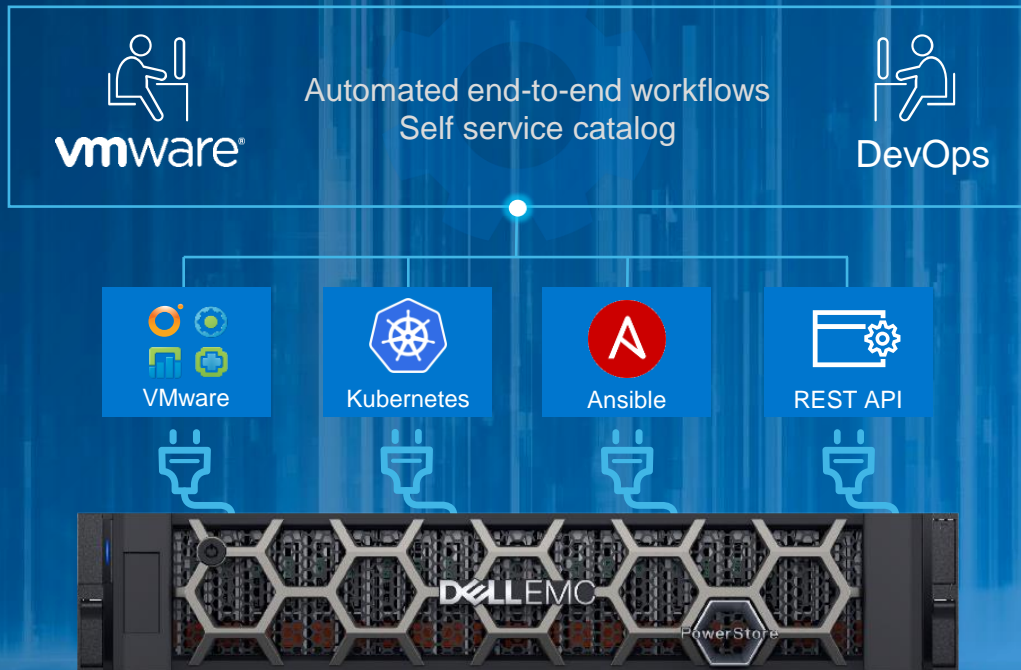


# VMware Module und PowerStore

(VSI DEMO und VRO)

# Programmable infrastructure

Enabling automation and DevOps



Automate storage provisioning processes

Deploy new resources in **seconds** vs days\*

Eliminate manual steps to reduce risk

\*Assumes multiple teams and manual approval process

# Focus

- VSI theory
- VSI demo
- vRO theory

# VSI

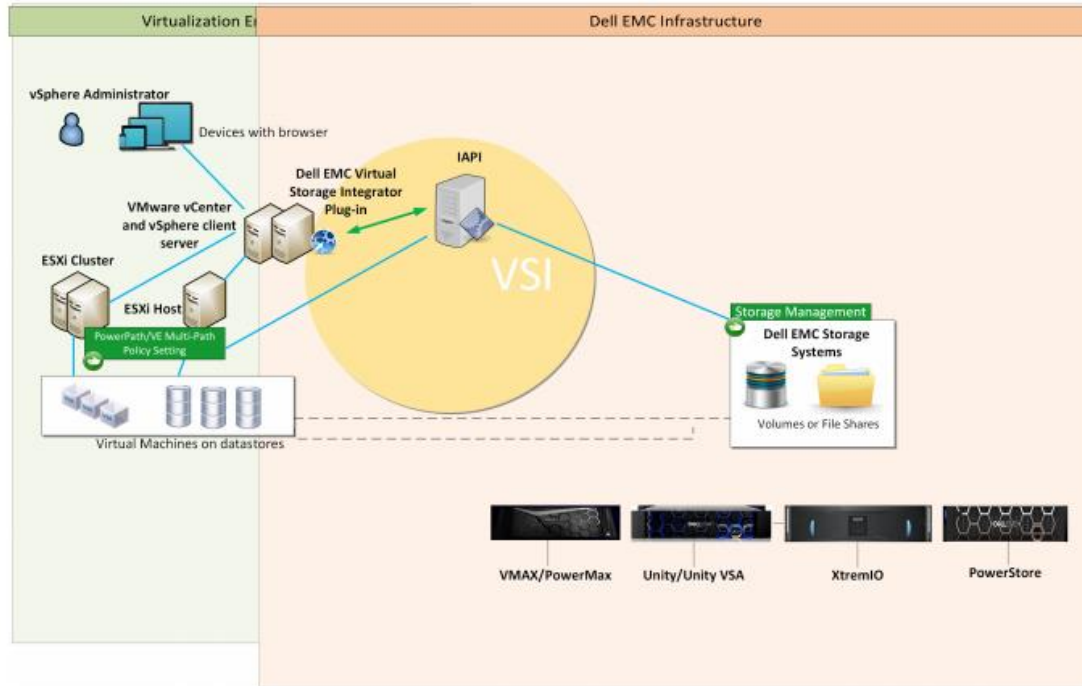
# Overview

- The Dell EMC Virtual Storage Integrator (VSI) for VMware vSphere Client is a plug-in for VMware vCenter that enables administrators to view, provision, and manage datastores on Dell EMC storage systems.
- VSI supports
  - Unity
  - VMAX All Flash
  - PowerMax
  - XtremIO
  - Powerstore

