

VMware Container Networking with Antrea Installation Guide

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VMware Container Networking with Antrea 1.x

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<https://docs.vmware.com/>

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VMware Container Networking with Antrea Installation Guide

The *VMware Container Networking with Antrea Installation Guide* provides information on how to install Antrea on OpenShift and integrate with NSX-T. This guide is applicable to VMware Container Networking with Antrea 1.x releases.

Intended Audience

This guide is intended for system administrators who are familiar with OpenShift, vSphere and virtual networking.

Installing VMware Container Networking with Antrea on OpenShift

1

Read the following topics next:

- [Planning for the Installation](#)
- [Installation Steps](#)
- [Troubleshooting](#)
- [Integration of Antrea with NSX-T](#)

Planning for the Installation

Before installing VMware Container Networking with Antrea on OpenShift, note the information below and perform the prerequisite tasks.

- You can install OpenShift on a VM in vSphere or on a physical server.
- The installation instruction to install on vSphere is at https://docs.openshift.com/container-platform/4.9/installing/installing_vsphere/installing-vsphere.html.
- When installing the OpenShift cluster, select Antrea as the CNI. After the cluster is installed, the CNI cannot be changed. This is a Redhat limitation.
- Go to <https://downloads.vmware.com>, search for "VMware Container Networking with Antrea" and select "VMware Antrea 1.x Product Binaries". Download the following:
 - VMware Container Networking with Antrea (Advanced) – UBI image
 - VMware Container Networking with Antrea, K8s Operator Image
 - VMware Container Networking with Antrea, K8s Operator Manifests
- For the installation, you will need the Antrea container image and the Antrea Kubernetes Operator container image. These images can be made available in a Container Registry.
- OpenShift node VMs can be connected to vSphere VDS or N-VDS (NSX-managed VDS).
- A DHCP server is needed to provide IP addresses to the controller and worker nodes.
- You must configure two DNS entries for the OpenShift cluster. Details are in the OpenShift documentation. They are for the parameters `apiVIP` and `ingressVIP`. These parameters are in the `install-config.yaml` file mentioned below.

Installation Steps

To create an OpenShift cluster, follow the steps below.

- 1 Create a directory for the cluster creation files.

```
mkdir antrea-ocp
export ANTREAOCPP=./antrea-ocp
cd $ANTREAOCPP
```

- 2 Create `install-config.yaml`. You can find a sample file at https://docs.openshift.com/container-platform/4.9/installing/installing_vsphere/installing-vsphere.html#installation-vsphere-config-yaml_installing-vsphere. Set the compute and control plane parameters based on your environment. The `networkType` parameter must be `antrea`. Make sure that `apiVIP` and `ingressVIP` are correctly set. Here is a sample `install-config.yaml` with Antrea as the CNI:

```
apiVersion: v1
baseDomain: mylab.local
compute:
- hyperthreading: Enabled
  name: worker
  platform:
    vsphere:
      cpus: 6
      memoryMB: 32000
  replicas: 2
controlPlane:
  hyperthreading: Enabled
  name: master
  platform:
    vsphere:
      cpus: 6
      memoryMB: 32000
  replicas: 3
metadata:
  name: antrea_ocp
networking:
  networkType: antrea
  clusterNetwork:
  - cidr: 10.4.0.0/16
    hostPrefix: 23
  machineCIDR: 192.114.16.0/24
  serviceNetwork:
  - 172.30.0.0/16
platform:
  vsphere:
    vcenter: vcenter.mylab.local
    username: administrator@mylab.local
    password: myvCenterPassword!
    datacenter: Datacenter1
    defaultDatastore: NFS
    fips: false
```

```

network: ocp-segment-1
cluster: Rack1
apiVIP: 192.114.16.6
ingressVIP: 192.114.16.7
pullSecret: <...>
sshKey: <...>

```

3 Create the manifests:

```

cp /path/to/install-config.yaml $ANTREAOCP
cd $ANTREAOCP
openshift-install create manifests

```

4 Unzip the Kubernetes Operator manifest file (deploy.tar.gz) and copy the contents to the \$ANTREAOCP/manifests directory.

```

mkdir /path/to/antrea-operator-for-kubernetes
cd /path/to/antrea-operator-for-kubernetes/
tar xvfz deploy.tar.gz
cp /path/to/antrea-operator-for-kubernetes/deploy/openshift $ANTREAOCP/manifests

```

5 Edit the manifests to add the Antrea and operator images.

- In `operator.yaml`, update the `antrea-operator` image with the URI of the Antrea operator container image.
- In `operator.antrea.vmware.com_v1_antreainstall_cr.yaml`, change `antreaImage` to the URI of the Antrea container image.

