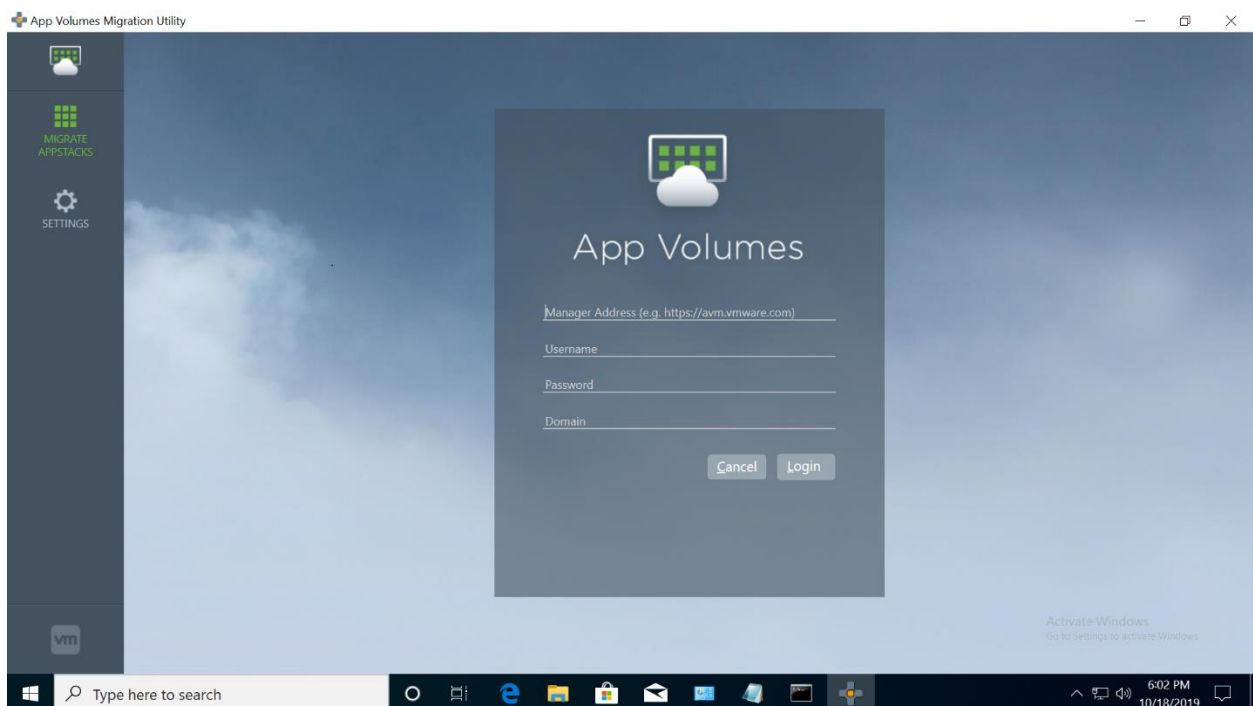


App Volumes Migration Utility

Appstack Migration:

App Volumes Migration Utility helps to migrate appstacks that are provisioned in 2.x environments to be deployed in 4.x App Volumes. This should be installed on a VM having access to the datastore having the appstacks to be migrated. Currently migration of VMDK based appstacks is only supported.

When the utility is started (needs admin access), it prompts to save appstacks storage location and the migration destination format in the settings page. Migration format can be VHD, VMDK or can be both but user needs to provide at least one of the format.