# Overview

- VSI is a virtual appliance and easy to deploy
- Users/User Group Administration
- On demand Space Reclamation on datastores
- Multiple storage systems can be managed in the same appliance

# Overview



# PowerStore

## Supported features

- Storage System Administration
- Storage Access
- VMFS Datastore Administration
- vVol Datastore Administration
- Create RDMs on PowerStore
- View VMFS and RDM Disks on a VM
- Host Best Practices
- Host Connectivity
  - Add hosts in storage registration and storage systems page
  - View host status
  - Remove host
- Snapshot management for VMFS datastores:
  - Policy-based snapshot creation
  - Create snapshot on demand
  - Delete snapshot
  - Edit snapshot
  - View snapshot details in the snapshot page and storage details page
  - Create thin clone of snapshot
- Clone, Refresh and Restore PowerStore
  - Create a thin clone
  - Refresh datastore using datastore
  - Refresh datastore using snapshot
  - Restore datastore
- Appliance selection during provisioning of VMFS datastores and RDM disks
- View appliances in details of datastore and RDM disks



# PowerStore Requirements

- Array is connected to ESXi host using FC/iSCSI
- Host(s) added in Unisphere as host/host group
- A supported Dell EMC PowerStore is installed.

# VSI Demo

# Additional resources

- See [Dell.com/StorageResources](https://www.dell.com/storage/resources) for additional videos and white papers.
  - Dell EMC PowerStore VMware vSphere Best Practices
- See [Dell.com/PowerStoreDocs](https://www.dell.com/powerstore/docs) for user manuals and product documentation.
  - Dell EMC PowerStore Host Configuration Guide

## Other resources

- Dell EMC Virtual Storage Integrator (VSI) for VMware vSphere Client Product Guide

# VMware vRealize Orchestrator Plug-in for PowerStore

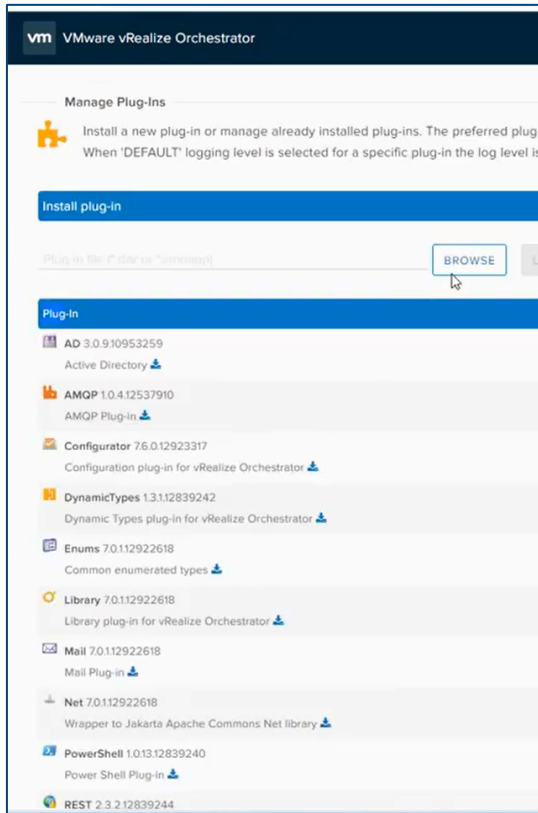
# VMware vRealize Orchestrator

- vRealize Orchestrator is a modern workflow automation platform that simplifies and automates complex data center infrastructure tasks for increased extensibility and agility.
- VMware vRealize Orchestrator is a development- and process-automation platform that provides a library of extensible workflows to allow you to create and run automated, configurable processes to manage VMware products as well as other third-party technologies.
- vRealize Orchestrator automates management and operational tasks of both VMware and third-party.

# Plugin Overview

- The vRO Plug-In for Dell EMC PowerStore is a plug-in for VMware vRealize Orchestrator. It enables administrators to provide automation capabilities for Dell EMC PowerStore storage arrays within vRO.
- It helps automate the operations that are required for provisioning and protection.
- You can also schedule and customize workflows.
- The workflows can be used as building blocks to build advanced workflows.

