

ACM install platform none clusters

Installing a hybrid cluster	1
Managed cluster environment configuration	1
Create a Host inventory	3
Create new VMs	5
Advance network configuration	14
Download the discovery ISO	17
Upload the discovery ISO to vsphere	18
Boot the VMs with the discovery ISO	19
Create the cluster	23
TODO	26

[Is it supported to have mixed environment \(VMware+Baremetal\) setup for RHOC 4.x cluster?](#)

The next link could be outdated because the support is supposed to be available in 4.14, according to the Epic. But the docs still state that platform:none is only supported on SNO.
<https://access.redhat.com/solutions/7008469>

There is a documentation bug opened for that
<https://issues.redhat.com/browse/OCPBUGS-29306>

The final response is that **YES**, it is supported

Installing a hybrid cluster

Create 2 **VMware Cloud Public Cloud Open Environment**. One will be used to deploy an IPI OCP 4.14 cluster hub cluster, the other will be used to create the managed cluster.

Deploy an IPI cluster on vsphere, on demo.redhat.com using the **VMware Cloud Public Cloud Open Environment**
Deploy the ACM operator

Managed cluster environment configuration

The goal here is to assign the IP addresses for api and *.apps DNS records to the bastion host, and install haproxy in the bastion to redirect requests to the OCP 4 managed cluster.

On the Environment for the managed cluster add a new network interface to the bastion host.

Configure the network interface to have the IP addresses assigned to the api and *.apps DNS records

API DNS api.rscp4.dynamic.opentlc.com points to NAT IP to 192.168.188.201

Wildcard DNS *.apps.rscp4.dynamic.opentlc.com points to NAT IP to 192.168.188.202

```
Unset
$ sudo nmcli con down "Wired connection 1"
$ sudo nmcli con mod "Wired connection 1" ipv4.method manual ipv4.addr
"192.168.188.201, 192.168.188.202"
$ sudo nmcli con up "Wired connection 1"
$ ip -4 a
...
3: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
group default qlen 1000
    inet 192.168.188.201/32 scope global noprefixroute eth1
        valid_lft forever preferred_lft forever
    inet 192.168.188.202/32 scope global noprefixroute eth1
```

Clone the following git repository:

```
Unset
$ git clone https://github.com/naps-product-sa/vmc-openshift-install-lab.git
$ cd vmc-openshift-install-lab
```

Install ansible:

```
Unset
$ sudo python3 -m pip install ansible
```

Update the vars file. Add some properties to ansible/vars.yml. We're interested in this section:

```
Unset
##### YOUR PROPERTIES HERE #####
api_ip: 192.168.188.201
apps_ip: 192.168.188.202
guid: 'rscp4'
ocp_version: 4.14.13
ocp4_pull_secret: '{"auths":{"cloud.opensh...
#####
```

The ansible playbook is simplified so that only the tasks related to installing and enabling haproxy, and the task that downloads the oc client are run.

Run the playbook

```
Unset
$ ansible-playbook -vvv ansible/main.yml
```

Verify that haproxy is listening on the expected ports

```
Unset
$ ss -tlnp
State      Recv-Q      Send-Q      Local Address:Port      Process
Peer Address:Port
...
LISTEN      0           128         192.168.188.202:443
0.0.0.0:*
LISTEN      0           128         192.168.188.201:22623
0.0.0.0:*
LISTEN      0           128         192.168.188.201:6443
0.0.0.0:*
LISTEN      0           128         192.168.188.202:80
0.0.0.0:*
```

Create a Host inventory

https://access.redhat.com/documentation/en-us/red_hat_advanced_cluster_management_for_kubernetes/2.9/html/clusters/cluster_mce_overview#create-host-inventory-console-steps

Before creating the first host inventory, the host inventory settings must be set.

From the All cluster web console -> Host inventory -> Configure host inventory settings

This creates the following pods in the project **multicluster-engine**

```
Unset
$ oc get pods -n multicluster-engine
agentinstalladmission-6bdf8c65d4-8pszw      1/1      Running    0      8m15s
agentinstalladmission-6bdf8c65d4-ltjnp      1/1      Running    0      8m15s
assisted-image-service-0                    1/1      Running    0      8m15s
```

assisted-service-5c84fc8bf9-rj5dj

2/2

Running 0

8m15s

And the following PVCs

Unset

```
$ oc get pvc -n multicluster-engine
```

NAME	STATUS	VOLUME	CAPACITY	ACCESS
MODES STORAGECLASS AGE				
assisted-service	Bound			
pvc-c3802bb2-bb29-4d34-b90d-6e318cf6a660	50Gi	RWO	thin-csi	9m53s
image-service-data-assisted-image-service-0	Bound			
pvc-dd039e55-d750-4d62-936a-b7447e26750e	30Gi	RWO	thin-csi	9m52s
postgres	Bound	pvc-5de1ba28-41e1-4c7d-bad1-9d55cd2a5f9a		
10Gi RWO	thin-csi	9m53s		

Create the infrastructure environment by clicking on the blue button on the middle of the Host inventory page.

Create infrastructure environment



YAML: Off

Infrastructure environments are used by clusters. Create an infrastructure environment to add resources to your cluster.

Name *

clue



Network type ?

