

Multi-Node Assisted Installer OpenShift

Glenn West

gwest@redhat.com



Prereqs

- ❖ Install OCM API
- ❖ DNS Entries
- ❖ Bios
- ❖ DHCP
- ❖ Disk / ISO

Install OCM Tools

Linux Package Manager

The preferred way to install the tool in *Fedora* and *CentOS* is to use the RPM packages built in [Fedora Copr](#). To enable that repository and install the tool use the following commands:

```
# dnf copr enable ocm/tools  
# dnf install ocm-cli
```

This will install the `ocm` command and will keep it updated using the same mechanism used to update all the other packages of the distribution.

MacOS Brew

```
$ brew tap cblecker/tap  
$ brew install ocm
```

<https://github.com/openshift-online/ocm-cli>

Create Cluster Manager API Token

- ❖ Go to <https://cloud.redhat.com/openshift/token>
- ❖ Copy token and use it to login:
 - ❖ ocm login -token (with token from https://cloud.redhat.com/openshift/token)

← → ⌂ cloud.redhat.com/openshift/token

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Overview

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OpenShift Cluster Manager API Token

OpenShift Cluster Manager API Token

Red Hat OpenShift Cluster Manager is a managed service that makes it easy for you to use OpenShift without needing to install, operate or upgrade your own OpenShift (Kubernetes) cluster.

Download and install the [ocm](#) command-line utility and use the API token to authenticate against your Red Hat OpenShift Cluster Manager account.

```
eyJhbGciOiJIUzI1NiIsInR5cCIgOiAiSldUIiwia2lkIiA6ICJhZDUyMjdhMy1iY2ZkLTRjZjAtYTdiNi0zOTk4MzVhMDg1NjYifQ.eyJp...  
Copy it, and then use it to authenticate with the ocm command-line utility:  
ocm login --token="\\eyJhbGciOiJIUzI1NiIsInR5cCIgOiAiSldUIiwia2lkIiA6ICJhZDUyMjdhMy1iY2ZkLTRjZjAtYTdi\\
```

```
[gwest@gwest@redhat assisted-multinode % ./setup.sh
==> Tapping cblecker/tap
Cloning into '/usr/local/Homebrew/Library/Taps/cblecker/homebrew-tap'...
remote: Enumerating objects: 345, done.
remote: Counting objects: 100% (133/133), done.
remote: Compressing objects: 100% (91/91), done.
remote: Total 345 (delta 80), reused 95 (delta 42), pack-reused 212
Receiving objects: 100% (345/345), 103.82 KiB | 1.57 MiB/s, done.
Resolving deltas: 100% (162/162), done.
Tapped 6 formulae (21 files, 136.5KB).
==> Installing ocm from cblecker/tap
==> Downloading https://ghcr.io/v2/homebrew/core/go/manifests/1.16.4
#####
##### 100.0%
==> Downloading https://ghcr.io/v2/homebrew/core/go/blobs/sha256:f8f606762d6550dce492b64d54a148e23f5b06fd5b2f064ab0b367a7887c2335
==> Downloading from https://pkg-containers.githubusercontent.com/ghcr1/blobs/sha256:f8f606762d6550dce492b64d54a148e23f5b06fd5b2f064ab0b367
#####
##### 100.0%
==> Cloning https://github.com/openshift-online/ocm-cli.git
Cloning into '/Users/gwest/Library/Caches/Homebrew/ocm--git'...
==> Checking out tag v0.1.51
HEAD is now at 062cc08 Merge pull request #251 from igoihman/release_0_1_51
==> Installing dependencies for cblecker/tap/ocm: go
==> Installing cblecker/tap/ocm dependency: go
==> Pouring go--1.16.4.big_sur.bottle.tar.gz
🍺 /usr/local/Cellar/go/1.16.4: 9,956 files, 503.6MB
==> Installing cblecker/tap/ocm
==> go build -o /usr/local/Cellar/ocm/0.1.51/bin/ocm ./cmd/ocm
🍺 /usr/local/Cellar/ocm/0.1.51: 7 files, 20.8MB, built in 40 seconds
gwest@gwest@redhat assisted-multinode % ocm
Command line tool for api.openshift.com.
```

Usage:

```
ocm [command]
```

Available Commands:

```
account      Get information about users.
cluster      Get information about clusters
completion   Generate completion script
config       get or set configuration variables
create       Create a resource from stdin
edit        Edit a resource
```

DNS Setup

- ❖ 8 entries
 - ❖ Api entry
 - ❖ Qty 6 Node entry
 - ❖ App wildcard

api.thi.gw.lo	86400	IN	A	192.168.1.216
*.apps.thi.gw.lo	86400	IN	A	192.168.1.217
cp0.thi.gw.lo	86400	IN	A	192.168.1.210
cp1.thi.gw.lo	86400	IN	A	192.168.1.211
cp2.thi.gw.lo	86400	IN	A	192.168.1.212
node0.thi.gw.lo	86400	IN	A	192.168.1.213
node1.thi.gw.lo	86400	IN	A	192.168.1.214
node2.thi.gw.lo	86400	IN	A	192.168.1.215
192.168.1.216	86400	TTL	A	192.168.1.216

DHCP Settings

```
add code=12 name=hostname-cp0.thi.gw.lo value="s'cp0.thi.gw.lo"
add code=12 name=hostname-cp1.thi.gw.lo value="s'cp1.thi.gw.lo"
add code=12 name=hostname-cp2.thi.gw.lo value="s'cp2.thi.gw.lo"
add code=12 name=hostname-node0.thi.gw.lo value="s'node0.thi.gw.lo"
add code=12 name=hostname-node1.thi.gw.lo value="s'node1.thi.gw.lo"
add code=12 name=hostname-node2.thi.gw.lo value="s'node2.thi.gw.lo"
add address=192.168.1.210 dhcp-option=hostname-cp0.thi.gw.lo,dns-dev \
    mac-address=02:82:91:DB:07:DF
add address=192.168.1.211 dhcp-option=hostname-cp1.thi.gw.lo,dns-dev \
    mac-address=02:0D:FD:A5:30:A5
add address=192.168.1.212 dhcp-option=hostname-cp2.thi.gw.lo,dns-dev \
    mac-address=02:F5:5B:52:CA:AE
add address=192.168.1.213 dhcp-option=hostname-node0.thi.gw.lo,dns-dev \
    mac-address=02:1D:50:4E:18:57
add address=192.168.1.214 dhcp-option=hostname-node1.thi.gw.lo,dns-dev \
    mac-address=02:39:75:BA:78:04
add address=192.168.1.215 dhcp-option=hostname-node2.thi.gw.lo,dns-dev \
    mac-address=02:C2:2B:C7:0D:E3
```

create_cluster.sh

- ❖ Delete any existing cluster from cloud.redhat.com (using saved id from last run)
- ❖ Powers off existing Machines
- ❖ Erases drives on all nodes
- ❖ Creates Cluster
- ❖ Customises cluster with VIP's
- ❖ Optionally enables OVN
- ❖ Creates and Downloads Discovery ISO

create_cluster.sh

- ❖ Move ISO to mount point
- ❖ Powers on Masters
- ❖ Wait for them to be discovered
- ❖ Powers On Workers
- ❖ Wait for them to be discovered
- ❖ Wait for cluster to get synced
- ❖ Start Install

Features

- ❖ Can work for any version. (Only need version number - latest is automatic)
- ❖ Only one download - discovery - OS is automatic from there
- ❖ Any number of nodes from 3 masters to 3 Masters and any number of nodes.