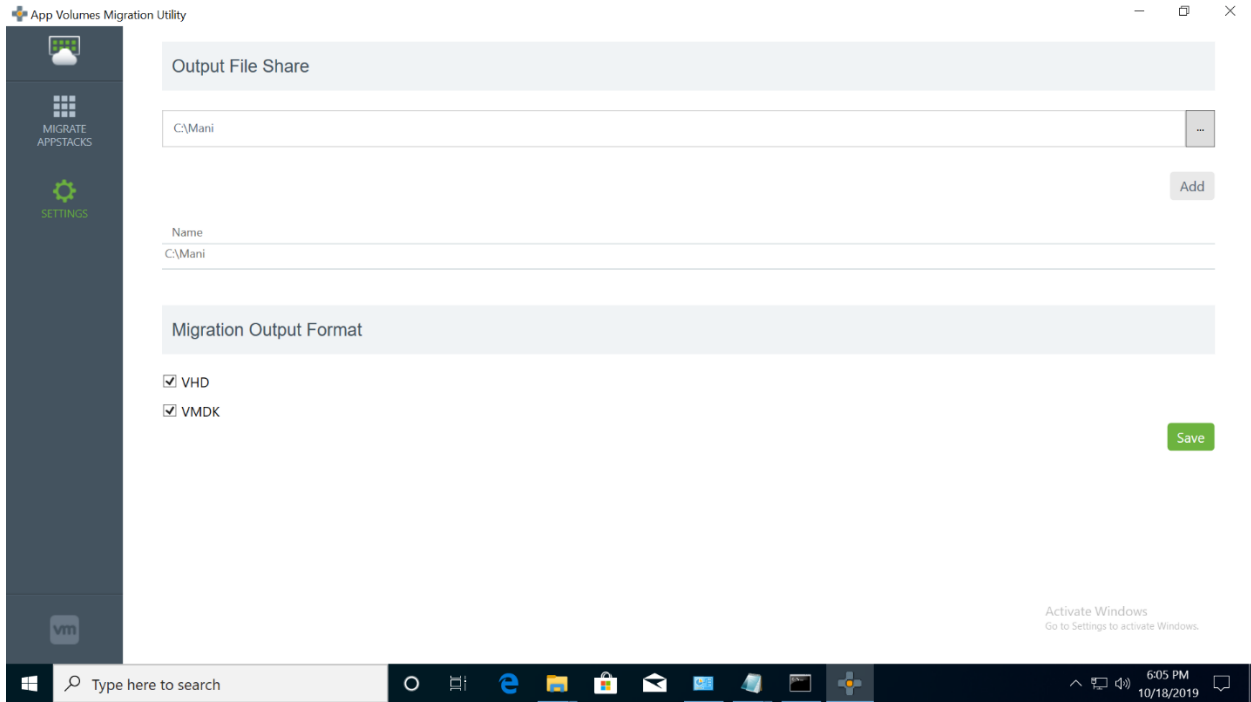


User should login to the App Volumes Manager server using the credentials that's generally used to login to the server via web browser. If https is used for communicating with AVM, self-signed certificate should be imported from AVM to the machine having the migration utility installed.