☐ DHCP only

☒ Static IP, bridges and bonds ?

CPU architecture

☒ x86_64

☐ arm64

Location *

VMWareCloudPublicOpenEnv-rscp4



Used to describe hosts' physical location. Helps for quicker host selection during cluster creation.

Labels

Enter key=value and then press 'enter' or 'space' or use a ',' to input the label.

cluster=clue ✕

Infrastructure provider credentials

Select a credential

Pull secret * ?

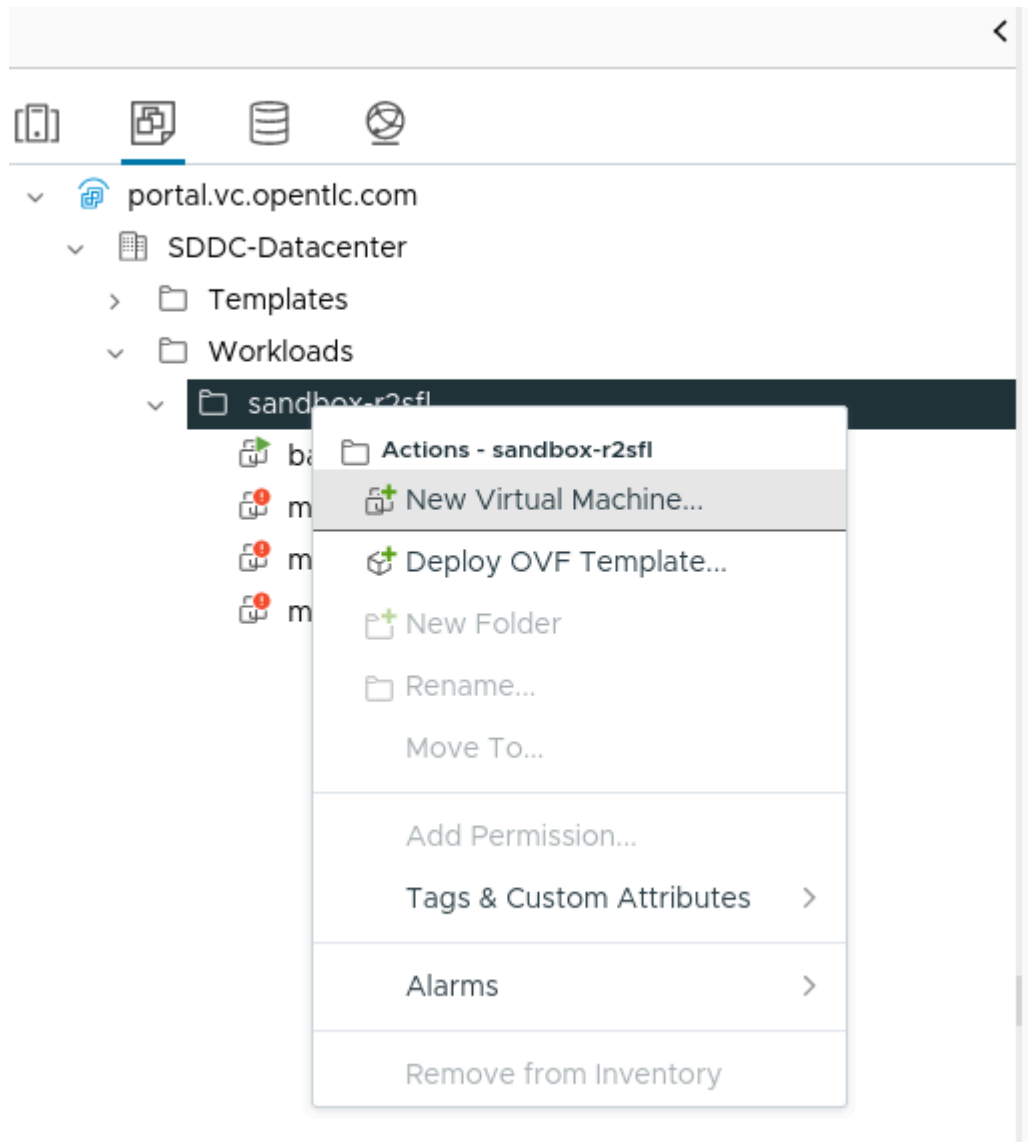
```
0EJON130Q77, email: jseazv@redhat.com, registry.redhat.io
{"auth":{"NTLzMjUOMDB8dWhjLTFIaWRhWDBVbHZOWnlkNmtdVNNc3psb0JXTjpleUpoYkdjaU9pSINVelV4TWIKOS5leUp6ZFdJaU9pSTJaamszTjJGbVpUY3lNM
kkwTURjME9HSmlNakJoWmpWa05Ua3haRFkzWkNKOS5pZGx6YTNUc2swaWclUiIxQTNrTkVqUDFnemQ5MzBYOGIzOVVrMTZzZWEdxVWVqNDVkamVDQlZJa
```

Create new VMs

Create new virtual machines in vsphere.

Most of the information is left as default, exceptions are:

- The guest OS is changed to Linux - RHEL 8
- Hardware resources are updated to 4 CPU; 16GB RAM; 120GB disk
- In advance parameters tab, the diskEnableUUID=TRUE is added



New Virtual Machine

1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Select a creation type

How would you like to create a virtual machine?