6 Create a cluster.

```

cd $ANTREAOCP
openshift-install create cluster

```

This will create the required bootstrap VM, controller VMs and worker nodes and form the OpenShift cluster with Antrea as the CNI. The operation can take on an average of 45 minutes to an hour depending on the configuration.

7 When the cluster creation is complete, the following messages will be displayed:

```

INFO Install complete!
INFO To access the cluster as the system:admin user when using 'oc', run 'export
KUBECONFIG=$ANTREAOCP/auth/kubeconfig'
INFO Access the OpenShift web-console here: https://console-openshift-
console.apps.antocp.mylab.local
INFO Login to the console with user: "kubeadmin", and password: "xHXfa-quE3N-X99Xs-dGVff"
INFO Time elapsed: 42m17s

```

If the DNS is set correctly, you will be able to access your cluster using the web-console.

For CLI access, run the `export KUBECONFIG` as mentioned in the message above. For example:

```
export KUBECONFIG=$ANTREAOCF/auth/kubeconfig
oc get co
```

NAME	VERSION	AVAILABLE	PROGRESSING	DEGRADED
antrea	1.2.2	True	False	False
162m				
authentication	4.7.28	True	False	False
31m				
baremetal	4.7.28	True	False	False
157m				
cloud-credential	4.7.28	True	False	False
167m				
cluster-autoscaler	4.7.28	True	False	False
160m				
config-operator	4.7.28	True	False	False
162m				
console	4.7.28	True	False	False
142m				
csi-snapshot-controller	4.7.28	True	False	False
151m				
dns	4.7.28	True	False	False
160m				
etcd	4.7.28	True	False	False
160m				
image-registry	4.7.28	True	False	False
155m				
ingress	4.7.28	True	False	False
148m				
insights	4.7.28	True	False	False
155m				
kube-apiserver	4.7.28	True	False	False
158m				
kube-controller-manager	4.7.28	True	False	False
159m				
kube-scheduler	4.7.28	True	False	False
159m				
kube-storage-version-migrator	4.7.28	True	False	False
148m				
machine-api	4.7.28	True	False	False
156m				
machine-approver	4.7.28	True	False	False
160m				
machine-config	4.7.28	True	False	False
159m				
marketplace	4.7.28	True	False	False
159m				
monitoring	4.7.28	True	False	False
146m				
network	4.7.28	True	False	False
162m				

node-tuning 160m	4.7.28	True	False	False
openshift-apiserver 147m	4.7.28	True	False	False
openshift-controller-manager 160m	4.7.28	True	False	False
openshift-samples 152m	4.7.28	True	False	False
operator-lifecycle-manager 160m	4.7.28	True	False	False
operator-lifecycle-manager-catalog 160m	4.7.28	True	False	False
operator-lifecycle-manager-packageserver 155m	4.7.28	True	False	False
service-ca 162m	4.7.28	True	False	False
storage 162m	4.7.28	True	False	False

- 8 The cluster is now ready with Antrea as the CNI. At this point, you can deploy a new app or an Ingress controller, or perform any OpenShift cluster operation.

Note: It is recommended that you enable the `nodePortLocal` feature when NSX Advanced Load Balancer (ALB) is used as the Ingress controller. In `antrea-operator-for-kubernetes/deploy/openshift/operator.antrea.vmware.com_v1_antreainstall_cr.yaml`, set the following parameters:

- Under `antreaAgentConfig`, set `NodePortLocal: true`
- Under `antreaAgentConfig`, set `nplPortRange: 61000-62000` (you can change the port range based on your environment)

Troubleshooting

If you encounter errors when creating an OpenShift cluster, the following troubleshooting information might help.