Customizations

- ❖ Install-config is fully customizable
- ❖ Manifests may also be modified
- ❖ Different Network Stacks Supported
 - ❖ Redhat SDN
 - ❖ OVN
 - ❖ Calico
 - ❖ Dual Stack (Coming soon)

```
./delete-cluster.sh
./poweroff-all-vms.sh
./erase-all-vms.sh
export OFFLINE_ACCESS_TOKEN=`cat .ocmapitoken.txt`
export TOKEN=`curl \
--silent \
--data-urlencode "grant_type=refresh_token" \
--data-urlencode "client_id=cloud-services" \
--data-urlencode "refresh_token=${OFFLINE_ACCESS_TOKEN}" \
https://sso.redhat.com/auth/realms/redhat-external/protocol/openid-connect/token | \
jq -r .access_token`
echo $TOKEN > .token
ASSISTED_SERVICE_API="api.openshift.com"
CLUSTER_VERSION="4.6"
#CLUSTER_IMAGE="quay.io/openshift-release-dev/ocp-release:4.8.0-fc.3-x86_64"
CLUSTER_NAME="thi"
CLUSTER_DOMAIN="gw.lo"
CLUSTER_CIDR_NET="10.128.0.0/14"
CLUSTER_CIDR_SVC="172.30.0.0/16"
CLUSTER_HOST_PFX="23"
CLUSTER_WORKER_HT="Enabled"
CLUSTER_WORKER_COUNT="3"
CLUSTER_MASTER_HT="Enabled"
CLUSTER_MASTER_COUNT="3"
CLUSTER_SSHKEY=`cat ~/.ssh/id_rsa.pub`
export CLUSTER_INGRESS_VIP=`dig +short test.apps.$CLUSTER_NAME.$CLUSTER_DOMAIN`
export CLUSTER_API_VIP=`dig +short api.$CLUSTER_NAME.$CLUSTER_DOMAIN`
PULL_SECRET=$(cat pull-secret.txt | jq -R .)
cat << EOF > ./development.json
{
  "apiVersion": "v1",
  "kind": "Secret",
  "type": "Opaque",
  "data": {
    "pull-secret": $(base64 -w 0 $PULL_SECRET)
  }
}
EOF
```

```
cat << EOF > ./deployment.json
{
    "kind": "Cluster",
    "name": "$CLUSTER_NAME",
    "openshift_version": "$CLUSTER_VERSION",
    "base_dns_domain": "$CLUSTER_DOMAIN",
    "hyperthreading": "all",
    "vip_dhcp_allocation": false,
    "ingress_vip": "$CLUSTER_INGRESS_VIP",
    "api_vip": "$CLUSTER_API_VIP",
    "cluster_network_cidr": "$CLUSTER_CIDR_NET",
    "cluster_network_host_prefix": $CLUSTER_HOST_PFX,
    "service_network_cidr": "$CLUSTER_CIDR_SVC",
    "host_networks": [],
    "hosts": [],
    "ssh_public_key": "$CLUSTER_SSHKEY",
    "pull_secret": $PULL_SECRET
}
EOF
```

```
# Create Cluster
curl -s -X POST "https://$ASSISTED_SERVICE_API/api/assisted-install/v1/clusters" \
-d ./deployment.json \
--header "Content-Type: application/json" \
-H "Authorization: Bearer $TOKEN" \
> .clusterresult
CLUSTER_ID=`cat .clusterresult | jq -r '.id'`
echo $CLUSTER_ID > .clusterid
echo "Wait for cluster to get created"
sleep 20
#echo "Update installconfig for OVN "
#cp installconfig.yaml .installconfig-new
#cat .installconfig-new | yq eval --tojson --indent 0 | sed 's/"\\\"/g' | awk '{ print """$0"""}' > .installconfig-string
#curl -s -X PATCH "https://$ASSISTED_SERVICE_API/api/assisted-install/v1/clusters/$CLUSTER_ID/install-config" \
#  --header "Content-Type: application/json" \
#  -H "Authorization: Bearer $TOKEN" -T .installconfig-string

echo "Update VIPs"
cat << EOF > cluster-update-params.json
{
  "api_vip": "$CLUSTER_API_VIP",
  "ingress_vip": "$CLUSTER_INGRESS_VIP"
}
```

```
curl -s -X PATCH "https://$ASSISTED_SERVICE_API/api/assisted-install/v1/clusters/$CLUSTER_ID" \
-d ./cluster-update-params.json \
--header "Content-Type: application/json" \
-H "Authorization: Bearer $TOKEN" \
> .clusterupdateresult

echo "Request ISO"
cat << EOF > ./iso-params.json
{
  "ssh_public_key": "$CLUSTER_SSHKEY",
  "pull_secret": "$PULL_SECRET"
}
EOF
# Request ISO
curl -s -X POST "https://$ASSISTED_SERVICE_API/api/assisted-install/v1/clusters/$CLUSTER_ID/downloads/image" \
-d ./iso-params.json \
--header "Content-Type: application/json" \
-H "Authorization: Bearer $TOKEN" \
| jq .'
```

```
echo "Wait for ISO"
sleep 20
curl \
  -H "Authorization: Bearer $TOKEN" \
  -L "http://$ASSISTED_SERVICE_API/api/assisted-install/v1/clusters/$CLUSTER_ID/downloads/image" \
  -o discovery_image_thi.iso
ssh root@esxi.gw.lo "rm /vmfs/volumes/datastore1/iso/discovery_image_thi.iso"
scp discovery_image_thi.iso root@esxi.gw.lo:/vmfs/volumes/datastore1/iso/discovery_image_thi.iso
echo "Power On Nodes"
./poweron-vm.sh cp0.thi.gw.lo
./poweron-vm.sh cp1.thi.gw.lo
./poweron-vm.sh cp2.thi.gw.lo
echo "Wait for control plane nodes to register"
./waitfornodes.sh 3
echo "Power on workers"
./poweron-vm.sh node0.thi.gw.lo
./poweron-vm.sh node1.thi.gw.lo
./poweron-vm.sh node2.thi.gw.lo
echo "Wait for Nodes to register"
./waitfornodes.sh 6
echo "Nodes Ready"
```