Create a new virtual machine

Deploy from template

Clone an existing virtual machine

Clone virtual machine to template

Convert template to virtual machine

Clone template to template

This option guides you through creating a new virtual machine. You will be able to customize processors, memory, network connections, and storage. You will need to install a guest operating system after creation.

CANCEL

NEXT

New Virtual Machine

1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Select a name and folder

Specify a unique name and target location

Virtual machine name:

worker1

Select a location for the virtual machine.

portal.vc.opentlc.com

SDDC-Datacenter

Templates

Workloads

sandbox-r2sfl

CANCEL

BACK

NEXT

New Virtual Machine

- 1 Select a creation type
- 2 Select a name and folder
- 3 Select a compute resource
- 4 Select storage
- 5 Select compatibility
- 6 Select a guest OS
- 7 Customize hardware
- 8 Ready to complete

Select a compute resource



Select the destination compute resource for this operation

- ▼ SDDC-Datacenter
 - > Cluster-1

Compatibility

✓ Compatibility checks succeeded.

CANCEL

BACK

NEXT

New Virtual Machine

1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Select storage

Select the storage for the configuration and disk files

☐ Encrypt this virtual machine ⓘ

VM Storage Policy

Datastore Default

☐ Disable Storage DRS for this virtual machine

	Name	Storage Compatibility	Capacity	Provisioned	Free	Type	Place
	WorkloadDatasto...	--	124.42 TB	156.26 TB	71.26 TB	vSAN	Loc

Items per page 10 1 item

Compatibility

ⓘ vSAN storage consumption would be - disk space and 0 B reserved Flash space.

CANCEL

BACK

NEXT

New Virtual Machine

1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Select compatibility

Select compatibility for this virtual machine depending on the hosts in your environment

The host or cluster supports more than one VMware virtual machine version. Select a compatibility for the virtual machine.

Compatible with:

ESXi 6.7 and later

This virtual machine uses hardware version 14, which is compatible with ESXi 6.7 and later. Some virtual machine hardware features are unavailable with this option.

CANCEL

BACK

NEXT

New Virtual Machine

1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Select a guest OS

Choose the guest OS that will be installed on the virtual machine

Identifying the guest operating system here allows the wizard to provide the appropriate defaults for the operating system installation.

Guest OS Family:

Linux

Guest OS Version:

Red Hat Enterprise Linux 8 (64-bit)

Compatibility: ESXi 6.7 and later (VM version 14)

CANCEL

BACK

NEXT

New Virtual Machine

1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Customize hardware

Configure the virtual machine hardware

Virtual Hardware

VM Options

Advanced Parameters

ADD NEW DEVICE

> CPU *	4		
> Memory *	16	GB	
> New Hard disk *	120	GB	
> New SCSI controller	VMware Paravirtual		
> New Network	segment-sandbox-r2sfl	<input checked="" type="checkbox"/> Connected	
> New CD/DVD Drive	Client Device	<input type="checkbox"/> Connect At Power On	
> Video card	Specify custom settings		
> New SATA Controller	New SATA Controller		
> Other	Additional Hardware		

Compatibility: ESXi 6.7 and later (VM version 14)

CANCEL

BACK

NEXT

New Virtual Machine

1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Customize hardware

Configure the virtual machine hardware

Virtual Hardware

VM Options

Advanced Parameters

Advanced Configuration Parameters

Modify or add configuration parameters as needed for experimental features or as instructed by technical support. Empty values will be removed (supported on ESXi 6.0 and later).

Attribute

Value

ADD

Attribute	Value
⋮ disk.EnableUUID	TRUE

CANCEL

BACK

NEXT

New Virtual Machine

- Select a creation type
- Select a name and folder
- Select a compute resource
- Select storage
- Select compatibility
- Select a guest OS
- Customize hardware
- Ready to complete

Ready to complete

Click Finish to start creation.

Virtual machine name	worker1								
Folder	sandbox-r2sfl								
Cluster	Cluster-1								
Datastore	WorkloadDatastore								
Compatibility	ESXi 6.7 and later (VM version 14)								
Guest OS name	Red Hat Enterprise Linux 8 (64-bit)								
Virtualization Based Security	Disabled								
CPUs	4								
Memory	16 GB								
NICs	1								
NIC 1 network	segment-sandbox-r2sfl (vmc-hostswitch)								
NIC 1 type	VMXNET 3								
SCSI controller 1	VMware Paravirtual								
<div>New hard disk 1</div> <table> <tr> <td>Capacity</td> <td>120 GB</td> </tr> <tr> <td>Datastore</td> <td>WorkloadDatastore</td> </tr> <tr> <td>Virtual device node</td> <td>SCSI(0:0)</td> </tr> <tr> <td>Mode</td> <td>Dependent</td> </tr> </table>		Capacity	120 GB	Datastore	WorkloadDatastore	Virtual device node	SCSI(0:0)	Mode	Dependent
Capacity	120 GB								
Datastore	WorkloadDatastore								
Virtual device node	SCSI(0:0)								
Mode	Dependent								

CANCEL
BACK
FINISH

Advance network configuration

If the hosts need to get advanced network configuration, like is the case in the demo.redhat.com environment, where DHCP is available but the IP is unpredictable, so static IPs must be assigned to the nodes so they can be used in the DNS and LB configurations, then add a nmstateconfig object for each of the nodes that are going to be added to the cluster.