- Error: OpenShift Cluster doesn't form: The bootstrap phase isn't complete.
Check the DNS settings and make sure `apiVIP` in `install-config.yaml` is correctly set.
- Error: OpenShift Cluster doesn't form: The worker nodes don't get IP addresses.
Ensure that the `NodeIPAM` features is enabled in the Antrea configmap file. In `antrea-operator-for-kubernetes/deploy/openshift/operator.antrea.vmware.com_v1_antreainstall_cr.yaml` make sure the following parameters are set:
 - `NodeIPAM: true` (under `antreaControllerConfig`)
 - `EnableNodeIPAM: true` (under `antreaControllerConfig : nodeIPAM`)

Integration of Antrea with NSX-T

You can integrate the OpenShift cluster you created with Antrea as the CNI with NSX-T. The integration can be done at any time after the cluster is created.

For more information, see <https://docs.vmware.com/en/VMware-NSX-T-Data-Center/3.2/administration/GUID-9197EF8A-7998-4D1B-B968-067007C56B5C.html>.

Installing VMware Container Networking with Antrea in `networkPolicyOnly` Mode

2

In `networkPolicyOnly` mode, Antrea runs as a secondary CNI and enforces Kubernetes network policies, Antrea network policies, and Antrea Cluster network policies. Pod IP management and network connectivity are provided by the primary CNI.

If your Kubernetes cluster is set up with other CNI plugins, you can install Antrea in `networkPolicyOnly` mode. If the Kubernetes cluster has no CNI plugins deployed, it is recommended that you install Antrea as the primary CNI.

For more information, see [Running Antrea in networkPolicyOnly Mode](#).

Planning the Installation

If you have an existing Kubernetes cluster with a routed CNI other than Antrea, and want to use Antrea's NetworkPolicy features, you can deploy Antrea in `networkPolicyOnly` mode. Antrea `networkPolicyOnly` mode is compatible with CNIs with routed traffic model.

Note that uninstalling VMware Container Networking with Antrea in `networkPolicyOnly` mode is not supported.

Installation Steps

- 1 From your browser, go to the [VMware Antrea download page](#). Download an Antrea commercial release of version 1.8.0 or later. The `networkPolicyOnly` all-in-one yaml file can be found in `Debian Image` and `Deployment Manifests` in the downloaded files.
- 2 Deploy the Antrea `networkPolicyOnly` all-in-one yaml in the Kubernetes cluster. For example, run the following command (note that the yaml file name contains "nponly"):

```
kubectl apply -f antrea-advanced-nponly-v1.13.0+vmware.1.yaml
```

To verify that Antrea is deployed successfully, run the following command and make sure that the Antrea controller and agent Pods are in the Running state.

```
kubectl get po -A -owide | grep antrea
```

- Restart all Pods (except hostNetwork Pods). The existing Pods require a restart to be managed by Antrea in `networkPolicyOnly` mode. The following sample script will delete all Pods and recreate them. The non-persistent data in the old Pods will not be kept, and the new Pods may get different IP addresses. The workload is unavailable during the recreation process.

```
for it in `kubectl get pods -A -o json | jq -c '.items[] | select(.spec.hostNetwork!=true and .status.phase!="Succeeded") | [.metadata.namespace, .metadata.name]`; do
  namespace=`echo $it | jq -r '.[0]`
  name=`echo $it | jq -r '.[1]`
  kubectl get pod $name -n $namespace -o yaml | kubectl replace --force -f -
done
```

We recommend deploying Antrea in `networkPolicyOnly` mode before deploying any production workloads. If Antrea in `networkPolicyOnly` mode is deployed on a production cluster, we recommend performing a rolling update on existing workloads to minimize the impact on availability.

- (Optional) Deploy Antrea-NSX adapter. For more information, see the NSX documentation [Integration of Kubernetes Clusters with Antrea CNI](#).

After the installation, you can check network connectivity with the following steps:

- Create a busybox Pod and access TTY. Run the following command:

```
kubectl run -n default busybox --image=busybox --image-pull-policy=IfNotPresent --restart=Never -it
```

- Check the IP configuration with the command `ip a`.
- Check network connectivity with the command `ping <PodIP/ExternalIP>`.
- Exit and delete the busybox Pod.

Troubleshooting

After applying the all-in-one yaml, if there are problems, you can troubleshoot with the following steps:

- Log in to to the worker node.
- Go to the CNI folder with the command `cd /etc/cni/net.d`.
- List the installed CNI conflist with the command `ls -l` and make sure that `05-antrea.conflist` exists and appears at the top of the list.
- View the content of `05-antrea.conflist`. Make sure that the previous CNIs are in this file and Antrea is appended at the end.