2021-06-14T10:34:20.902Z
2021-06-14T10:34:21.022Z
2021-06-14T10:34:26.933Z
2021-06-14T10:34:41.298Z
2021-06-14T10:34:44.769Z
2021-06-14T10:35:05.157Z
2021-06-14T10:36:50.230Z
2021-06-14T10:36:53.680Z
2021-06-14T10:36:56.853Z
2021-06-14T10:36:58.753Z
atation(s): Host couldn't synchronize with any NTP server)
2021-06-14T10:36:58.757Z
2021-06-14T10:36:58.760Z
2021-06-14T10:36:58.772Z
atation(s): Host couldn't synchronize with any NTP server)
2021-06-14T10:37:00.886Z
2021-06-14T10:37:06.834Z
2021-06-14T10:37:06.837Z
2021-06-14T10:37:06.855Z
2021-06-14T10:37:06.858Z
2021-06-14T10:37:06.861Z
2021-06-14T10:37:06.939Z
2021-06-14T10:37:07.041Z
atation(s): Host couldn't synchronize with any NTP server ; No connectivity to the majority of hosts in the clu
2021-06-14T10:38:02.932Z
2021-06-14T10:38:02.946Z
2021-06-14T10:38:02.960Z
2021-06-14T10:38:05.063Z
2021-06-14T10:38:06.835Z
2021-06-14T10:38:07.150Z
2021-06-14T10:38:10.754Z

Registered cluster 'thi'
Successfully registered cluster thi with id a3906c33-2ce0-403f-a80c-0ff3c9a53
Updated status of cluster thi to pending-for-input
Cluster validation 'api-vip-defined' is now fixed
Generated image (Image type is \"full-iso\", SSH public key is set)
Started image download (image type is \"full-iso\")
Host 674f4d56-eb4f-aa74-8dda-a8e30bb3b29f: registered to cluster
Host 407b4d56-d0f2-599d-9025-21e03a2a12dd: registered to cluster
Cluster validation 'all-hosts-are-ready-to-install' that used to succeed is now failing
Host cp0.thi.gw.lo: updated status from \"discovering\" to \"insufficient\" (Cluster validation 'ntp-synced' failed)
Host cp2.thi.gw.lo: validation 'machine-cidr-defined' is now fixed
Host cp2.thi.gw.lo: validation 'has-inventory' is now fixed
Host cp2.thi.gw.lo: updated status from \"discovering\" to \"insufficient\" (Cluster validation 'ntp-synced' failed)
Host fb754d56-864c-570a-d164-b3b3897415ff: registered to cluster
Cluster validation 'api-vip-valid' is now fixed
Cluster validation 'ingress-vip-valid' is now fixed
Cluster validation 'machine-cidr-defined' is now fixed
Cluster validation 'machine-cidr-equals-to-calculated-cidr' is now fixed
Cluster validation 'sufficient-masters-count' is now fixed
Updated status of cluster thi to insufficient
Host cp1.thi.gw.lo: updated status from \"discovering\" to \"insufficient\" (Cluster validation 'ntp-synced' failed)
Host cp0.thi.gw.lo: validation 'ntp-synced' is now fixed
Host cp2.thi.gw.lo: validation 'ntp-synced' is now fixed
Host cp1.thi.gw.lo: validation 'ntp-synced' is now fixed
Host 5f604d56-577f-23ee-c4a9-9562c47387b5: registered to cluster
Cluster validation 'sufficient-masters-count' that used to succeed is now failing
Host 7df54d56-51a6-5f00-1e4f-d0c8f402e940: registered to cluster
Host node2.thi.gw.lo: updated status from \"discovering\" to \"insufficient\" (Cluster validation 'ntp-synced' failed)

2021-06-14T10:38:02.932Z Host cp0.thi.gw.lo: validation 'ntp-synced' is now fixed
2021-06-14T10:38:02.946Z Host cp2.thi.gw.lo: validation 'ntp-synced' is now fixed
2021-06-14T10:38:02.960Z Host cp1.thi.gw.lo: validation 'ntp-synced' is now fixed
2021-06-14T10:38:05.063Z Host 5f604d56-577f-23ee-c4a9-9562c47387b5: registered to cluster
2021-06-14T10:38:06.835Z Cluster validation 'sufficient-masters-count' that used to succeed is now failing
2021-06-14T10:38:07.150Z Host 7df54d56-51a6-5f00-1e4f-d0c8f402e940: registered to cluster
2021-06-14T10:38:10.754Z Host node2.thi.gw.lo: updated status from \"discovering\" to \"insufficient\" (Host validation(s): Host couldn't synchronize with any NTP server ; No connectivity to the majority of hosts in the cluster)
2021-06-14T10:38:10.769Z Host node0.thi.gw.lo: updated status from \"discovering\" to \"insufficient\" (Host validation(s): Host couldn't synchronize with any NTP server ; No connectivity to the majority of hosts in the cluster)
2021-06-14T10:38:13.435Z Host 61294d56-55e1-deb3-ad6a-6c6c14df6419: registered to cluster
2021-06-14T10:38:16.750Z Cluster validation 'sufficient-masters-count' is now fixed
2021-06-14T10:38:18.756Z Host node1.thi.gw.lo: updated status from \"discovering\" to \"insufficient\" (Host validation(s): Host couldn't synchronize with any NTP server ; No connectivity to the majority of hosts in the cluster)
2021-06-14T10:38:18.828Z Host cp2.thi.gw.lo: validation 'belongs-to-majority-group' is now fixed
2021-06-14T10:38:18.842Z Host cp2.thi.gw.lo: updated status from \"insufficient\" to \"known\" (Host is ready)
2021-06-14T10:38:18.846Z Host cp0.thi.gw.lo: validation 'belongs-to-majority-group' is now fixed
2021-06-14T10:38:18.859Z Host cp0.thi.gw.lo: updated status from \"insufficient\" to \"known\" (Host is ready)
2021-06-14T10:38:18.864Z Host cp1.thi.gw.lo: validation 'belongs-to-majority-group' is now fixed
2021-06-14T10:38:18.877Z Host cp1.thi.gw.lo: updated status from \"insufficient\" to \"known\" (Host is ready)
2021-06-14T10:39:14.752Z Host node2.thi.gw.lo: validation 'ntp-synced' is now fixed
2021-06-14T10:39:14.766Z Host node0.thi.gw.lo: validation 'ntp-synced' is now fixed
2021-06-14T10:39:22.743Z Host node2.thi.gw.lo: validation 'belongs-to-majority-group' is now fixed
2021-06-14T10:39:22.756Z Host node2.thi.gw.lo: updated status from \"insufficient\" to \"known\" (Host is ready)
2021-06-14T10:39:22.761Z Host node1.thi.gw.lo: validation 'ntp-synced' is now fixed
2021-06-14T10:39:30.743Z Host node1.thi.gw.lo: validation 'belongs-to-majority-group' is now fixed
2021-06-14T10:39:30.756Z Host node1.thi.gw.lo: updated status from \"insufficient\" to \"known\" (Host is ready)
2021-06-14T10:39:30.761Z Host node0.thi.gw.lo: validation 'belongs-to-majority-group' is now fixed
2021-06-14T10:39:30.773Z Host node0.thi.gw.lo: updated status from \"insufficient\" to \"known\" (Host is ready)
2021-06-14T10:39:36.751Z Cluster validation 'all-hosts-are-ready-to-install' is now fixed
2021-06-14T10:39:36.836Z Updated status of cluster thi to ready
2021-06-14T10:40:20.144Z Host node1.thi.gw.lo: set as bootstrap
2021-06-14T10:40:26.840Z Host cp2.thi.gw.lo: updated status from \"known\" to \"preparing-for-installation\" (Host validation(s): Host couldn't synchronize with any NTP server ; No connectivity to the majority of hosts in the cluster)

