



OpenShift where ever you need with ✨ Appliances ✨

Offline and at scale!



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Who are we??



James Blair

- Maintainer & sig co-chair @ etcd-io
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What we'll explore today

- Refresh on OpenShift installation methods
- Introducing the OpenShift appliance builder
- Appliance creation walkthrough
- Appliance boot demo


OpenShift installation methods

Interactive

★ Recommended [Web-based](#)

Runs Assisted Installer with standard configuration settings to create your cluster.

- ✓ Preflight validations
- ✓ Smart defaults
- ✓ For connected networks


[Learn more about interactive](#) 

Local Agent-based

[CLI-based](#)

Runs Assisted Installer securely and locally to create your cluster.

- ✓ Installable ISO
- ✓ Preflight validations
- ✓ For air-gapped/restricted networks


[Learn more about local agent-based](#) 

Automated

[CLI-based](#)

Auto-provision your infrastructure with minimal configuration to create your cluster.

- ✓ Installer Provisioned Infrastructure
- ✓ Hosts controlled with baseboard management controller (BMC)
- ✓ For air-gapped/restricted networks


[Learn more about automated](#) 

Full control

[CLI-based](#)

Make all of the decisions when you create your cluster.

- ✓ User Provisioned Infrastructure
- ✓ Highly customizable
- ✓ For air-gapped/restricted networks

[Learn more about full control](#) 

What is Appliance builder?

A utility to produce node disk images for
offline and customised OpenShift clusters



What is it really? – Check this out

The screenshot displays the Dell APEX Cloud Platform interface. At the top, a blue banner indicates the user is logged in as a temporary administrative user and provides a link to update the cluster OAuth configuration. The left sidebar contains navigation options: Administrator, Home, Dell APEX Cloud Platform (selected), Operators, Workloads, Networking, Storage, Builds, Observe, Compute, User Management, and Administration. The main content area shows the 'Physical View' of a server node, with tabs for 'Front view' and 'Back view'. Below the image is the 'Power supply information' section, which includes a table of power supply details and a summary table on the right.

You are logged in as a temporary administrative user. Update the [cluster OAuth configuration](#) to allow others to log in.

Dell APEX Cloud Platform


Overview **Inventory** Updates Security Settings Support

nn22-app2-raven.powerx.dellabs.net > J2FW5X3

Physical View

Actions

Front view **Back view**



Overview	Boot devices	Alerts
Node health	✔ OK	
System LED	● Healthy	
Power state	Powered on	
Service tag	J2FW5X3	
Role node	Worker	
Manufacturer	Dell Inc.	
Node slot	1	
Model	APEX MC-660	
Management IP address	172.19.17.51	
iDRAC IP address	172.19.17.39	
CPU number	2	
Location		
Rack name	nn22	

Power supply information

Overview **Alerts**

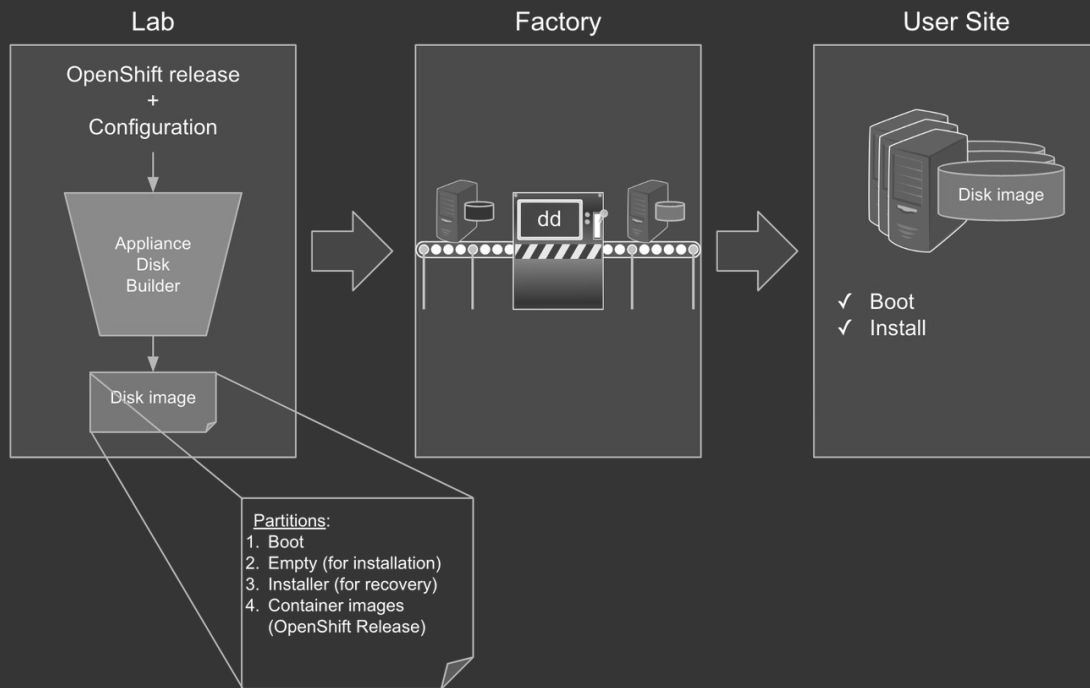
Health	Manufacturer	Missing	Name
HEALTHY	DELL	false	Power Supply 2

Part number	Revision number	Slot	Serial number
07DWCYA01	00.ID.9C	2	CNDED0032N0UIZ

Why is it needed?