Integration of Antrea with NSX

See [Integration of Antrea Container Clusters](#).

The supported Antrea-NSX features are:

- Register/de-register cluster to NSX
- Manage Antrea Cluster Network Policies from NSX
- Send stats/alarms/events to NSX
- Traceflow
- Support bundle

Limitation:

- Traceflow to an external IP address may produce unexpected result.

NSX Interworking with Antrea Operator

3

Read the following topics next:

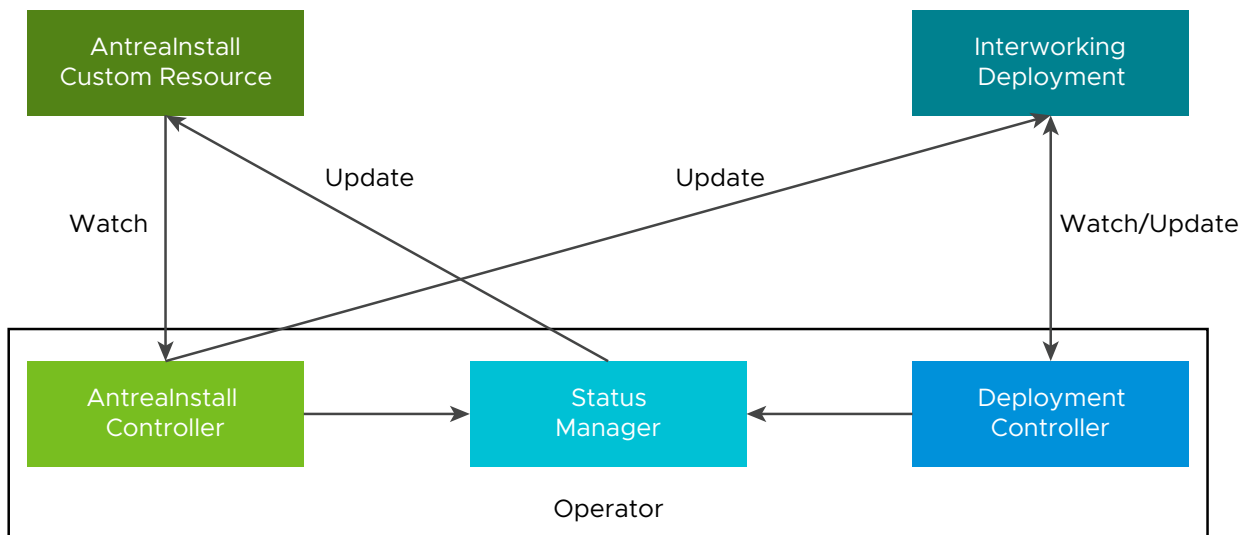
- Overview of Antrea Operator
- Prerequisites for Registering the Antrea Cluster with NSX
- Install Antrea-to-NSX Interworking
- Making Changes to Antrea-to-NSX Interworking

Overview of Antrea Operator

You can manage the Antrea-to-NSX interworking pod deployment on OpenShift using the Antrea Operator. You can deploy the interworking pods either during cluster creation or at a later time.

This feature requires that the Antrea version is 1.4.0 or later. For more information, see <https://docs.vmware.com/en/VMware-Container-Networking-with-Antrea/1.4.0/rn/VMware-Container-Networking-with-Antrea-Version-140-Release-Notes.html>.

The following diagram shows the main components of the Operator:



AntreaInstall Controller

The AntreaInstall Controller is responsible for watching and reconciling the antrea-install changes. It updates the adaptor and deploys the related objects. It also ensures that the adaptor status always matches the antrea-install configuration.

Deployment Controller

The deployment controller is responsible for the adaptor deployment changes. It also prevents the deployment from being updated by other users.

Status Manager

The status manager collects status information from the controllers and sends the status to antrea-install.

Prerequisites for Registering the Antrea Cluster with NSX

Before registering the Antrea Cluster with NSX, note the following prerequisites.

- Antrea 1.4.0 or later
- Antrea Operator for OpenShift manifest files
- Antrea interworking (UBI) image
- OpenShift Cluster with Antrea 1.4.0 or later
- NSX-T 3.2 or later
- The firewall is configured so that the required ports are open. To see the list of required ports, go to [Ports and Protocols](#), click the filter icon in the **Source** column, enter `Antrea` and press the **Enter** key.