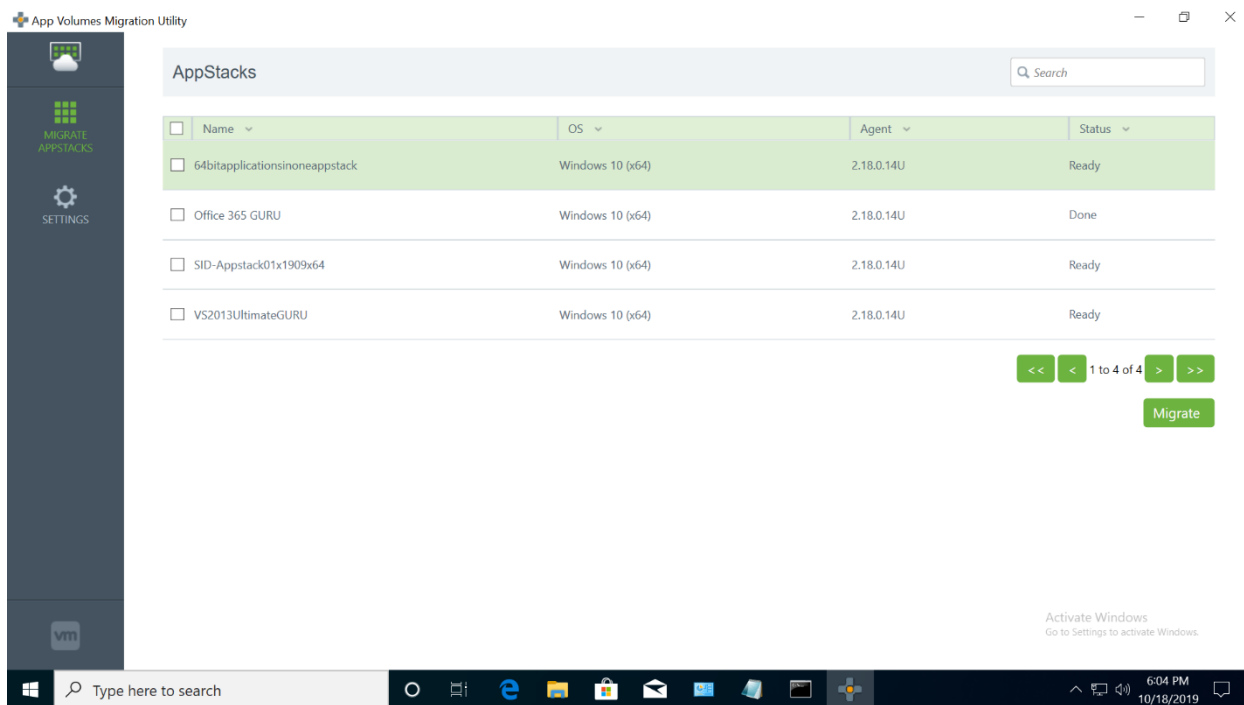
Procedure to import the self-signed certificate from AVM

- 1 Copy the self-signed certificate from [C:\Program Files (x86)\CloudVolumes\Manager\nginx\conf\appvol_self_vmware.com.crt] to the computer where the migration utility is installed.
- 2 Import the self-signed certificate to the computer where the migration utility is installed.
 - a On the computer, start MMC (mmc.exe).

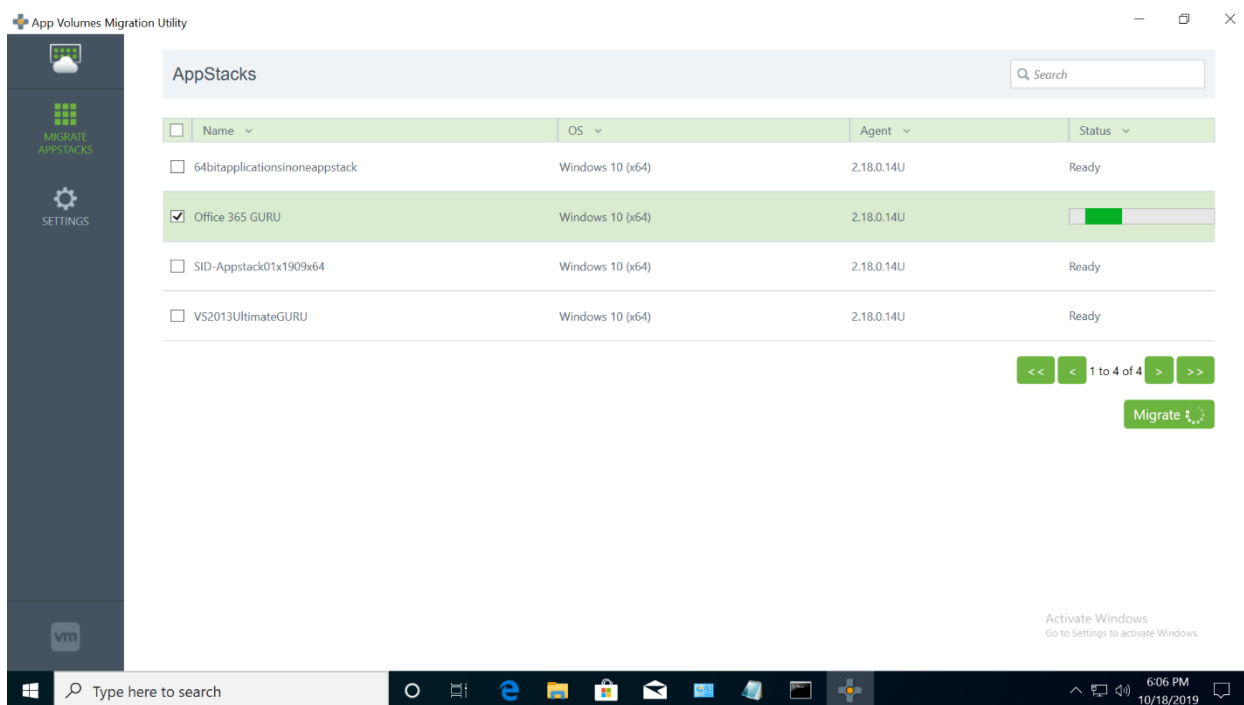
- b Add the Certificates snap-in for the computer account and manage certificates for the local computer.
- c Import the self-signed certificate into Trusted Root Certification Authorities > Certificates.