https://access.redhat.com/documentation/en-us/red_hat_advanced_cluster_management_for_kubernetes/2.9/html/clusters/cluster_mce_overview#cim-network-steps

https://access.redhat.com/documentation/es-es/openshift_container_platform/4.12/html/installing/installing-an-on-premise-cluster-with-the-agent-based-installer#sample-ztp-custom-resources_installing-with-agent-based-installer

The nmstateconfig definitions are similar to the following, one for each node in the cluster. The MACs are obtained from the vsphere VMs, the IPs are obtained from the haproxy configuration, the label from the infraenv object in ACM, the DNS IP is obtained from the /etc/resolv.conf file, the default route IP is obtained from the command “ip route”

Unset

```
apiVersion: agent-install.openshift.io/v1beta1
kind: NMStateConfig
metadata:
  name: master-1
  namespace: hybridcluster
  labels:
    infraenvs.agent-install.openshift.io: hybridcluster
spec:
  config:
    interfaces:
      - name: eth0
        type: ethernet
        state: up
        mac-address: 00:50:56:a2:5d:4d
        ipv4:
          enabled: true
          address:
            - ip: 192.168.64.101
              prefix-length: 24
          dhcp: false
    dns-resolver:
      config:
        server:
          - 192.168.64.10
    routes:
      config:
        - destination: 0.0.0.0/0
          next-hop-address: 192.168.64.1
          next-hop-interface: eth0
          table-id: 254
    interfaces:
      - name: "eth0"
        macAddress: 00:50:56:a2:5d:4d
  ---
apiVersion: agent-install.openshift.io/v1beta1
kind: NMStateConfig
metadata:
  name: master-2
  namespace: hybridcluster
  labels:
    infraenvs.agent-install.openshift.io: hybridcluster
spec:
  config:
    interfaces:
      - name: eth0
        type: ethernet
        state: up
        mac-address: 00:50:56:a2:e9:43
```

```
    ipv4:
      enabled: true
      address:
        - ip: 192.168.64.102
          prefix-length: 24
      dhcp: false
      dns-resolver:
      config:
      server:
        - 192.168.64.10
      routes:
      config:
        - destination: 0.0.0.0/0
          next-hop-address: 192.168.64.1
          next-hop-interface: eth0
          table-id: 254
    interfaces:
      - name: "eth0"
        macAddress: 00:50:56:a2:e9:43
  ---
apiVersion: agent-install.openshift.io/v1beta1
kind: NMStateConfig
metadata:
  name: master-3
  namespace: hybridcluster
  labels:
    infraenvs.agent-install.openshift.io: hybridcluster
spec:
  config:
    interfaces:
      - name: eth0
        type: ethernet
        state: up
        mac-address: 00:50:56:a2:4a:1d
        ipv4:
          enabled: true
          address:
            - ip: 192.168.64.103
              prefix-length: 24
          dhcp: false
          dns-resolver:
          config:
          server:
            - 192.168.64.10
          routes:
          config:
            - destination: 0.0.0.0/0
              next-hop-address: 192.168.64.1
```



```
next-hop-interface: eth0
table-id: 254
interfaces:
  - name: "eth0"
    macAddress: 00:50:56:a2:4a:1d
```

Apply the objects to the cluster:

```
Unset
$ oc apply -f nmstate-master-1.yaml
$ oc apply -f nmstate-master-2.yaml
$ oc apply -f nmstate-master-3.yaml

$ oc get nmstateconfig -n hybridcluster
NAME          AGE
master-1      6m25s
master-2      5m40s
master-3      5m35s
```

After applying the nmstateconfig objects, a new discovery ISO Image is created

Download the discovery ISO

From Host inventory -> Add hosts -> With Discovery ISO

D

The screenshot shows the OpenShift Host Inventory interface. At the top, a blue banner indicates the user is logged in as a temporary administrative user. Below this, the breadcrumb 'Host inventory > carlito' is visible. The main header area shows 'carlito' and a tabbed interface with 'Details' and 'Hosts' tabs. The 'Hosts' tab is active, displaying a table with columns: Hostname, Discovery type, Status, Cluster, Discovered on, and CPU Cores. Above the table, there are filters for '0 selected', a search bar 'Find by hostname', and dropdowns for 'Status' and 'Actions'. A dropdown menu is open on the right side, titled 'Add hosts', showing four options: 'With Discovery ISO' (Discover hosts by booting a discovery image), 'With iPX E' (Use when you have an iPX E server that has already been set up), 'Baseboard Management Controller (BMC)' (Discover a single host via Baseboard Management Controller), and 'By uploading a YAML' (Discover multiple hosts by providing YAML with Bare Metal Host definitions).

Download Discovery ISO

Add host

✓

Discovery ISO is ready to be downloaded.

Adding hosts instructions

1. Download the Discovery ISO (onto a USB drive, attach it to a virtual media, etc.) and use it to boot your hosts.
2. Keep the Discovery ISO media connected to the device throughout the installation process and set each host to boot **only one time** from this device.
3. Booted hosts should appear in the host inventory table. This might take a few minutes.

i

To use static network configuration, follow the steps listed in the documentation.