2021-06-14T10:40:26.840Z Host cp2.thi.gw.lo: updated status from \"known\" to \"preparing-for-installation\" (Host is preparing for installation)
2021-06-14T10:40:26.851Z Host node2.thi.gw.lo: updated status from \"known\" to \"preparing-for-installation\" (Host is preparing for installation)
2021-06-14T10:40:26.870Z Host node1.thi.gw.lo: updated status from \"known\" to \"preparing-for-installation\" (Host is preparing for installation)
2021-06-14T10:40:26.880Z Host cp1.thi.gw.lo: updated status from \"known\" to \"preparing-for-installation\" (Host is preparing for installation)
2021-06-14T10:40:26.932Z Host node0.thi.gw.lo: updated status from \"known\" to \"preparing-for-installation\" (Host is preparing for installation)
2021-06-14T10:40:26.953Z Host cp0.thi.gw.lo: updated status from \"known\" to \"preparing-for-installation\" (Host is preparing for installation)
2021-06-14T10:40:37.240Z Cluster was prepared successfully for installation
2021-06-14T10:41:33.325Z Host cp0.thi.gw.lo: New image status registry.redhat.io/rhai-tech-preview/assisted-installer-rhel8:v1.0.0-54. result: success. time: 13.493289 seconds; size: 310005440.000000 bytes; download rate: 22.974786 MBps
2021-06-14T10:41:33.331Z Host cp0.thi.gw.lo: New image status quay.io/openshift-release-dev/ocp-v4.0-art-dev@sha256:5f865a41ea3262fa35bacbfa3f2ffef4ba2868ef13e2120e2080a2. result: success. time: 15.397628 seconds; size: 416018212.000000 bytes; download rate: 27.018332 MBps
2021-06-14T10:41:33.338Z Host cp0.thi.gw.lo: New image status quay.io/openshift-release-dev/ocp-v4.0-art-dev@sha256:9b2cc7f532d3039d5a0619e27b93716198b16c8a1f6f9bb3d247d. result: success. time: 5.961842 seconds; size: 339637970.000000 bytes; download rate: 56.968627 MBps
2021-06-14T10:41:38.748Z Host cp0.thi.gw.lo: updated status from \"preparing-for-installation\" to \"preparing-successful\" (Host finished successfully prepare for installation)
2021-06-14T10:41:58.295Z Host cp2.thi.gw.lo: New image status registry.redhat.io/rhai-tech-preview/assisted-installer-rhel8:v1.0.0-54. result: success. time: 12.692454 seconds; size: 310005440.000000 bytes; download rate: 24.424389 MBps
2021-06-14T10:41:58.305Z Host cp2.thi.gw.lo: New image status quay.io/openshift-release-dev/ocp-v4.0-art-dev@sha256:5f865a41ea3262fa35bacbfa3f2ffef4ba2868ef13e2120e2080a2. result: success. time: 37.861044 seconds; size: 416018212.000000 bytes; download rate: 10.988028 MBps
2021-06-14T10:41:58.315Z Host cp2.thi.gw.lo: New image status quay.io/openshift-release-dev/ocp-v4.0-art-dev@sha256:9b2cc7f532d3039d5a0619e27b93716198b16c8a1f6f9bb3d247d. result: success. time: 5.295642 seconds; size: 339637970.000000 bytes; download rate: 64.135367 MBps
2021-06-14T10:42:02.952Z Host cp2.thi.gw.lo: updated status from \"preparing-for-installation\" to \"preparing-successful\" (Host finished successfully prepare for installation)
2021-06-14T10:42:06.579Z Host node0.thi.gw.lo: New image status registry.redhat.io/rhai-tech-preview/assisted-installer-rhel8:v1.0.0-54. result: success. time: 34.735716 seconds; size: 310005440.000000 bytes; download rate: 8.924688 MBps
2021-06-14T10:42:06.585Z Host node0.thi.gw.lo: New image status quay.io/openshift-release-dev/ocp-v4.0-art-dev@sha256:5f865a41ea3262fa35bacbfa3f2ffefb74ba2868ef13e2120e2080a2. result: success. time: 14.395633 seconds; size: 416018212.000000 bytes; download rate: 28.898917 MBps
2021-06-14T10:42:06.592Z Host node0.thi.gw.lo: New image status quay.io/openshift-release-dev/ocp-v4.0-art-dev@sha256:9b2cc7f532d3039d5a0619e27b937166198b16c8a1f6f9bb3d247d. result: success. time: 3.928996 seconds; size: 339637970.000000 bytes; download rate: 86.443951 MBps
2021-06-14T10:42:06.651Z Host node1.thi.gw.lo: New image status registry.redhat.io/rhai-tech-preview/assisted-installer-rhel8:v1.0.0-54. result: success. time: 12.445562 seconds; size: 310005440.000000 bytes; download rate: 24.908915 MBps
2021-06-14T10:42:06.658Z Host node1.thi.gw.lo: New image status quay.io/openshift-release-dev/ocp-v4.0-art-dev@sha256:5f865a41ea3262fa35bacbfa3f2ffefb74ba2868ef13e2120e2080a2. result: success. time: 13.853597 seconds; size: 416018212.000000 bytes; download rate: 30.029616 MBps
2021-06-14T10:42:06.665Z Host node1.thi.gw.lo: New image status quay.io/openshift-release-dev/ocp-v4.0-art-dev@sha256:9b2cc7f532d3039d5a0619e27b937166198b16c8a1f6f9bb3d247d. result: success. time: 22.363451 seconds; size: 339637970.000000 bytes; download rate: 15.187189 MBps
2021-06-14T10:42:08.832Z Host node2.thi.gw.lo: New image status registry.redhat.io/rhai-tech-preview/assisted-installer-rhel8:v1.0.0-54. result: success. time: 40.183633 seconds; size: 310005440.000000 bytes; download rate: 7.714719 MBps
2021-06-14T10:42:08.841Z Host node2.thi.gw.lo: New image status quay.io/openshift-release-dev/ocp-v4.0-art-dev@sha256:5f865a41ea3262fa35bacbfa3f2ffefb74ba2868ef13e2120e2080a2. result: success. time: 16.201410 seconds; size: 416018212.000000 bytes; download rate: 25.677901 MBps
2021-06-14T10:42:08.851Z Host node2.thi.gw.lo: New image status quay.io/openshift-release-dev/ocp-v4.0-art-dev@sha256:9b2cc7f532d3039d5a0619e27b937166198b16c8a1f6f9bb3d247d. result: success. time: 3.184909 seconds; size: 339637970.000000 bytes; download rate: 106.639769 MBps
2021-06-14T10:42:10.752Z Host node0.thi.gw.lo: updated status from \"preparing-for-installation\" to \"preparing-successful\" (Host finished successfully prepare for installation)