The utility then lists the 2.x appstacks that are accessible to that AVM server, if there are more appstacks than that can be accommodated in a single page, appstacks would be accommodated across multiple pages.



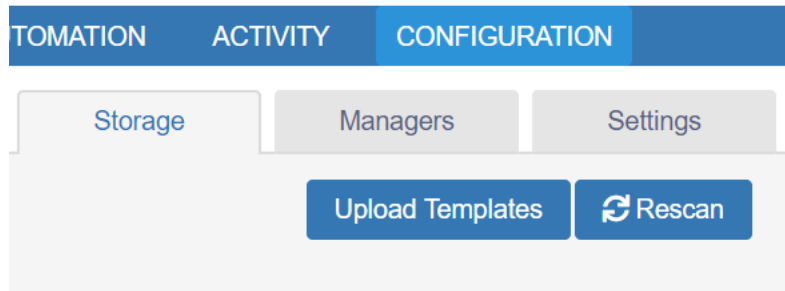
User could select one or more appstacks for migration. Once an appstack is submitted for migration, the utility will show that migration is in progress and will report back the status of migration.



Once migration is successful, migration utility generates .json, .VMDK and/or .VHD files based on the migration format chosen in the settings page. Migrated appstack is available in the VMDK / VHD file.

Importing Appstacks to AV 4.0:

In order to import appstacks to the AV 4.0 server, user needs to copy the .VMDK and .json to the ppv\packages folder in the installed location of the AVM sever. Once the files are copied, user needs to logon to AV 4.0 using a browser and select "Upload Templates" (available in Configuration -> Storage tabs)



Once the upload is completed, user should see the migrated appstacks in the Application Tab of the AV 4.0. Now this appstack can be used in AV 4.0 environment.

FAQs:

- Would each application in a single 2.x appstack be migrated as separate appbundle in 4.x appstack?

No, all the applications in a 2.x appstack will be migrated as one appbundle in 4.x appstack.

- Would this utility migrate 2.x based VHD appstacks?

Migration of 2.x VHD based appstacks are not supported.

- What happens to the custom scripts in 2.x appstack?

All the scripts in the 2.x appstack are migrated to a folder named "Backup" in the migrated 4.x appstack.

- Can appstack and writable migration be executed in parallel?

No, appstack and writable migration cannot be executed in parallel.

- Where can I find the log files?

"C:\ProgramData\VMware\AppCapture\logs*.log"

"C:\ProgramData\VMware\AppCapture\AppCaptureGUI\AppCapture Client.log"

Writable Migration:

App Volumes Migration Utility helps to migrate user writable volumes that were deployed in 2.x environments so that they can be deployed in 4.x App Volumes. This should be installed on a VM having access to the datastore having the writable volumes to be migrated. Currently migration of VMDK based writable volumes is only supported.

Please note that for using this utility App Volumes Manager should be on a specific version, the supported versions are 4.5.4, 4.6.1, 4.7 (or above).