[View documentation](#)

Discovery ISO URL

https://assisted-image-service-multicluster-engine.apps.n...

Command to download the ISO:

wget -O discovery.iso 'https://assisted-image-service-mult...

i

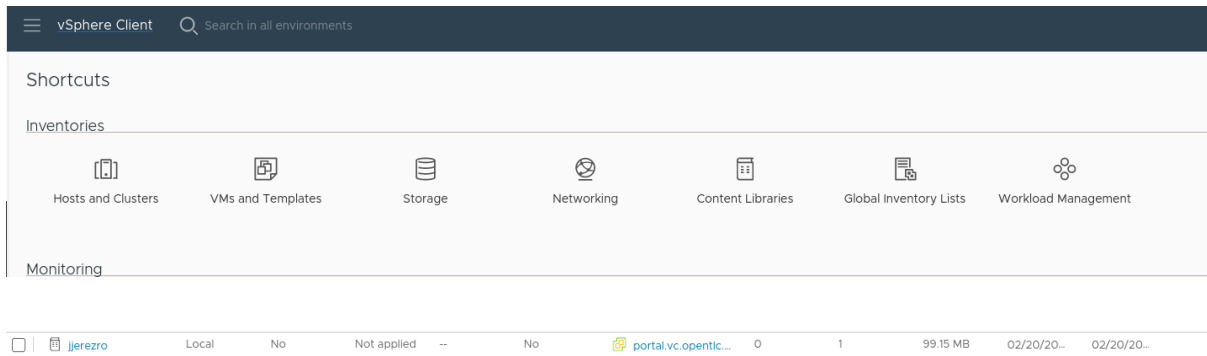
Never share your downloaded ISO with anyone else.

Download Discovery ISO

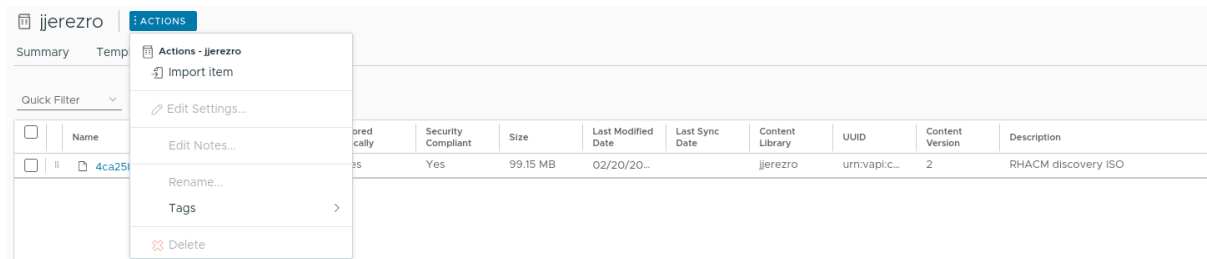
Close

Upload the discovery ISO to vsphere

Create a content library by going to Content Libraries -> Create

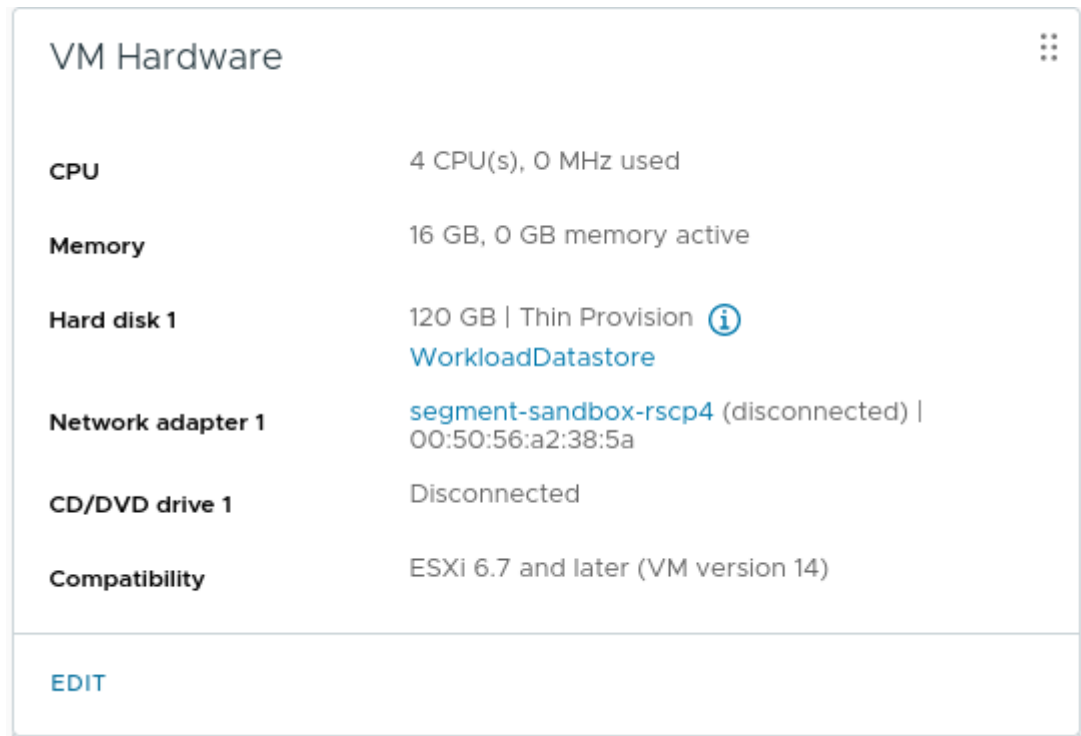


Once created, go to the content library -> Actions -> Import Item



Boot the VMs with the discovery ISO

Edit the VM hardware and attach the discovery ISO from the content library to the CD.
 Enable the option connect at Power On so that the VM boots from the ISO.
 Repeat for all VMs