2021-06-14T10:42:26.848Z Updated status of cluster thi to installing
2021-06-14T10:42:34.756Z Host cp0.thi.gw.lo: updated status from \"preparing-successful\" to \"installing\" (Instal
2021-06-14T10:42:34.766Z Host node1.thi.gw.lo: updated status from \"preparing-successful\" to \"installing\" (Inst
2021-06-14T10:42:34.832Z Host cp2.thi.gw.lo: updated status from \"preparing-successful\" to \"installing\" (Instal
2021-06-14T10:42:34.841Z Host node0.thi.gw.lo: updated status from \"preparing-successful\" to \"installing\" (Inst
2021-06-14T10:42:34.850Z Host node2.thi.gw.lo: updated status from \"preparing-successful\" to \"installing\" (Inst
2021-06-14T10:42:34.859Z Host cp1.thi.gw.lo: updated status from \"preparing-successful\" to \"installing\" (Instal
2021-06-14T10:43:00.577Z Host cp0.thi.gw.lo: updated status from \"installing\" to \"installing-in-progress\" (Star
2021-06-14T10:43:00.583Z Host cp0.thi.gw.lo: reached installation stage Starting installation: worker
2021-06-14T10:43:00.683Z Host cp0.thi.gw.lo: reached installation stage Installing: worker
2021-06-14T10:43:00.920Z Host cp0.thi.gw.lo: reached installation stage Writing image to disk
2021-06-14T10:43:01.932Z Host cp2.thi.gw.lo: updated status from \"installing\" to \"installing-in-progress\" (Star
2021-06-14T10:43:01.937Z Host cp2.thi.gw.lo: reached installation stage Starting installation: master
2021-06-14T10:43:02.038Z Host cp2.thi.gw.lo: reached installation stage Installing: master
2021-06-14T10:43:02.199Z Host cp2.thi.gw.lo: reached installation stage Writing image to disk
2021-06-14T10:43:03.091Z Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 9%
2021-06-14T10:43:04.102Z Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 16%
2021-06-14T10:43:04.319Z Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 8%
2021-06-14T10:43:05.090Z Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 26%
2021-06-14T10:43:05.317Z Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 15%
2021-06-14T10:43:06.088Z Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 36%
2021-06-14T10:43:06.330Z Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 23%
2021-06-14T10:43:07.337Z Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 32%
2021-06-14T10:43:08.090Z Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 43%
2021-06-14T10:43:08.321Z Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 38%
2021-06-14T10:43:08.553Z Host cp1.thi.gw.lo: updated status from \"installing\" to \"installing-in-progress\" (Star
2021-06-14T10:43:08.558Z Host cp1.thi.gw.lo: reached installation stage Starting installation: worker
2021-06-14T10:43:08.670Z Host cp1.thi.gw.lo: reached installation stage Installing: worker
2021-06-14T10:43:08.988Z Host cp1.thi.gw.lo: reached installation stage Writing image to disk
2021-06-14T10:43:10.085Z Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 51%
2021-06-14T10:43:10.365Z Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 45%
2021-06-14T10:43:11.751Z Host node2.thi.gw.lo: updated status from \"installing\" to \"installing-in-progress\" (Star
2021-06-14T10:43:11.756Z Host node2.thi.gw.lo: reached installation stage Starting installation: master
2021-06-14T10:43:11.889Z Host node2.thi.gw.lo: reached installation stage Installing: master