# Import Plug-in



VMware vRealize Orchestrator

### Manage Plug-Ins

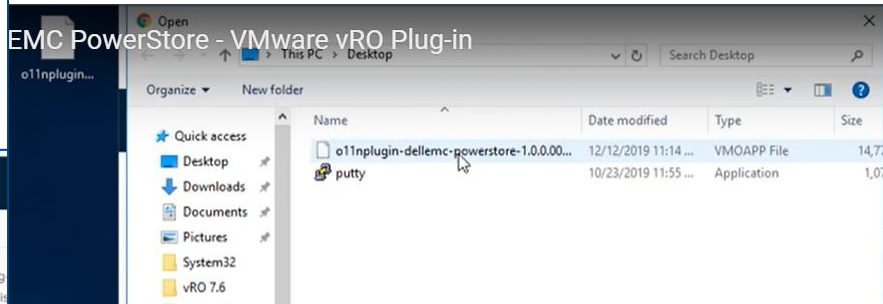
Install a new plug-in or manage already installed plug-ins. The preferred plug installation file format is .VMOAPP, but plug-ins can also be installed as .DAR files. When 'DEFAULT' logging level is selected for a specific plug-in the log level is inherited from the log level set in Configure Logs page.

**Install plug-in**

Plug-in file path (e.g., "c:\temp\...")

### Plug-in

Name	Version	Logging level	Enable plug-in	Delete
AD 3.0.9.10953259	Active Directory	DEFAULT	<input type="checkbox"/>	<input type="button" value="Delete"/>
AMQP 1.0.4.12537910	AMQP Plug-in	DEFAULT	<input type="checkbox"/>	<input type="button" value="Delete"/>
Configurator 7.6.0.12923317	Configuration plug-in for vRealize Orchestrator	DEFAULT	<input type="checkbox"/>	<input type="button" value="Delete"/>
DynamicTypes 1.3.1.12839242	Dynamic Types plug-in for vRealize Orchestrator	DEFAULT	<input type="checkbox"/>	<input type="button" value="Delete"/>
Enums 7.0.1.12922618	Common enumerated types	DEFAULT	<input type="checkbox"/>	<input type="button" value="Delete"/>
Library 7.0.1.12922618	Library plug-in for vRealize Orchestrator	DEFAULT	<input type="checkbox"/>	<input type="button" value="Delete"/>
Mail 7.0.1.12922618	Mail Plug-in	DEFAULT	<input type="checkbox"/>	<input type="button" value="Delete"/>
Net 7.0.1.12922618	Wrapper to Jakarta Apache Commons Net library	DEFAULT	<input type="checkbox"/>	<input type="button" value="Delete"/>
PowerShell 1.0.13.12839240	Power Shell Plug-in	DEFAULT	<input type="checkbox"/>	<input type="button" value="Delete"/>
REST 2.3.2.12839244		DEFAULT	<input type="checkbox"/>	<input type="button" value="Delete"/>