Install Antrea-to-NSX Interworking

After you deploy a cluster using Antrea Operator, you can install the interworking pods.

- 1 Create a Principal Identity user in NSX. This involves creating a certificate (self-signed or CA signed), uploading the certificate to NSX and selecting the Enterprise Admin role. For more information, see <https://docs.vmware.com/en/VMware-NSX-T-Data-Center/3.2/administration/GUID-DC9552EA-D324-4959-BEE8-8609BC1FF1C3.html>. This involves creating a certificate (self-signed or CA-signed), uploading the certificate to NSX and selecting the Enterprise Admin role.

User Management

User Role Assignment Local Users Roles LDAP VMware Identity Manager

ADD ▾ 🔍 Search Available

User/User Group Name	Roles	Type
⋮ 👤 🔒 admin	Enterprise Admin	Local User
⋮ 👤 🔒 audit	Auditor	Local User
⋮ 👤 🔒 guestuser1	Auditor	Local User
⋮ 👤 🔒 guestuser2	Auditor	Local User
⋮ 🏢 🔒 ocp-antrea	Enterprise Admin	Principal Identity User

2 Edit the Antrea configuration in the `openshift/operator.antrea.vmware.com_v1_antreainstall_cr.yaml` file.

a Edit the `bootstrapConfig` section:

- `clusterName`: Name of the Antrea cluster. This name is visible in the NSX UI/API and identifies the Antrea cluster.
- `NSXManagers`: The IP addresses or FQDNs of the NSX Managers of an NSX instance. Each Antrea cluster can be registered with only one NSX instance. However, a single NSX instance can have multiple Antrea clusters registered to it. An NSX instance can have one NSX Manager or a cluster of three NSX Managers.
- `vhcPath`: For future use.

b For the parameter `interworkingImage`, specify the location of the `antrea-operator-interworking` image.

c Set the parameter `enableInterworking` to `true` to deploy the Antrea cluster. Set it to `false` to deregister the Antrea cluster.

If you want to make changes to the Antrea configuration, you must deregister the cluster, make the changes, and re-deploy the cluster.

```
bootstrapConfig: |
  # Operator won't reconcile changes in bootstrapConfig. If need to update bootstrapConfig, unregister
  # interworking first and register interworking again by setting field enableInterworking with true or false.
  # Fill in the cluster name. It should be unique among the clusters managed by the NSX-T.
  clusterName: ocp-antrea
  # Fill in the NSX manager IPs. If there is only one IP, the value should be like [dummyNSXIP1]
  NSXManagers: [10.221.108.3]
  # vhcPath is optional. By default it's empty. If need to inventory data isolation between clusters,
  # create VHC in NSX-T and fill the vhc path here.
  vhcPath: ""
  antreaImage: public.ecr.aws/h7/antrea-ubi:latest
  interworkingImage: east-2.amazonaws.com/antrea-operator-interworking:0.5.0
  antreaPlatform: openshift
  enableInterworking: true
```


- Verify that the Operator pod is running. If the Operator pod is not running, the Antrea interworking will not succeed.

```
vmware@ocp-jumphost:~$ oc get pods -n antrea-operator
NAME                                READY   STATUS    RESTARTS   AGE
antrea-operator-6c8cff89bf-p2tmk    1/1     Running   1 (8d ago)  8d
```

- Check the antreainstall configuration. The `enableInterworking` parameter should be `false`, meaning disabled.

```
vmware@ocp-jumphost:~$ oc get antreainstall antrea-install -n antrea-operator -o yaml > antrea-install.yaml
vmware@ocp-jumphost:~$ tail -40 antrea-install.yaml
  RealizeErrorSyncIntervalSeconds: 600
  ReconcilerWorkerCount: 8
  # Average QPS = ReconcilerWorkerCount * ReconcilerQPS
  ReconcilerQPS: 5.0
  # Peak QPS = ReconcilerWorkerCount * ReconcilerBurst
  ReconcilerBurst: 10
  # 24 Hours
  ReconcilerResyncSeconds: 86400
  enableInterworking: false
```