Edit Settings | master1

Virtual Hardware

VM Options

Advanced Parameters

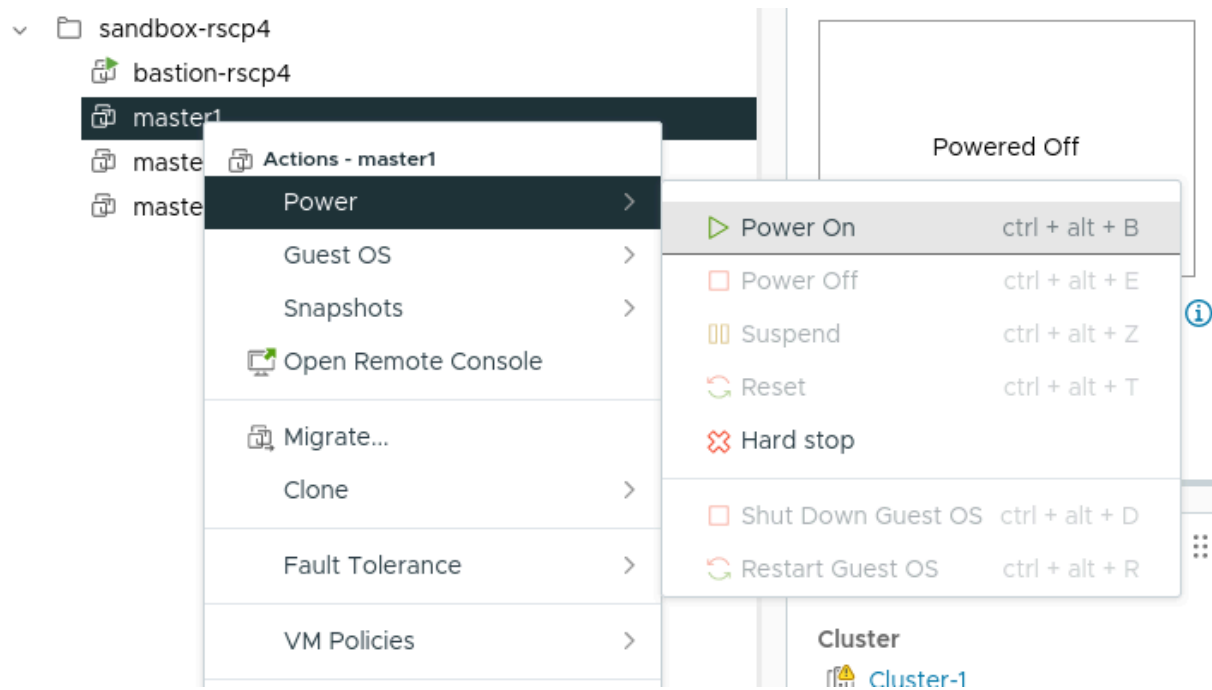
ADD NEW DEVICE

> CPU	4		
> Memory	16	GB	
> Hard disk 1	120	GB	
> SCSI controller 0	VMware Paravirtual		
> Network adapter 1	segment-sandbox-rscp4	Connected	
> CD/DVD drive 1 *	Content Library ISO File		
Status	<input checked="" type="checkbox"/> Connect At Power On		
CD/DVD Media	[contentLib] /jerezro/00bc4at BROWSE...		
Device Mode	Emulate CD-ROM		
Virtual Device Node	SATA controller 0 SATA(0:0) CD/DVD drive 1		
> Video card	Specify custom settings		
> SATA controller 0	AHCI		
> Other	Additional Hardware		