Open

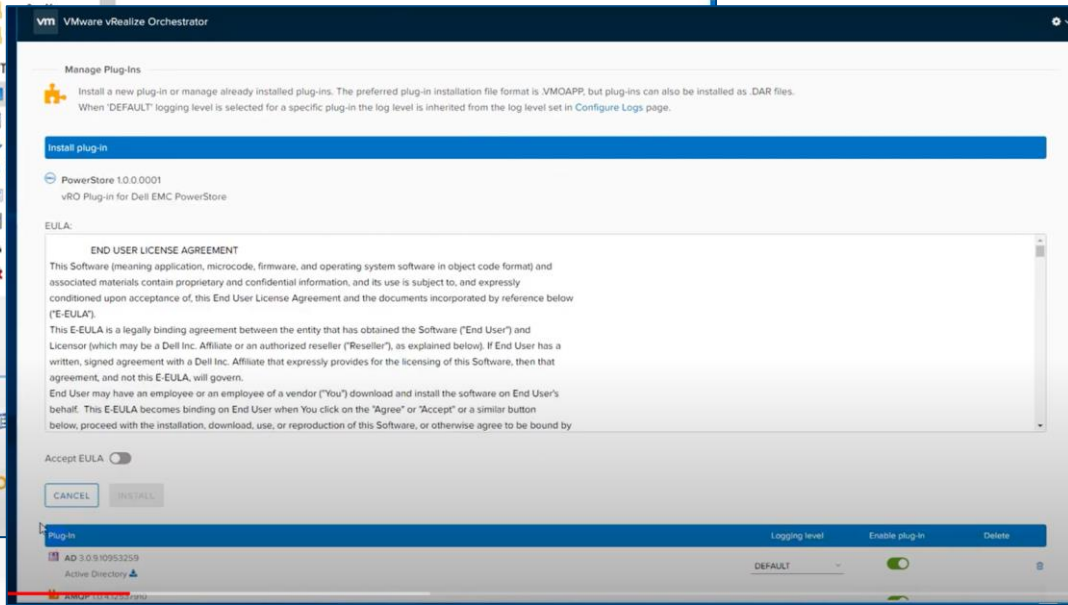
EMC PowerStore - VMware vRO Plug-in

This PC > Desktop

Search Desktop

Organize New folder

Name	Date modified	Type	Size
o11nplugin-dellemc-powerstore-1.0.0.001.vmoapp	12/12/2019 11:14 ...	VMOAPP File	14,7
putty	10/23/2019 11:55 ...	Application	1,07



VMware vRealize Orchestrator

### Manage Plug-Ins

Install a new plug-in or manage already installed plug-ins. The preferred plug installation file format is .VMOAPP, but plug-ins can also be installed as .DAR files. When 'DEFAULT' logging level is selected for a specific plug-in the log level is inherited from the log level set in Configure Logs page.

**Install plug-in**

PowerStore 1.0.0.0001  
vRO Plug-in for Dell EMC PowerStore

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Accept EULA

Plug-in	Logging level	Enable plug-in	Delete
AD 3.0.9.10953259	DEFAULT	<input type="checkbox"/>	<input type="button" value="Delete"/>
Active Directory			

# Add Cluster

Dashboard | Add Cluster Running | CANCEL RUN | ALL RUNS | RUN AGAIN | DEBUG

Library | Workflows | Total transitions 4 | Display total duration

Workflows 4 of 749 | Dell EMC PowerStore | Plugin Settings | Search for...

NEW WORKFLOW

- Add Cluster** (Version: 1.0.0)
  - Library: Dell EMC PowerStore
  - Plugin Settings
  - Add cluster. Output: Cluster object.
  - OPEN RUN ACTIONS
- List Clusters** (Version: 1.0.0)
  - Library: Dell EMC PowerStore
  - Plugin Settings
  - List all clusters in cache. Output: Array o...
  - OPEN RUN ACTIONS
- Remove Cluster** (Version: 1.0.0)
  - Library: Dell EMC PowerStore
  - Plugin Settings
  - Remove the specified cluster.
  - OPEN RUN ACTIONS
- Update Cluster** (Version: 1.0.0)
  - Library: Dell EMC PowerStore
  - Plugin Settings
  - Update cluster. If cluster has been upgra...
  - OPEN RUN ACTIONS

Start date	2/17/20, 4:20 PM
End date	
Status	running
Started by	Administrator@VSPHERE.LOCAL
Workflow	Add Cluster

Activate Windows  
Go to Settings to activate Windows.



# Sample Add Host

The screenshot displays the VMware vRealize Orchestrator interface. The main window shows the 'Create Host' workflow, which is marked as 'Completed'. The workflow diagram consists of three steps: a green arrow icon, a server icon labeled 'Create Host', and a location pin icon. The status bar at the top of the workflow view indicates 'Total transitions: 1' and 'Display total duration'. Below the workflow view, the 'Logs' tab is active, showing a log entry for the 'Create Host' step. The log entry is as follows:

```
2020-02-17 17:53:05:000 -08:00 INFO __Item_stack__/Item
2020-02-17 17:53:05:000 -08:00 INFO Creating Host 'esx12' on PowerStore 100.88.130.40
2020-02-17 17:53:05:000 -08:00 INFO Other parameters for Host ESX1 : iSCSI:iqn.1998-01.com.vmware:eslab-esx12-3145d92c:
2020-02-17 17:53:05:000 -08:00 INFO Created Host: DynamicWrapper (Instance) : [PowerStoreHost].[class com.dell.powerstore.vro_gen.Host_wrapper] -- VALUE : Host
[InternalId=100.88.130.40,HOST:2d3aa58c-ce37-4fd0-8959-6a3fa4542315, id=2d3aa58c-ce37-4fd0-8959-6a3fa4542315, cluster=100.88.130.40, ostype=ESX1, initiators=iqn.1998-
01.com.vmware:eslab-esx12-3145d92c, hostGroupName=null, description=, protocol=iSCSI, name=esx12, volCount=0]
2020-02-17 17:53:05:000 -08:00 INFO __Item_stack__/Item
```

The interface also shows a sidebar with navigation options such as Dashboard, Library, Activity, Assets, and Administration. The top navigation bar includes the VMware vRealize Orchestrator logo and a notification bell icon.

# Additional resources

- Product Guide
- vRo Plug-in for Dell EMC PowerStore
- vRo Plug-in for Dell EMC PowerStore Release Notes

**DELL**Technologies