User needs to invoke a list of PowerShell cmdlets after importing the PowerShell module using (PowershellV2 required, **Note:** Windows Powershell (x86) is the only supported option)

Import-Module C:\Program Files (x86)\VMware\AppCapture\VMware.Writable.dll
VMware.AppMigrate.dll

Writable Migration PowerShell cmdlets:

The cmdlets for performing writable migration

```
PS C:\Users\Administrator> Get-Command -Module VMware.Writable
```

CommandType	Name	Version	Source
Cmdlet	Connect-AVServer	1.0.0.0	VMware.Writable
Cmdlet	Copy-AVWritable	1.0.0.0	VMware.Writable
Cmdlet	Disconnect-AVServer	1.0.0.0	VMware.Writable
Cmdlet	Get-AVWritableObj	1.0.0.0	VMware.Writable
Cmdlet	Invoke-AVWritableMigrate	1.0.0.0	VMware.Writable
Cmdlet	Show-AVWritables	1.0.0.0	VMware.Writable

The Connect-AVServer and Disconnect-AVServer cmdlets are used for authenticating to App Volumes server.

The Show-AVWritables cmdlet can be used to identify the set of writables to be migrated.

Use Get-AVWritableObj cmdlet to pick any writable which you wish to migrate.

To perform a migration two steps are needed.

Copy-AVWritable – this cmdlet does a copy of the writable from 2x to 4x, post this step the writable will be visible in 4X writable list (not usable yet)

Invoke-AVWritableMigrate – the cmdlet does the actual migration of the writable data content.

Post this step the writable is enabled and available for 4x users.

Connect-AVServer:

This cmdlet opens a session to the specified AVM server. Length of the session depends on the session timeout on the AVM server.

Arguments:

- name : AVM server name or IP
- domain : Domain Name
- user : Username
- password : Password

Example:

```
PS C:\Users\Administrator> Connect-AVServer -Server http://172.16.15.163 -User administrator -Domain origami-ad  
cmdlet Connect-AVServer at command pipeline position 1  
Supply values for the following parameters:  
(Type !? for Help.)  
Password: *****
```

If https is used for communicating with AVM, self-signed certificate should be imported from AVM to the machine having the migration utility installed.

Procedure to import the self-signed certificate from AVM

- 1 Copy the self-signed certificate from [C:\Program Files (x86)\CloudVolumes\Manager\nginx\conf\appvol_self_vmware.com.crt] to the computer where the migration utility is installed.
- 2 Import the self-signed certificate to the computer where the migration utility is installed.
 - a On the computer, start MMC (mmc.exe).
 - b Add the Certificates snap-in for the computer account and manage certificates for the local computer.
 - c Import the self-signed certificate into Trusted Root Certification Authorities > Certificates.

List-AVWritables

This cmdlet lists the writable volumes from the AVM server connected to.

Arguments:

- cloned : To list all cloned writable volumes.
- new : To list all writable volumes which are not migrated.
- all : To list all writable volumes.

Example:

```
PS C:\Users\Administrator> Show-AVWritables -all
```

Writable Name	Path	Datastore	Status	Type
ORIGAMI-AD\Administrator	cloudvolumes/writable	datastore1		User
ORIGAMI-AD\testuser4	cloudvolumes/writable	datastore1		User
ORIGAMI-AD\testuser5	cloudvolumes/writable	datastore1		User
ORIGAMI-AD\testuser3	cloudvolumes/writable	datastore1		User
ORIGAMI-AD\testuser2	cloudvolumes/writable	datastore1		User
ORIGAMI-AD\testuser1	cloudvolumes/writable	datastore1		User

Get-AVWritableObj

This cmdlet gets the writable status of the specified writable volume.