CANCEL

OK

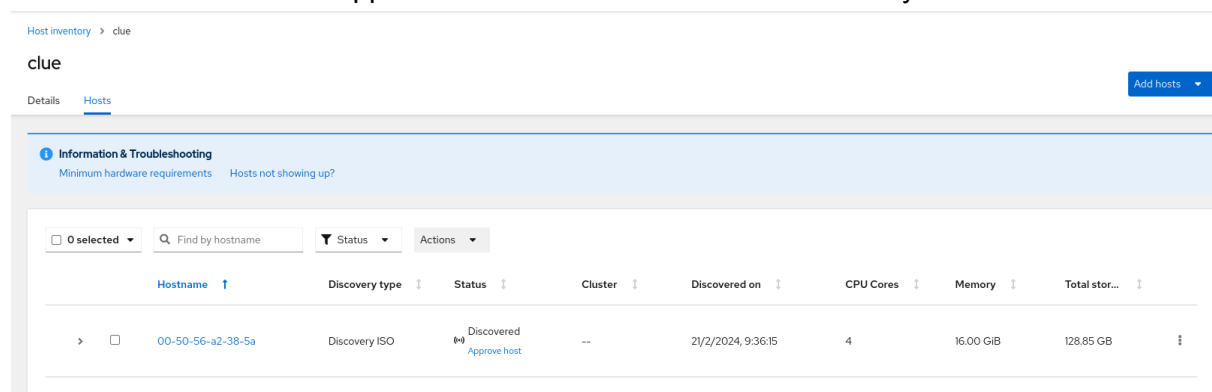
Boot the VMs, one by one



After a couple minutes the VM should be fully booted

```
Red Hat Enterprise Linux CoreOS 414.92.202305090606-0 (Plow) 4.14
SSH host key: SHA256:rmDmxBsDFph/Fw0xxPpFPDAmt7U2VU3hUIfyjie1FKQ (ED25519)
SSH host key: SHA256:33CcEYjbbEhh0VbDng7yNM5CDom7p005R7RWij0nY7s (ECDSA)
SSH host key: SHA256:EJwuhX3HxcPowrqh+JoU1kz/xv2B2h2XUgMS08wMcIg (RSA)
ens192: 192.168.188.100
Ignition: ran on 2024/02/21 08:35:43 UTC (this boot)
Ignition: user-provided config was applied
localhost login: _
```

And the new host should appear in the Hosts list of the ACM inventory:



If the name cannot be resolved by DNS in the ACM host, it appears as the mac address, this can be changed here.

Change hostname

This name will replace the original discovered hostname

Discovered hostname

00-50-56-a2-38-5a

New hostname *

master1

Change

master1

master1-din

✓ 1-63 characters

✓ Must be unique

✓ Use lowercase alphanumeric characters, dot (.) or hyphen (-)

✓ Must start and end with an lowercase alphanumeric character

✓ Do not use forbidden words, for example: "localhost".

Approve the discovered host

Approve host to join infrastructure environment

Make sure that you expect and recognize the host before approving.

Hostname: master1

Approve host

The final result looks like this:

0 selected

Find by hostname

Status

Actions

	Hostname	Discovery type	Status	Cluster	Discovered on	CPU Cores	Memory	Total storage
> <input type="checkbox"/>	master1	Discovery ISO	+ Available	--	21/2/2024, 9:36:15	4	16.00 GiB	128.85 GB
> <input type="checkbox"/>	master2	Discovery ISO	+ Available	--	21/2/2024, 9:40:54	4	16.00 GiB	128.85 GB
> <input type="checkbox"/>	master3	Discovery ISO	+ Available	--	21/2/2024, 9:41:08	4	16.00 GiB	128.85 GB

Create the cluster

https://access.redhat.com/documentation/en-us/red_hat_advanced_cluster_management_for_kubernetes/2.9/html/clusters/cluster_mce_overview#creating-a-cluster-on-premises

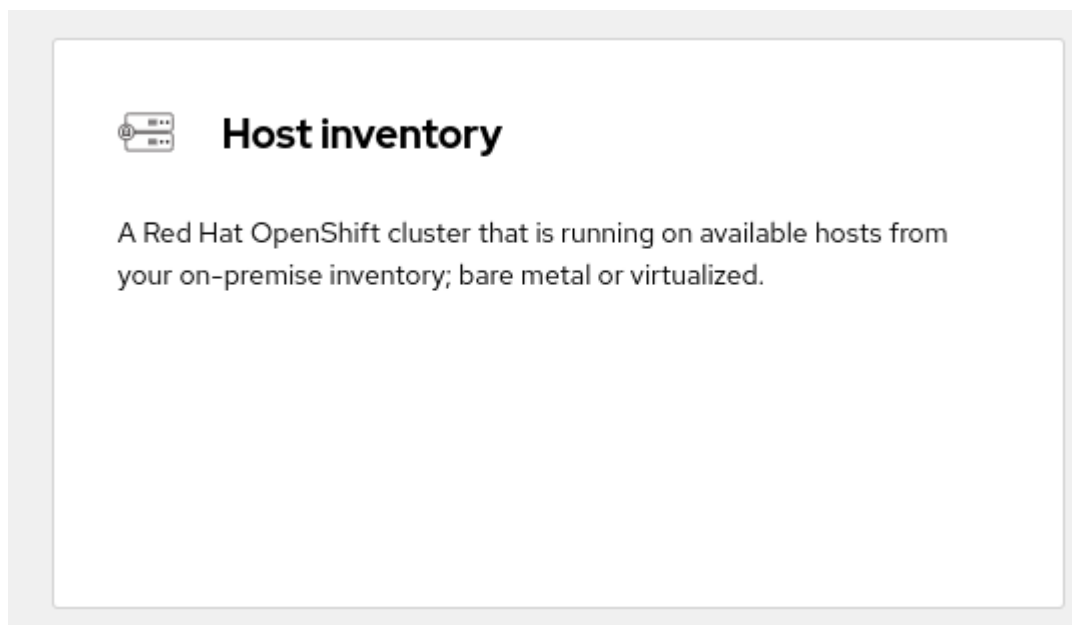
Go to Infrastructure -> Clusters -> Create cluster

Clusters ⓘ

Cluster list Cluster sets Cluster pools Discovered clusters [Get started with Multiclustre](#)

