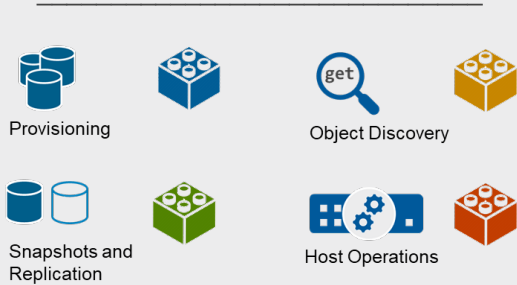
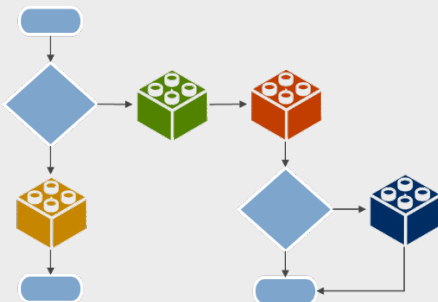


Dell EMC Storage Integration with IT Automation and DevOps Tools

Dell EMC storage integration with DevOps and automation frameworks enable users to consume storage functionality “as Code” and rapidly automate their datacenter operations.



Dell EMC vRO plugins provide building blocks for all the key workflows like provisioning, snapshots, remote replication and host operations.



The storage workflows can be extended to include other process specific tasks in vRO. Such elaborate workflows can be offered as self-serve catalog items in vRealize Automation (vRA).

Automation at the heart of Digital Transformation

As customer obsession is sweeping across businesses big and small, IT Organizations are becoming the very center of innovation irrespective of the industry a company is in. To do this, IT organizations need to focus on problem solving and not worry about routine and repeatable tasks that can be automated. However, IT Operations Automation can longer be limited to scripting tasks to save a few clicks. Automation needs to be well thought through and designed in a way that can scale across organizations, processes and a hybrid cloud infrastructure. Dell EMC offers a range of solutions to integrate with automation tools that are quickly becoming industry standards.

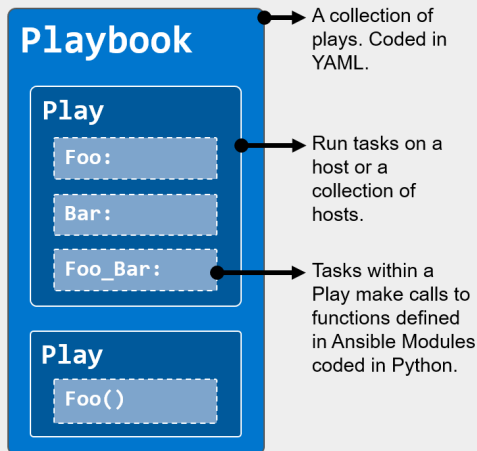
Dell EMC Plugins for VMware vRealize Orchestrator (vRO)

VMware vRealize Orchestrator (vRO) is an IT process automation tool that allows automated management and operational tasks across both VMware and third-party applications. With vRO IT admins can create automation routines for elaborate workflows using a simple drag and drop approach. The workflows can span across different pieces of infrastructure and scale to very large task volume. Dell EMC offers vRO plugins for PowerMax and XtremIO that brings an extensive range of storage functionality in the form of programmable blocks that can be dropped into a workflow’s process map. Functionality includes:

- Storage Provisioning
- Scheduled and on-demand snapshots
- Remote replication and high availability
- Access to various storage objects specific to the array
- VMware integrated storage operations

The different tasks under the above categories form the basic building blocks that can then be used together with any of the compute and networking tasks to form an end to end operation that is easy to read, maintain and build on.

Structure of an Ansible Playbook



Example Ansible script to automate a simple provisioning workflow on PowerMax:

```
- name: "Provision a new Storage Group"
  hosts: localhost
  vars_files:
  - init_vars.yml
  tasks:
  - name: "Create SGs"
    dellemc_powermax_sg:
    . . .
  - name: "Create Port Groups"
    dellemc_powermax_pg:
    . . .
  - name: "Create Masking View"
    dellemc_powermax_mv:
```

VMware vRealize Automation (vRA)

VMware vRealize Automation takes automation to the next level by providing a self-serve catalog (anything-as-a-service) of workflow automation recipes covering the entire IT Operations ecosystem including Service Delivery, Infrastructure Management across multiple cloud environments and accelerated DevOps processes. Workflows that are automated in vRO can be used as these self-serve catalog items seamlessly.

Ansible Modules Make Dell EMC Storage Available "as Code"

Ansible is a very popular configuration management platform to automate IT Operations and modern DevOps workflows. Ansible Playbooks have the various tasks coded in an easy to read YAML language. A Playbook consists of task sets called Plays corresponding to a given host or set of hosts that the Play is executed on. A Play in turn can have multiple tasks. Each task makes calls to Ansible library functions called modules that are coded in Python programming language. With the growing popularity of Ansible, a large number of modules have been contributed that cover a wide variety of infrastructure management and application deployment. This makes Ansible a great choice to rapidly build automation routines.

Dell EMC is developing a collection of storage modules to automate storage administration, provisioning, and consumption for a growing list of storage platforms. These modules enable the operations teams to rapidly provision storage infrastructure with accuracy to respond to the fast-paced needs of application developers.

Get Started Today

You can download the vRO plugins and Ansible Modules from the following repositories:

[vRO Plugin for PowerMax \(on VMware Marketplace\)](#)

[Ansible Modules for PowerMax \(on GitHub\)](#)

[vRO Plugin for Dell EMC Unity XT \(on VMware Marketplace\)](#)

[XtremIO vRO Plugin \(on VMware Marketplace\)](#)

For more information on ways to consume Dell EMC Storage functionality through third party tools and REST APIs visit:

<https://www.dell.com/storagesource/>