- Simplify disconnected installations
- Ship hardware with OpenShift already installed
 - Deploy to many edge devices

Can I build my own?



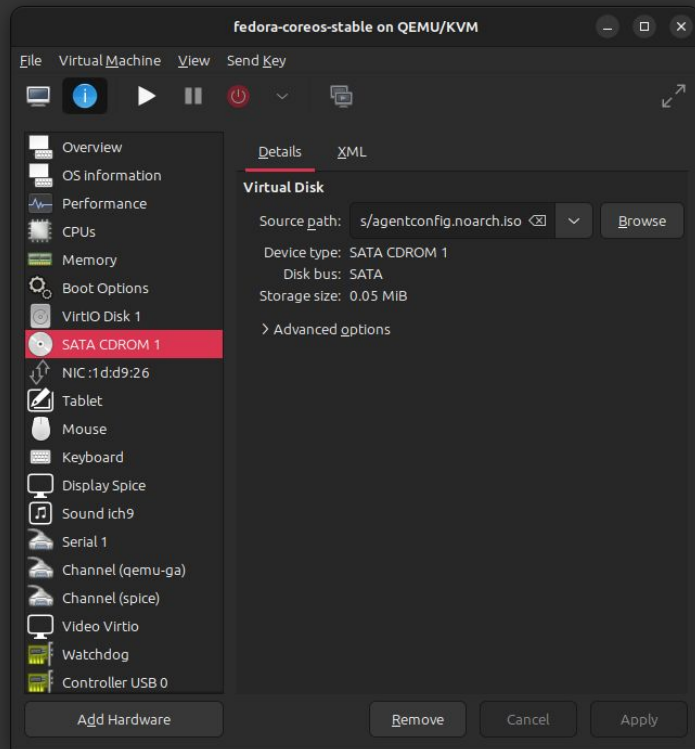
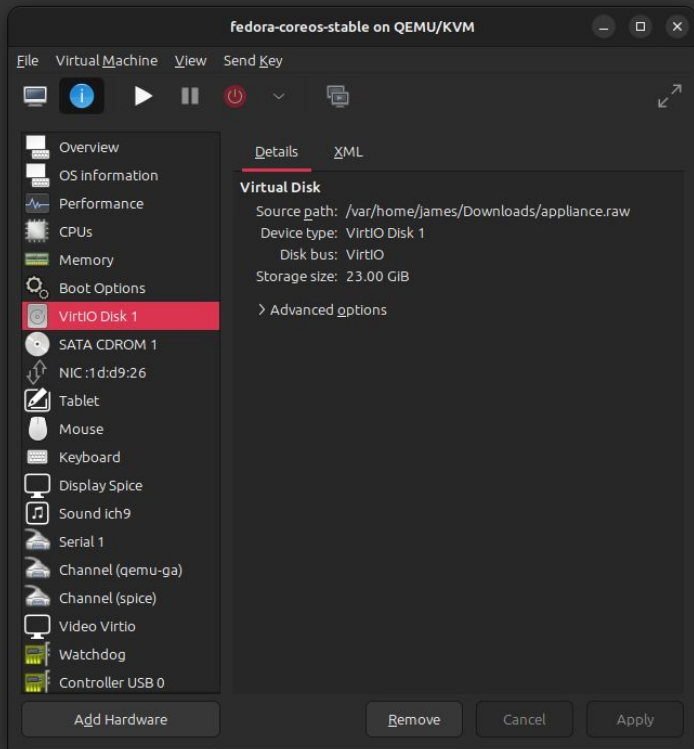
Taking a look...

Step 2 - Lab - Build the appliance disk image



```
~ > sudo podman run --rm -it --pull newer --privileged --net=host -v $APPLIANCE_ASSETS:/assets:Z $APPLIANCE_IMAGE build
[sudo] password for james:
Trying to pull quay.io/edge-infrastructure/openshift-appliance:latest...
Getting image source signatures
Copying blob c7a97c8aa16c done |
Copying blob eb254c8cc372 done |
Copying config 127196816b done |
Writing manifest to image destination
INFO Successfully downloaded appliance base disk image
INFO Successfully extracted appliance base disk image
INFO Successfully pulled container registry image
INFO Successfully pulled OpenShift 4.14.30 release images required for bootstrap
INFO Successfully pulled OpenShift 4.14.30 release images required for installation
INFO Successfully generated data ISO
INFO Successfully fetched openshift-install binary
INFO Successfully downloaded CoreOS ISO
INFO Successfully generated recovery CoreOS ISO
INFO Successfully generated appliance disk image
INFO Time elapsed: 21m53s
INFO
INFO Appliance disk image was successfully created in assets directory: assets/appliance.raw
INFO
INFO Create configuration ISO using: openshift-install agent create config-image
INFO Download openshift-install from: https://mirror.openshift.com/pub/openshift-v4/x86_64/clients/ocp/4.
14.30/openshift-install-linux.tar.gz
```


Step 5 - Site - Mount disks and boot the appliance!



What's more

- Produce an ISO, raw disk image, or sparse raw disk image
- Include pre-installed operators such as from Operator Hub in the artifact
- Include any additional container images or k8s manifests in the artifact
 - Run on architectures are x86_64, aarch64 and ppc64le

Demo

Open Source

- repo at github.com/openshift/appliance
- KubeVirt (kubevirt.io) / OpenShift Virtualisation
 - Podman + Fedora / RHEL

Future

- Now available in **Technology Preview**
- Supported user guide: access.redhat.com/articles/7065136
 - Already in use at scale by Dell



Thank you