- Edit `nsx-cert.yaml` and add the certificate information of the principal identity created in step 1. Note that `tls.crt` and `tls.key` are one-line base64-encoded data.

```
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$ cat nsx-cert.yaml
apiVersion: v1
kind: Namespace
metadata:
  name: vmware-system-antrea
  labels:
    app: antrea-interworking
    openshift.io/run-level: '0'
---
apiVersion: v1
kind: Secret
metadata:
  name: nsx-cert
  namespace: vmware-system-antrea
type: kubernetes.io/tls
data:
  # One line base64 encoded data. Can be generated by command: cat tls.crt | base64 -w 0
  tls.crt:
    LS0tLS1CR...SVElGSUNBVEUtLS0tLQ0=
  # One line base64 encoded data. Can be generated by command: cat tls.key | base64 -w 0
  tls.key:
    LS0tL.....ljYUNKQnQ1cGQ0=
```

- Apply the Operator configuration changes.

```
oc apply -f operator.antrea.vmware.com_v1_antreainstall_cr.yaml
```

- Apply the `nsx-cert` yaml file.

```
oc apply -f nsx-cert.yaml
```

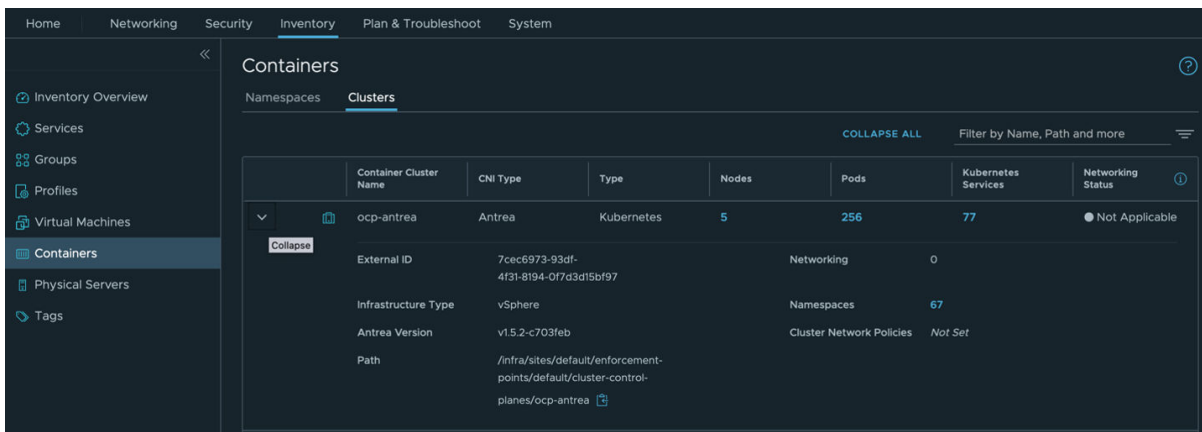
8 Check the status.

```
oc get pods -n vmware-system-antrea
```

```
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$ oc get pods -n vmware-system-antrea
NAME                                READY   STATUS    RESTARTS   AGE
interworking-7dd66fd48b-qcdsz      4/4     Running   0           33s
register--1-nx4mm                   0/1     Completed 0           63s
```

After a few seconds, the Antrea cluster should be registered with NSX. In the NSX Manager UI, under **System > Fabric > Nodes > Container Clusters > Antrea**, you should see the cluster and the status should be green.

Under **Inventory > Containers > Clusters**, you can see information about the cluster.



The Antrea cluster is now controlled by NSX.

Making Changes to Antrea-to-NSX Interworking

Before you make changes to the Antrea-to-NSX interworking, you must deregister the cluster.

You can make changes to the following:

- Cluster name
- Log level
- NSX Manager IP address or FQDN

To deregister the cluster, change the `enableInterworking` parameter to `false` and apply the configuration file.

```
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$ oc apply -f operator.antrea.vmware.com_v1_antreainstall_cr.yaml
antreainstall.operator.antrea.vmware.com/antrea-install configured
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$ oc get pods -n vmware-system-antrea
NAME                READY   STATUS    RESTARTS   AGE
deregister--1-gkt4d 0/1     Completed 0           11s
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$ oc get pods -n vmware-system-antrea
No resources found in vmware-system-antrea namespace.
vmware@ocp-jumphost:~/ocp/antrea/deploy/openshift$
```

Deregistering the cluster will remove all the ACNP on Antrea pushed from NSX. NSX Manager will still have the policies and rules but the Applied-To will be DFW.

CLI Command antreansxctl

4

You can use the `antreansxctl` command to manage your Antrea environment.