Arguments:

- ownername : Owner name of the interested writable volume.
- ownertype : Owner type of the interested writable volume.
- statusonly : Retrieves only the status

Example:

```
PS C:\Users\Administrator> Get-AVWritableObj -name testuser1 -type user
```

```
Name           : ORIGAMI-AD\testuser1
ID             : 6
Path           : cloudvolumes/writable
Filename       : ORIGAMI-AD!5C!testuser1.vmdk
DatastoreName  : datastore1
Created        : Jul 13 2022
Os             :
AgentVersion   :
AssignStatus   : enabled
OwnerType      : User
Writable_migration_blob :
IsUpdated      : False
volumeType     : eWritable
Selected       : False
Status         : Loading
Compatible     : True
volume_guid    : {da916669-5790-4790-97f0-19a7013e37b6}
IsBusy        : False
```

Copy-AVWritable

This cmdlet clones the specified writable volume from 2x to 4x datastore storage

Arguments:

- OWritable(writable object) : Writable object to be pipelined to this cmdlet. This is passed on by pipelining the cmdlet Get-AVWritableObj with this cmdlet.

Example:

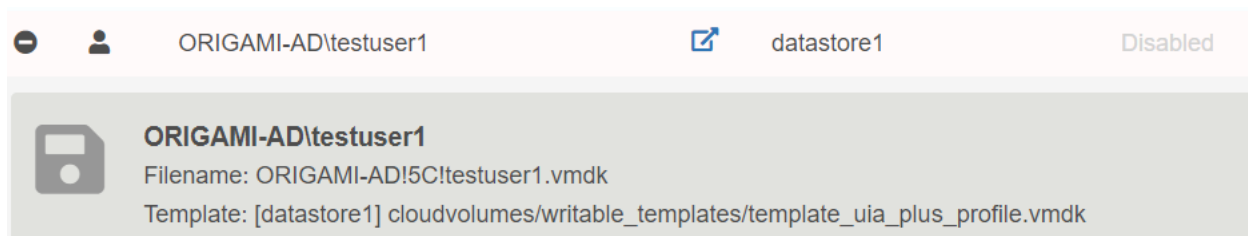
```
PS C:\Users\Administrator> Get-AVWritableObj -name testuser1 -type user | Copy-AVWritable
Copy Writable Triggered
```

The following example shows the results of Get-AVWritableObj after copy is triggered.

```
PS C:\Users\Administrator> Get-AVWritableObj -name testuser1 -type user

Name           : ORIGAMI-AD\testuser1
ID             : 6
Path           : cloudvolumes/writable
Filename       : ORIGAMI-AD!5C!testuser1.vmdk
DatastoreName  : datastore1
Created        : Jul 13 2022
Os             :
AgentVersion   :
AssignStatus   : disabled
OwnerType      : User
Writable_migration_blob : {
    "id": 1,
    "writable_id": 6,
    "migrated_writable_id": 7,
    "status": "imported",
    "message": null,
    "created_at": "2022-07-13 13:26:13 UTC",
    "updated_at": "2022-07-13 13:26:22 UTC"
}
IsUpdated      : False
VolumeType     : eWritable
Selected       : False
Status         : Loading
Compatible     : True
Volume_guid    : {da916669-5790-4790-97f0-19a7013e37b6}
IsBusy        : False
```

The following example shows that the corresponding 2.x writable is disabled during this stage.



This example shows the usage of -Statusonly option of Get-AVWritableObj

```
PS C:\Users\Administrator> Get-AVWritableObj -name testuser1 -type user -Statusonly
imported
```


Invoke-AVWritableMigrate:

This cmdlet migrates the specified writable volume.

Arguments:

-OWritable : Writable object to be pipelined to this cmdlet. This is passed on by pipelining the cmdlet Get-AVWritableObj with this cmdlet.

Example:

This cmdlet needs to be executed on x86 version of powershell, otherwise the following error is thrown.

```
PS C:\Users\Administrator> Get-AVWritableObj -name testuser1 -type user | Invoke-AVWritableMigrate
The cmdlet needs x86 Version of powershell.exe
Please execute this cmdlet from Windows PowerShell (x86).exe
```

This is an example of the Invoke-AVWritableMigrate cmdlet.