<input type="checkbox"/>	<input type="text" value="Search"/>	<input type="text" value="Filter"/>	Create cluster	Import cluster	<input type="text" value="Actions"/>	1-1 of 1 <			
Name	Namespace	Status	Infrastructure	Control plane type	Distribution version	Labels	Nodes	Add-ons	Creation date
<input type="checkbox"/> local-cluster	local-cluster	Ready	VMware vSphere	Hub	OpenShift 4.14.11 Upgrade available	<div>openshiftVersion-major=4</div> <div>openshiftVersion-major-minor=4.14</div> <div>velero.io/exclude-from-backup=true</div> <div>15 minutes</div>	<div>6</div>	<div>8</div>	19/2/2024, 19:11:04

Select Host inventory



In this case, choose Standalone as opposed to Hosted control plane cluster.

Standalone

Run an OpenShift cluster where the control plane and data plane are coupled. The control plane is hosted by a dedicated group of physical or virtual nodes and the network stack is shared.

- ✓ Increased resiliency with closely interconnected control plane and worker nodes.
- ✓ Provide customized control plane cluster configuration.
 - Standard
 - Single node OpenShift
 - Three-node cluster

Use existing hosts

Use existing hosts

Create a cluster from hosts that have been discovered and made available in your host inventory.

Enter the cluster details.

The cluster name must be the GUID assigned by demo.redhat.com

GUID	r scp4
-------------	---------------

The base domain in the case of demo.redhat.com is dynamic.opentlc.com

Add a pull secret

Cluster details

Infrastructure provider credential ⓘ

Select a credential

Cluster name *

rscp4 ✓

Cluster set ⓘ

default ✕

[Manage cluster sets](#)

Base domain *

dynamic.opentlc.com

All DNS records must be subdomains of this base and include the cluster name. This cannot be changed after cluster installation. The full cluster address will be: rscp4.dynamic.opentlc.com

OpenShift version *

OpenShift 4.14.13

☐ Install single node OpenShift (SNO)
SNO enables you to install OpenShift using only one host.

☐ Use arm64 CPU architecture ⓘ
Make sure all the hosts are using arm64 CPU architecture.

[Next](#) [Back](#) [Cancel](#)

Assign the hosts for the cluster. In this case a 3 node compact cluster is being created, and the hosts are being assigned manually

Cluster hosts

At least 3 hosts are required that are capable of functioning as control plane nodes.

ⓘ [Minimum hardware requirements](#)

☒ Auto-select hosts

Host locations ⓘ

VMWareCloudPublic... ✕ Type or select location(s) ✕

Select one or more locations to view hosts

Labels matching hosts

cluster=clue ✕ app=frontend ✕

Provide as many labels as you can to narrow the list to relevant hosts.

ⓘ **Displaying only hosts with x86_64 architecture in the table.**

	Hostname ↑	Infrastruct... ↑	Status ↑	Role ↑	CPU Cores ↑	Memory ↑	Total stora... ↑
> <input checked="" type="checkbox"/>	master1	clue	+ Available	Auto-assign ▾	4	16.00 GiB	128.85 GB

[Next](#) [Back](#) [Cancel](#)

After clicking Next on the previous page, the hosts are checked and bound

	Hostname ↑	Infrastr...	Status ↓	Role ↓	CPU C...	Memo...	Total s...
>	<input checked="" type="checkbox"/> master-0.rscp4.dynamic.opentlc.com	clue	Binding	Auto-assign ▾	4	16.00 GiB	128.85 GB
>	<input checked="" type="checkbox"/> master-1.rscp4.dynamic.opentlc.com	clue	Ready	Control plane node ▾	4	16.00 GiB	128.85 GB
>	<input checked="" type="checkbox"/> master-2.rscp4.dynamic.opentlc.com	clue	Binding	Auto-assign ▾	4	16.00 GiB	128.85 GB

Next
Back
Cancel
^ Binding hosts...

Add the networking configuration.

In this case User-Managed networking is used because the provide the LB and DNS

Add a public ssh key to propagate to the nodes.

It will take a short while until the hosts status goes from insufficient to Ready.

Host inventory

	Hostname ↑	Role ↓	Status ↓	Active NIC ↓
>	master-0.rscp4.dynamic.opentlc.com	Auto-assign ▾	Ready	-
>	master-1.rscp4.dynamic.opentlc.com	Control plane node ▾	Ready	-
>	master-2.rscp4.dynamic.opentlc.com	Control plane node ▾	Ready	-

Next
Back
Cancel

The next page shows the summary before proceeding to the actual cluster installation.

TODO

Cluster Image Sets

When the host inventory settings are defined, a collection of **clusterimagesets** are created:

- All belong to the fast channel.
- Only the ones with **visible: "true"** are shown as options when installing a new cluster

https://access.redhat.com/documentation/en-us/red_hat_advanced_cluster_management_for_kubernetes/2.9/html/clusters/cluster_mce_overview#release-images-intro

<https://access.redhat.com/articles/6961617>

<https://github.com/stolostron/acm-hive-openshift-releases/blob/backplane-2.5/subscribe/subscriptions-stable.yaml>

Install a cluster with customizations

How do I install a managed cluster with customizations, when I don't have access to the `install-config.yaml` file?