The syntax of the `antreansxctl` command:

```
antreansxctl --help
antrea-nsx command line utility - version -

Usage:
  antreansxctl [flags]
  antreansxctl [command]

Available Commands:
  bootstrap      Create cert and PI, generate the bootstrap config
  cluster-cleanup Clean up ClusterControlPlane and ContainerCluster in case K8s cluster is
destroyed without running deregister job. This operation is irreversible.
  cluster-get    Get ClusterControlPlane and ContainerCluster
  cluster-list   List all ClusterControlPlanes and ContainerClusters
  completion     Generate the autocompletion script for the specified shell
  help          Help about any command

Flags:
  -h, --help  help for antreansxctl

Use "antreansxctl [command] --help" for more information about a command.
```

Cluster cleanup

You can use the `antreansxctl cluster-cleanup` command to clean up Antrea data. You can run this command when the cluster has been destroyed before the `deregisterjob.yaml` has run.

To clean up a cluster's registration and inventory, run one of the following commands:

```
antreansxctl cluster-cleanup --cluster-name string --nsx-ip string --user string --password
string
antreansxctl cluster-cleanup --cluster-id string --nsx-ip string --user string --password
string
```

To clean up the registration and inventory for all clusters, run the following commands. This will deregister all Antrea clusters.

```
antreansxctl cluster-cleanup --delete-all --nsx-ip string --user string --password string
```

List all registered clusters

To list all registered clusters, including running clusters and left-over clusters, run the following command:

```
antreansxctl cluster-list --nsx-ip string --user string --password string
```

For example,

```
./bootstrap cluster-list --nsx-ip string --user admin --password
string

----- Cluster Control Plane Resources -----
  CLUSTER-NAME                CLUSTER-ID
wenqi-0004                    6c018574-cd1f-4da0-b0f5-5965b270cd22

----- Antrea Container Cluster Inventory Resources -----
  CLUSTER-NAME                CLUSTER-ID
wenqi-0004                    6c018574-cd1f-4da0-b0f5-5965b270cd22
```

View cluster registration and inventory information

Run one of the following commands:

```
antreansxctl cluster-get --cluster-name string --nsx-ip string --user string --password
string
antreansxctl cluster-get --cluster-id string --nsx-ip string --user string --password string
```

For example,

```
./bootstrap cluster-get --nsx-ip string --user string --password string --cluster-
name=string

----- Cluster Control Plane Resources -----
  CLUSTER-NAME                CLUSTER-ID
wenqi-0004                    6c018574-cd1f-4da0-b0f5-5965b270cd22

----- Antrea Container Cluster Inventory Resources -----
  CLUSTER-NAME                CLUSTER-ID
wenqi-0004                    6c018574-cd1f-4da0-b0f5-5965b270cd22
```

Bootstrap

Use this command to simplify the process of setting up a Kubernetes cluster and registering it to NSX Manager. It will automatically create a certificate and PI in NSX and generate the bootstrap configuration. The syntax is:

```
Usage:
  antreansxctl bootstrap [flags]

Flags:
  --bootstrap-config-yaml-file string  Optional. A bootstrap config yaml file path used
  as template input. The file can be found from Antrea-interworking deliverables. If this
  parameter is not provided, the command will use an embedded bootstrap config template, and
  the embedded bootstrap config comes from the same Antrea-interworking version as this command
  --cert string                        NSX manager admin cert
  --cluster-name string                Name of the cluster to be registered to NSX
  -h, --help                           help for bootstrap
  --key string                          NSX manager admin key
  --nsx-managers string                NSX manager IP or domain name, if there are
  multiple values, separate them with commas
  --password string                    NSX manager admin password
  --proxy-endpoints-rest-api string    Optional.The proxy-endpoints-rest-api should be a
  string slice that contains the IP address or domain name of the REST API endpoint, if there
  are multiple values, separate them with commas
  --proxy-endpoints-rpc-fwd string     Optional.The proxy-endpoints-rpc-fwd should be a
  string slice that contains the IP address or domain name of the NSX RPC forward proxy, if
  there are multiple values, separate them with commas
  --user string                         NSX manager admin username
  --vpcPath string                     Optional.It`s the NSX VPC path assigned to
  this cluster. Example: /orgs/default/projects/project1/vpcs/my-vpc1 . If VPC path is not
  specified, Enterprise admin role is assigned to the PI. If VPC path is specified, multi
  tenant Role bound to the VPC is assigned to the PI.
```