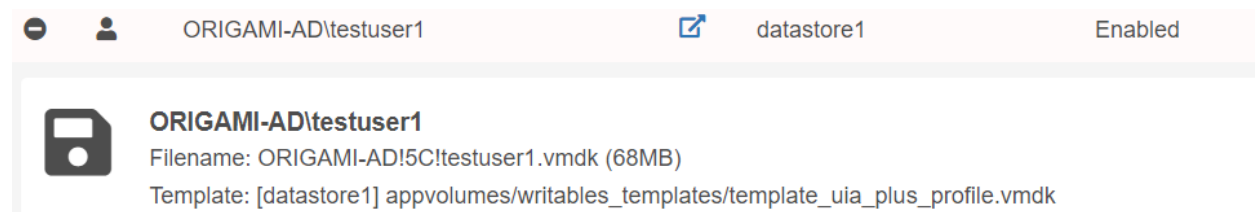
```
PS C:\Users\Administrator> Get-AVWritableObj -name testuser1 -type user | Invoke-AVWritableMigrate
INFO : Not proceeding to calculate size as requested.
MIG : updating the template.
MIG : creating folder structure.
MIG : updating template files.
MIG : generating YML (disk copy).
MIG : open template YML
MIG : write new disk YML
MIG : migrating file system.
MIG : migrating registry
INFO : snapvol.dat missing in source or is already migrated
MIG : creating meta database..
```

The following example shows the results of Get-AVWritableObj after migration is completed. Note that Get-AVWritableObj supports domain\username format as well.

```
PS C:\Users\Administrator> Get-AVWritableObj -name origami-ad\testuser1 -type user

Name           : ORIGAMI-AD\testuser1
ID             : 6
Path           : cloudvolumes/writable
Filename       : ORIGAMI-AD!5C!testuser1.vmdk
DatastoreName  : datastore1
Created        : Jul 13 2022
Os             :
AgentVersion   :
AssignStatus   : disabled
OwnerType      : User
Writable_migration_blob : {
    "id": 1,
    "writable_id": 6,
    "migrated_writable_id": 7,
    "status": "complete",
    "message": null,
    "created_at": "2022-07-13 13:26:13 UTC",
    "updated_at": "2022-07-13 13:36:24 UTC"
}
IsUpdated      : False
volumeType     : eWritable
Selected       : False
Status         : Loading
Compatible     : True
volume_guid    : {da916669-5790-4790-97f0-19a7013e37b6}
IsBusy         : False
```

Once migration is completed, the writable will be enabled in 4.x



Disconnect-AVServer:

This cmdlet disconnects from the server that the connect cmdlet connected with.

Arguments:

None

Example:

```
PS C:\Users\Administrator> Disconnect-AVServer
```

Sample Script

#password_store.ps1

#####store the encrypted password into this file

```
New-Item -Path "c:\" -Name "writable" -ItemType "directory"
```

```
Read-Host -AsSecureString | ConvertFrom-SecureString | Out-File 'C:\writable\password.txt'
```

writable_migrate.ps1

#####The following script migrates writables from 2x to 4x.

###The script picks up the writables for which copy has not been initiated.

```
import-module 'C:\Program Files (x86)\VMware\AppCapture\VMware.Writable.dll'
```

#encrypted password showed have been stored at this location.

```
$passwd = Get-Content 'C:\writable\password.txt' | ConvertTo-SecureString
```

```
Connect-AVServer -Server 10.112.158.189 -Domain ORIGAMI-AD -User administrator -Password
```

```
$passwd
```

#picks all writables which have not yet been copied (from 2x) and migrated.

```
$writables= Show-AVWritables -New -PassThru
```

```
foreach ($writable in $writables)
```

```
{
```

```
  #blocks till it is copied
```

```
  Copy-AVWritable -OWritable $writable -Wait
```

```
  Invoke-AVWritableMigrate -OWritable $writable
```

```
}
```

```
Disconnect-AVServer
```

FAQs:

- Where can I find the log files?

"C:\ProgramData\VMware\writable\Logs\writable.powershell.log"

"C:\ProgramData\VMware\AppCapture\AppCaptureGUI\AppCapture Client.log"

- Would this utility migrate 2.x VHD based writable volumes?

Migration of 2.x VHD based writable volumes are not supported.

- Can appstack and writable migration be executed in parallel?

No, appstack and writable migration cannot be executed in parallel.