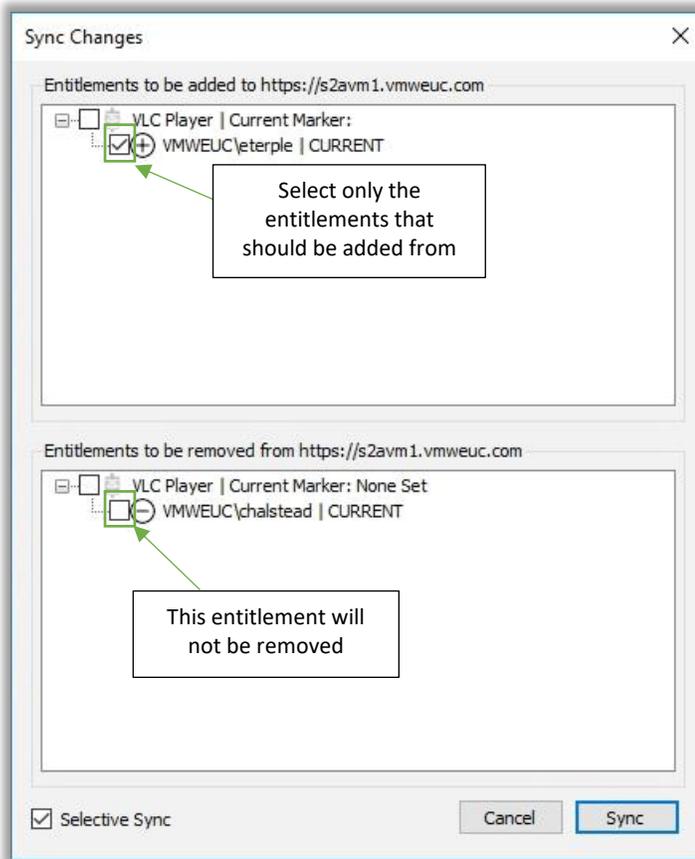
- 
- The default behavior is to replicate the eterple assignment from the primary to the secondary site. In addition, the chalstead entitlement will be removed from the secondary site.



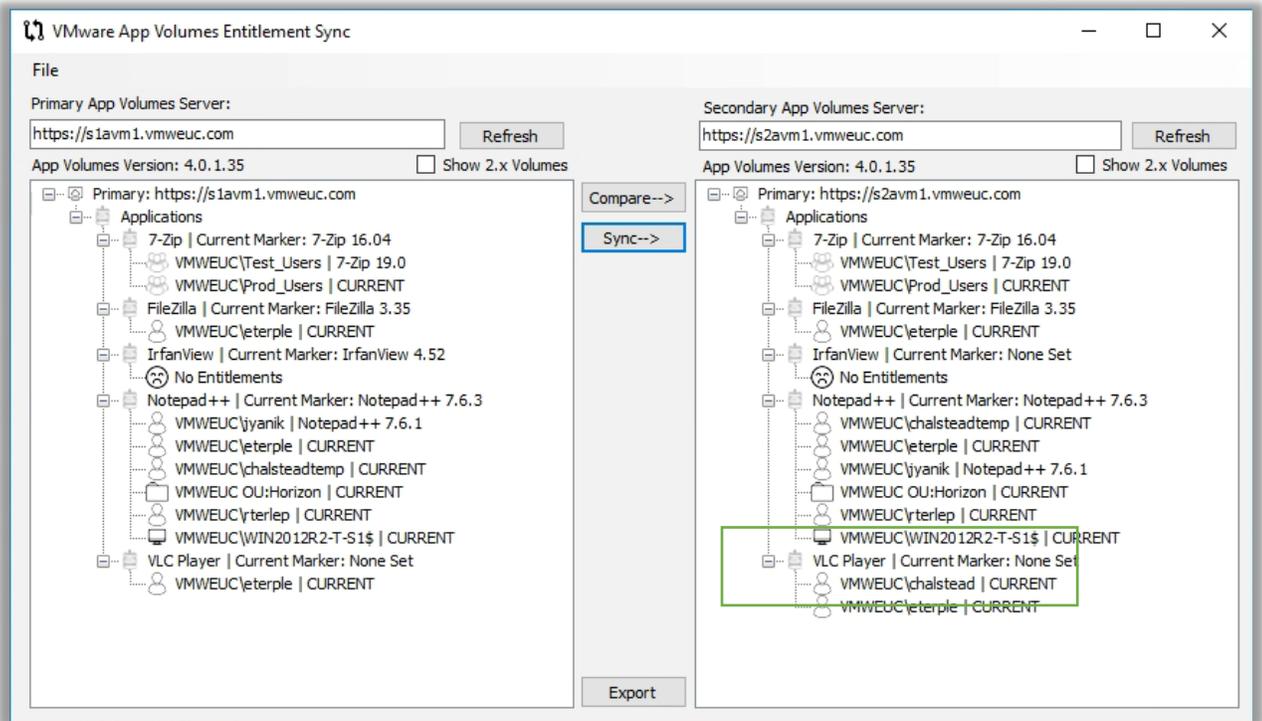
- 
- Select **Sync**.



- 
- Check the box for **Selective Sync**.



- 
- Select the entitlements to be added to the secondary site.
- To preserve the independent Package assignment at site 2, leave the Entitlements to be removed boxes cleared.
- Select **Sync** and complete the sync process.



The user entitlement for **eterple** was added to the secondary site, and the entitlement for **chalstead** was preserved.