The following command will create a PI in NSX and generate a certificate, and generate the bootstrap-config.yaml.

```
antreansxctl bootstrap --user string --password string --nsx-managers string --cluster-name
string --vpcPath string --bootstrap-config-yaml-file string
```

The `antreansxctl bootstrap` options:

- `--cert string`: NSX manager admin cert, either admin cert+key or admin username+password is required for authenticating with NSX.
- `--cluster-name string`: Required. Name of the cluster to be registered to NSX.
- `--key string`: NSX manager admin key, either admin cert+key or admin username+password is required for authenticating with NSX.
- `--nsx-managers string`: Required. NSX manager IP or domain name, if there are multiple values, separate them with commas.

- `--proxy-endpoints-rest-api string`: Optional. The proxy-endpoints-rest-api should be a string slice that contains the IP address or domain name of the REST API endpoint, if there are multiple values, separate them with commas.
- `--proxy-endpoints-rpc-fwd string`: Optional. The proxy-endpoints-rpc-fwd should be a string slice that contains the IP address or domain name of the NSX RPC forward proxy, if there are multiple values, separate them with commas.
- `--password string`: NSX manager admin password, either admin cert+key or admin username+password is required for authenticating with NSX.
- `--user string`: NSX manager admin username, either admin cert+key or admin username+password is required for authenticating with NSX.
- `--vpcPath string`: Optional. It's the NSX VPC path assigned to this cluster. Example: /orgs/default/projects/project1/vpcs/my-vpc1 . If VPC path is not specified, Enterprise admin role is assigned to the PI. If VPC path is specified, multi tenant Role bound to the VPC is assigned to the PI.
- `--bootstrap-config-yaml-file string`: Optional. A bootstrap config yaml file path used as template input. The file can be found from Antrea-interworking deliverables. If this parameter is not provided, the command will use an embedded bootstrap config template, and the embedded bootstrap config comes from the same Antrea-interworking version as this command.

Upgrading Antrea and Restoring to a Previous Version

5

Read the following topics next:

- [Upgrading Antrea](#)
- [Restoring Antrea to a Previous Version](#)

Upgrading Antrea

Follow the steps below to upgrade Antrea with antrea-operator on OpenShift.

Procedure

- 1 Prepare the manifests and image (`antrea-operator/antrea/antrea-interworking`) with the new version.
- 2 Update the role with the command `oc apply -f role.yaml`.
- 3 Upgrade antrea-operator by replacing the old image with the new image.

You can either edit `operator.yaml` or edit the deployment with the command `oc -n antrea-operator edit deploy antrea-operator`. Make sure that the antrea-operator pod is running.

- 4 Upgrade Antrea and antrea-interworking.

- a Edit antreainstall CR.

You can either edit `operator.antrea.vmware.com_v1_antreainstall_cr.yaml` or run the command `oc -n antrea-operator edit antreainstall antrea-install`. Update `antreaImage` with the new image.

- b (Optional) If antrea-interworking is enabled, update `interworkingImage` with the new antrea-interworking image.
- c Apply the changes.

- 5 Check the status.

- a Make sure that antrea-controller and antrea-agent are running.
- b Check the version of clusteroperator antrea with the command `oc get co antrea`.

Restoring Antrea to a Previous Version

Follow the steps below to restore Antrea to a previous version.

Procedure

- 1 Prepare the manifests and image (`antrea-operator/antrea/antrea-interworking`) with the target version.

- 2 Restore `antrea-operator` by replacing the operator image.

You can either edit `operator.yaml` or edit the deployment with the command `oc -n antrea-operator edit deploy antrea-operator`. Make sure that the `antrea-operator` pod is running.

- 3 Restore Antrea and `antrea-interworking` to a previous version.

- a Edit `antreainstall` CR.

You can either edit `operator.antrea.vmware.com_v1_antreainstall_cr.yaml` or run the command `oc -n antrea-operator edit antreainstall antrea-install`. Update `antreaImage`.

- b (Optional) If `antrea-interworking` is enabled, update `interworkingImage`.

- c Apply the changes.

- 4 Check the status.

- a Make sure that `antrea-controller` and `antrea-agent` are running.

- b Check the version of clusteroperator `antrea` with the command `oc get co antrea`.