2021-06-14T10:43:02.038Z
2021-06-14T10:43:02.199Z
2021-06-14T10:43:03.091Z
2021-06-14T10:43:04.102Z
2021-06-14T10:43:04.319Z
2021-06-14T10:43:05.090Z
2021-06-14T10:43:05.317Z
2021-06-14T10:43:06.088Z
2021-06-14T10:43:06.330Z
2021-06-14T10:43:07.337Z
2021-06-14T10:43:08.090Z
2021-06-14T10:43:08.321Z
2021-06-14T10:43:08.553Z
2021-06-14T10:43:08.558Z
2021-06-14T10:43:08.670Z
2021-06-14T10:43:08.988Z
2021-06-14T10:43:10.085Z
2021-06-14T10:43:10.365Z
2021-06-14T10:43:11.751Z
2021-06-14T10:43:11.756Z
2021-06-14T10:43:11.889Z
2021-06-14T10:43:12.107Z
2021-06-14T10:43:12.139Z
2021-06-14T10:43:12.140Z
2021-06-14T10:43:12.372Z
2021-06-14T10:43:13.138Z
2021-06-14T10:43:14.143Z
2021-06-14T10:43:14.144Z
2021-06-14T10:43:14.376Z
2021-06-14T10:43:15.128Z
2021-06-14T10:43:15.136Z
2021-06-14T10:43:15.137Z
2021-06-14T10:43:15.237Z
2021-06-14T10:43:15.304Z
2021-06-14T10:43:15.400Z
2021-06-14T10:43:16.145Z
2021-06-14T10:43:16.315Z
2021-06-14T10:43:16.415Z
2021-06-14T10:43:18.168Z
2021-06-14T10:43:18.312Z
2021-06-14T10:43:19.312Z
2021-06-14T10:43:19.643Z
2021-06-14T10:43:20.188Z
2021-06-14T10:43:20.355Z
2021-06-14T10:43:20.643Z
2021-06-14T10:43:20.921Z
Host cp2.thi.gw.lo: reached installation stage Installing: master
Host cp2.thi.gw.lo: reached installation stage Writing image to disk
Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 9%
Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 16%
Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 8%
Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 26%
Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 15%
Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 36%
Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 23%
Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 32%
Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 43%
Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 38%
Host cp1.thi.gw.lo: updated status from \"installing\" to \"installing-in-progress\" (Starting installation)
Host cp1.thi.gw.lo: reached installation stage Starting installation: worker
Host cp1.thi.gw.lo: reached installation stage Installing: worker
Host cp1.thi.gw.lo: reached installation stage Writing image to disk
Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 51%
Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 45%
Host node2.thi.gw.lo: updated status from \"installing\" to \"installing-in-progress\" (Starting installation)
Host node2.thi.gw.lo: reached installation stage Starting installation: master
Host node2.thi.gw.lo: reached installation stage Installing: master
Host node2.thi.gw.lo: reached installation stage Writing image to disk
Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 56%
Host cp1.thi.gw.lo: reached installation stage Writing image to disk: 8%
Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 50%
Host cp1.thi.gw.lo: reached installation stage Writing image to disk: 14%
Host cp1.thi.gw.lo: reached installation stage Writing image to disk: 21%
Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 62%
Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 55%
Host node0.thi.gw.lo: updated status from \"installing\" to \"installing-in-progress\" (Starting installation)
Host node0.thi.gw.lo: reached installation stage Starting installation: worker
Host cp1.thi.gw.lo: reached installation stage Writing image to disk: 29%
Host node0.thi.gw.lo: reached installation stage Installing: worker
Host node2.thi.gw.lo: reached installation stage Writing image to disk: 6%
Host node0.thi.gw.lo: reached installation stage Writing image to disk
Host cp1.thi.gw.lo: reached installation stage Writing image to disk: 36%
Host node2.thi.gw.lo: reached installation stage Writing image to disk: 12%
Host cp2.thi.gw.lo: reached installation stage Writing image to disk: 60%
Host cp1.thi.gw.lo: reached installation stage Writing image to disk: 41%
Host node2.thi.gw.lo: reached installation stage Writing image to disk: 24%
Host node2.thi.gw.lo: reached installation stage Writing image to disk: 32%
Host node0.thi.gw.lo: reached installation stage Writing image to disk: 5%
Host cp0.thi.gw.lo: reached installation stage Writing image to disk: 67%
Host node2.thi.gw.lo: reached installation stage Writing image to disk: 37%
Host node0.thi.gw.lo: reached installation stage Writing image to disk: 11%
Host node1.thi.gw.lo: updated status from \"installing\" to \"installing-in-progress\" (Starting installation)

2021-06-14T10:44:02.855Z Host node1.thi.gw.lo: reached installation stage Writing image to disk: 32%
2021-06-14T10:44:03.868Z Host node1.thi.gw.lo: reached installation stage Writing image to disk: 38%
2021-06-14T10:44:03.912Z Host cp1.thi.gw.lo: reached installation stage Writing image to disk: 100%
2021-06-14T10:44:04.889Z Host node2.thi.gw.lo: reached installation stage Writing image to disk: 95%
2021-06-14T10:44:05.452Z Host node0.thi.gw.lo: reached installation stage Writing image to disk: 96%
2021-06-14T10:44:05.859Z Host node1.thi.gw.lo: reached installation stage Writing image to disk: 45%
2021-06-14T10:44:13.253Z Host node1.thi.gw.lo: reached installation stage Writing image to disk: 54%
2021-06-14T10:44:18.292Z Host node1.thi.gw.lo: reached installation stage Writing image to disk: 60%
2021-06-14T10:44:21.296Z Host node1.thi.gw.lo: reached installation stage Writing image to disk: 65%
2021-06-14T10:44:25.427Z Host node1.thi.gw.lo: reached installation stage Writing image to disk: 70%
2021-06-14T10:44:27.428Z Host node1.thi.gw.lo: reached installation stage Writing image to disk: 75%
2021-06-14T10:44:31.443Z Host node1.thi.gw.lo: reached installation stage Writing image to disk: 81%
2021-06-14T10:44:33.445Z Host node1.thi.gw.lo: reached installation stage Writing image to disk: 86%
2021-06-14T10:44:56.652Z Host node1.thi.gw.lo: reached installation stage Writing image to disk: 91%
2021-06-14T10:45:07.962Z Host node0.thi.gw.lo: reached installation stage Writing image to disk: 100%
2021-06-14T10:45:29.939Z Host node1.thi.gw.lo: reached installation stage Writing image to disk: 96%
2021-06-14T10:45:51.827Z Host node1.thi.gw.lo: reached installation stage Writing image to disk: 100%
2021-06-14T10:46:22.745Z Host node1.thi.gw.lo: reached installation stage Waiting for control plane
2021-06-14T10:47:21.789Z Host cp2.thi.gw.lo: reached installation stage Rebooting
2021-06-14T10:47:30.541Z Host node2.thi.gw.lo: reached installation stage Writing image to disk: 100%
2021-06-14T10:47:55.766Z Host cp0.thi.gw.lo: reached installation stage Rebooting
2021-06-14T10:49:21.129Z Host cp2.thi.gw.lo: reached installation stage Configuring
2021-06-14T10:49:38.990Z Host cp1.thi.gw.lo: reached installation stage Rebooting
2021-06-14T10:49:51.033Z Host cp0.thi.gw.lo: reached installation stage Waiting for ignition
2021-06-14T10:49:59.190Z Host node0.thi.gw.lo: reached installation stage Rebooting
2021-06-14T10:50:00.956Z Host node2.thi.gw.lo: reached installation stage Rebooting
2021-06-14T10:51:21.184Z Host cp1.thi.gw.lo: reached installation stage Waiting for ignition
2021-06-14T10:51:51.027Z Host node0.thi.gw.lo: reached installation stage Waiting for ignition
2021-06-14T10:51:51.100Z Host node2.thi.gw.lo: reached installation stage Configuring
2021-06-14T10:59:17.170Z Host cp2.thi.gw.lo: reached installation stage Joined
2021-06-14T10:59:17.244Z Host node2.thi.gw.lo: reached installation stage Joined
2021-06-14T10:59:17.329Z Host node1.thi.gw.lo: reached installation stage Waiting for bootkube
2021-06-14T11:04:22.756Z Host node1.thi.gw.lo: reached installation stage Waiting for controller: waiting for controller pod ready event
2021-06-14T11:04:22.775Z Host cp2.thi.gw.lo: updated status from \"installing-in-progress\" to \"installed\" (Done)
2021-06-14T11:04:22.808Z Host cp2.thi.gw.lo: reached installation stage Done
2021-06-14T11:04:22.916Z Host node2.thi.gw.lo: updated status from \"installing-in-progress\" to \"installed\" (Done)
2021-06-14T11:04:22.953Z Host node2.thi.gw.lo: reached installation stage Done
2021-06-14T11:04:30.107Z Host node1.thi.gw.lo: reached installation stage Rebooting
2021-06-14T11:06:22.008Z Host node1.thi.gw.lo: reached installation stage Configuring
2021-06-14T11:12:06.793Z Host node1.thi.gw.lo: reached installation stage Joined
2021-06-14T11:14:21.909Z Host node1.thi.gw.lo: updated status from \"installing-in-progress\" to \"installed\" (Done)
2021-06-14T11:14:21.941Z Host node1.thi.gw.lo: reached installation stage Done

2021-06-14T13:18:40.989Z
2021-06-14T13:18:40.957Z
2021-06-14T13:18:11.538Z
2021-06-14T13:17:11.030Z
2021-06-14T13:16:11.723Z
2021-06-14T13:15:41.029Z
2021-06-14T13:15:41.010Z
2021-06-14T13:15:12.136Z
2021-06-14T13:13:46.851Z
2021-06-14T13:13:41.117Z
2021-06-14T13:13:41.098Z
2021-06-14T13:13:41.014Z
2021-06-14T13:12:11.218Z
2021-06-14T13:10:11.026Z
2021-06-14T13:08:11.140Z
2021-06-14T13:06:40.982Z
2021-06-14T13:02:10.970Z
2021-06-14T13:02:10.947Z
2021-06-14T13:00:40.969Z
2021-06-14T12:54:41.000Z
2021-06-14T12:52:30.816Z
2021-06-14T12:50:14.158Z
2021-06-14T12:47:13.401Z
2021-06-14T12:47:13.364Z
2021-06-14T12:47:13.242Z
2021-06-14T12:47:13.215Z
2021-06-14T12:43:53.404Z
2021-06-14T12:43:53.344Z
2021-06-14T12:43:53.279Z
2021-06-14T12:38:47.790Z
2021-06-14T12:38:47.656Z
2021-06-14T12:38:47.556Z
2021-06-14T12:38:18.318Z
2021-06-14T12:38:18.204Z
2021-06-14T12:37:11.589Z
2021-06-14T12:37:10.463Z
2021-06-14T12:37:04.081Z
2021-06-14T12:37:00.084Z
2021-06-14T12:36:47.743Z
2021-06-14T12:36:38.423Z

Host node0.thi.gw.lo: reached installation stage Done
Host node0.thi.gw.lo: updated status from \"installing-in-progress\" to \"installed\" (Done)
Cluster version status: progressing message: Unable to apply 4.7.13: some cluster operators have not yet rolled back
Host node0.thi.gw.lo: reached installation stage Joined
Cluster version status: progressing message: Working towards 4.7.13: 649 of 669 done (97% complete)
Host cp2.thi.gw.lo: reached installation stage Done
Host cp2.thi.gw.lo: updated status from \"installing-in-progress\" to \"installed\" (Done)
Cluster version status: progressing message: Unable to apply 4.7.13: some cluster operators have not yet rolled back
Updated status of cluster thi to finalizing
Host node1.thi.gw.lo: reached installation stage Done
Host node1.thi.gw.lo: updated status from \"installing-in-progress\" to \"installed\" (Done)
Host cp2.thi.gw.lo: reached installation stage Joined
Host node1.thi.gw.lo: reached installation stage Joined
Host node0.thi.gw.lo: reached installation stage Configuring
Host cp2.thi.gw.lo: reached installation stage Configuring
Host node1.thi.gw.lo: reached installation stage Configuring
Host node2.thi.gw.lo: reached installation stage Done
Host node2.thi.gw.lo: updated status from \"installing-in-progress\" to \"installed\" (Done)
Host node2.thi.gw.lo: reached installation stage Joined
Host node2.thi.gw.lo: reached installation stage Configuring
Host node2.thi.gw.lo: reached installation stage Rebooting
Host node2.thi.gw.lo: reached installation stage Waiting for controller: waiting for controller pod ready even though it has been deleted
Host cp1.thi.gw.lo: reached installation stage Done
Host cp1.thi.gw.lo: updated status from \"installing-in-progress\" to \"installed\" (Done)
Host cp0.thi.gw.lo: reached installation stage Done
Host cp0.thi.gw.lo: updated status from \"installing-in-progress\" to \"installed\" (Done)
Host node2.thi.gw.lo: reached installation stage Waiting for bootkube
Host cp1.thi.gw.lo: reached installation stage Joined
Host cp0.thi.gw.lo: reached installation stage Joined
Host node0.thi.gw.lo: reached installation stage Waiting for ignition
Host node1.thi.gw.lo: reached installation stage Waiting for ignition
Host cp1.thi.gw.lo: reached installation stage Configuring
Host cp0.thi.gw.lo: reached installation stage Configuring
Host cp2.thi.gw.lo: reached installation stage Waiting for ignition
Host node0.thi.gw.lo: reached installation stage Rebooting
Host node1.thi.gw.lo: reached installation stage Rebooting
Host cp1.thi.gw.lo: reached installation stage Rebooting
Host cp2.thi.gw.lo: reached installation stage Rebooting
Host node2.thi.gw.lo: reached installation stage Waiting for control plane
Host cp0.thi.gw.lo: reached installation stage Rebooting

✓ Control Plane (3 masters)

⌚ 3 workers

⌚ Initialization

[Abort Installation](#)

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Hostname	Role	Status	Discovered At	CPU C...	Memo...	Disk	(6)
cp0.thi.gw.lo	Worker	⌚ Installing 5/8	6/14/2021, 5:36:53 AM	4	16.00 GiB	172.72 GB	⋮
cp1.thi.gw.lo	Worker	⌚ Installing 5/8	6/14/2021, 5:37:00 AM	4	16.00 GiB	172.72 GB	⋮
cp2.thi.gw.lo	Master	✓ Installed	6/14/2021, 5:36:50 AM	4	16.00 GiB	172.72 GB	⋮
node0.thi.gw.lo	Worker	⌚ Installing 5/8	6/14/2021, 5:38:07 AM	4	16.00 GiB	172.72 GB	⋮
node1.thi.gw.lo	Master (bootstrap)	✓ Installed	6/14/2021, 5:38:13 AM	4	16.00 GiB	172.72 GB	⋮
node2.thi.gw.lo	Master	✓ Installed	6/14/2021, 5:38:05 AM	4	16.00 GiB	172.72 GB	⋮

✓ Control Plane (3 masters)

✓ 3 workers

⌚ Initialization

Abort Installation

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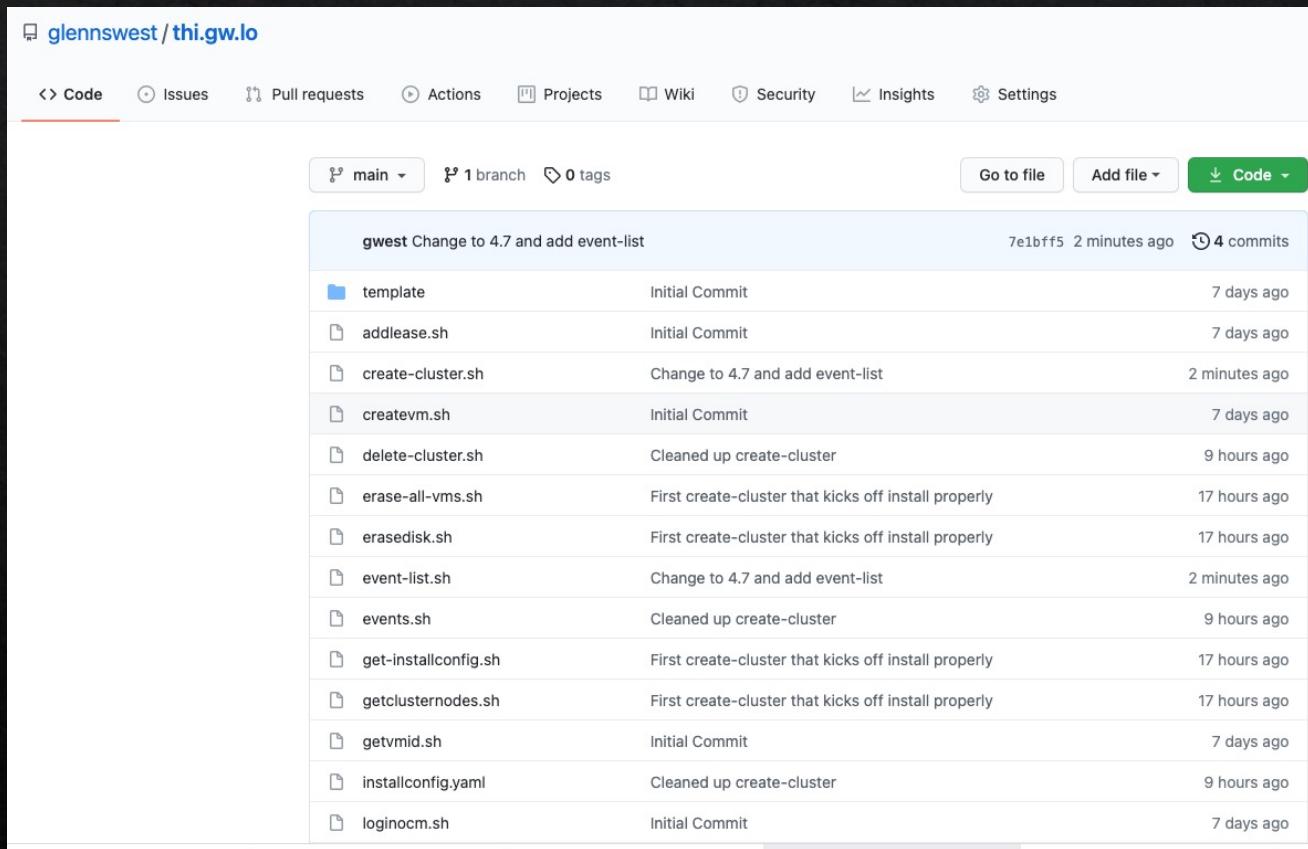
View Cluster Events

Hostname	Role	Status	Discovered At	CPU C...	Memory	Disk	(6)
cp0.thi.gw.lo	Master	✓ Installed	6/14/2021, 7:27:35 AM	4	16.00 GiB	172.76 GB	⋮
cp1.thi.gw.lo	Master	✓ Installed	6/14/2021, 7:27:42 AM	4	16.00 GiB	172.76 GB	⋮
cp2.thi.gw.lo	Worker	✓ Installed	6/14/2021, 7:27:41 AM	4	16.00 GiB	172.76 GB	⋮
node0.thi.gw.lo	Worker	✓ Installed	6/14/2021, 7:28:53 AM	4	16.00 GiB	172.76 GB	⋮
node1.thi.gw.lo	Worker	✓ Installed	6/14/2021, 7:28:53 AM	4	16.00 GiB	172.76 GB	⋮
node2.thi.gw.lo	Master (bootstrap)	✓ Installed	6/14/2021, 7:28:40 AM	4	16.00 GiB	172.76 GB	⋮

Issues

- ❖ Must set the roles - Automatic mode is not deterministic
- ❖ No validation of pull-secret - Just lazy fail after a long time
- ❖ Must manually set roles - (tbf)
- ❖ Latest seems not to work
- ❖ Reboot of worker during install didn't work - manual one need (tbf)
- ❖ Further Testing

For More Info



The screenshot shows a GitHub repository page for `glennewest/thi.gw.lo`. The repository has 1 branch and 0 tags. The main branch contains 4 commits by user `gwest` with commit ID `7e1bff5`, made 2 minutes ago. The commits are listed below:

File	Commit Message	Time Ago
<code>template</code>	Initial Commit	7 days ago
<code>addlease.sh</code>	Initial Commit	7 days ago
<code>create-cluster.sh</code>	Change to 4.7 and add event-list	2 minutes ago
<code>createvm.sh</code>	Initial Commit	7 days ago
<code>delete-cluster.sh</code>	Cleaned up create-cluster	9 hours ago
<code>erase-all-vms.sh</code>	First create-cluster that kicks off install properly	17 hours ago
<code>erasedisk.sh</code>	First create-cluster that kicks off install properly	17 hours ago
<code>event-list.sh</code>	Change to 4.7 and add event-list	2 minutes ago
<code>events.sh</code>	Cleaned up create-cluster	9 hours ago
<code>get-installconfig.sh</code>	First create-cluster that kicks off install properly	17 hours ago
<code>getclusternodes.sh</code>	First create-cluster that kicks off install properly	17 hours ago
<code>getvmid.sh</code>	Initial Commit	7 days ago
<code>installconfig.yaml</code>	Cleaned up create-cluster	9 hours ago
<code>loginocm.sh</code>	Initial Commit	7 days ago

◆ <https://github.com/glennewest/thi.gw.lo>