Openshift 4.3 cluster on your laptop or Desktop.

Code Ready Containers CRC How to.

Starting with an Openshift cluster on your laptop or desktop.

There are versions for Linuz, Mac-OS and Windows.

Prereq:

You will need a free Redhat.com account if you don’t already have one.

Go to <https://www.openshift.com/>

Either login in or create an account. This is required for the pull secret.

Linux Install

Step 1: Install required software packages

CodeReady Containers requires the libvirt and NetworkManager packages to be installed on the host system prior to its setup.

------- Fedora ----------

sudo dnf install NetworkManager qemu-kvm libvirt virt-installg

sudo systemctl enable --now libvirtd

------ CentOS 7 ---------

sudo yum -y install qemu-kvm libvirt virt-install bridge-utils NetworkManager

sudo systemctl enable --now libvirtd

------ Ubuntu ----------

sudo apt install qemu-kvm libvirt-daemon libvirt-daemon-system network-managerh

Step 2: Install CodeReady Containers

Download the latest binary file for CRC from the below URL.

This is for windows or linix or Mac-os

<https://mirror.openshift.com/pub/openshift-v4/clients/crc/latest/crc-linux-amd64.tar.xz>

This is specific to linux

wget <https://mirror.openshift.com/pub/openshift-v4/clients/crc/latest/crc-linux-amd64.tar.xz>

Extract the downloaded CodeReady Containers archive.

tar xvf crc-linux-amd64.tar.xz

Place the binary in your $PATH .

cd crc\*/

sudo cp crc /usr/local/bin

Confirm installation by checking the software version.

$ crc version

crc version: 1.7.0+fa7e558

OpenShift version: 4.3.1 (embedded in binary)

You will also need a Web Browser : There are several options here is

How to install Google Chrome on Linux.

**Enable Google YUM Repository**

1. vi /etc/yum.repos.d/google-chrome.repo

Populate with ,

[google-chrome]

name=google-chrome

baseurl=http://dl.google.com/linux/chrome/rpm/stable/$basearch

enabled=1

gpgcheck=1

gpgkey=https://dl-ssl.google.com/linux/linux\_signing\_key.pub

Save the file,

1. **Install Google Chrome**

**Find it, # yum info google-chrome-stable**

**Install it, # yum install google-chrome-stable**

**Update it, # # yum update google-chrome-stable**

1. **If you want to install this on a remote linux station and work remotely from a**

**Windows Laptop you can install a X-viewer like “Xming”**

To view crc commands help page, run:

$ crc --help

CodeReady Containers is a tool that manages a local OpenShift 4.x cluster optimized for testing and development purposes

Usage:

crc [flags]

crc [command]

Available Commands:

config Modify crc configuration

console Open the OpenShift Web Console in the default browser

delete Delete the OpenShift cluster

help Help about any command

ip Get IP address of the running OpenShift cluster

oc-env Add the 'oc' binary to PATH

setup Set up prerequisites for the OpenShift cluster

start Start the OpenShift cluster

status Display status of the OpenShift cluster

stop Stop the OpenShift cluster

version Print version information

Flags:

-f, --force Forcefully perform an action

-h, --help help for crc

--log-level string log level (e.g. "debug | info | warn | error") (default "info")

Step 3: Deploy CodeReady Containers virtual machine.

Run the crc setup command to set up your host operating system for the CodeReady Containers virtual machine.

$ crc setup

The installer will check for setup requirements before installation.

INFO Checking if running as non-root

INFO Caching oc binary

INFO Setting up virtualization

INFO Setting up KVM

INFO Installing libvirt service and dependencies

INFO Adding user to libvirt group

INFO Enabling libvirt

INFO Starting libvirt service

INFO Will use root access: start libvirtd service

INFO Checking if a supported libvirt version is installed

INFO Installing crc-driver-libvirt

INFO Removing older system-wide crc-driver-libvirt

INFO Setting up libvirt 'crc' network

INFO Starting libvirt 'crc' network

INFO Checking if NetworkManager is installed

INFO Checking if NetworkManager service is running

INFO Writing Network Manager config for crc

INFO Will use root access: write NetworkManager config in /etc/NetworkManager/conf.d/crc-nm-dnsmasq.conf

INFO Will use root access: execute systemctl daemon-reload command

INFO Will use root access: execute systemctl stop/start command

INFO Writing dnsmasq config for crc

INFO Will use root access: write dnsmasq configuration in /etc/NetworkManager/dnsmasq.d/crc.conf

INFO Will use root access: execute systemctl daemon-reload command

INFO Will use root access: execute systemctl stop/start command

INFO Unpacking bundle from the CRC binary

Once the Setup is complete, run the command below to start the OpenShift cluster in your Laptop machine.

$ crc start

INFO Checking if running as non-root

INFO Checking if oc binary is cached

INFO Checking if Virtualization is enabled

INFO Checking if KVM is enabled

INFO Checking if libvirt is installed

INFO Checking if user is part of libvirt group

INFO Checking if libvirt is enabled

INFO Checking if libvirt daemon is running

INFO Checking if a supported libvirt version is installed

INFO Checking if crc-driver-libvirt is installed

INFO Checking if libvirt 'crc' network is available

INFO Checking if libvirt 'crc' network is active

INFO Checking if NetworkManager is installed

INFO Checking if NetworkManager service is running

INFO Checking if /etc/NetworkManager/conf.d/crc-nm-dnsmasq.conf exists

INFO Checking if /etc/NetworkManager/dnsmasq.d/crc.conf exists

? Image pull secret [? for help] \*

Please note that a valid OpenShift user pull secret is required during installation. The pull secret can be copied or downloaded from the Pull Secret section of the Install on Laptop: Red Hat CodeReady Containers page on cloud.redhat.com.

Paste the pulling secret when prompted, then cluster setup will continue.

INFO Extracting bundle: crc\_libvirt\_4.3.1.crcbundle ...

INFO Creating CodeReady Containers VM for OpenShift 4.3.1...

INFO Verifying validity of the cluster certificates ...

INFO Check internal and public DNS query ...

INFO Copying kubeconfig file to instance dir ...

INFO Adding user's pull secret and cluster ID ...

INFO Starting OpenShift cluster ... [waiting 3m]

INFO Then you can access it by running 'oc login -u developer -p developer <https://api.crc.testing:6443'>

INFO To login as an admin, username is 'kubeadmin' and password is UMeRe-hBQAi-JJ4Bi-8ynRD

INFO

INFO You can now run 'crc console' and use these credentials to access the OpenShift web console

Started the OpenShift cluster

WARN The cluster might report a degraded or error state. This is expected since several operators have been disabled to lower the resource usage. For more information, please consult the documentation

Access details and credentials are printed after a successful setup.

INFO Then you can access it by running 'oc login -u developer -p developer <https://api.crc.testing:6443'>

INFO To login as an admin, username is 'kubeadmin' and password is UMeRe-hBQAi-JJ4Bi-8ynRD

INFO You can now run 'crc console' and use these credentials to access the OpenShift web console

To be able to access your cluster, first set up your environment by running.

$ crc oc-env

export PATH="/home/jmutai/.crc/bin:$PATH"

eval $(crc oc-env)

Run the commands printed in your terminal or add them to your ~/.bashrc or ~/.zshrc file, then source it.

$ vim ~/.bashrc

export PATH="~/.crc/bin:$PATH"

eval $(crc oc-env)

-- Then source ---

$ source ~/.bashrc

Login as Admin using command printed out:

$ oc login -u kubeadmin -p UMeRe-hBQAi-JJ4Bi-8ynRD <https://api.crc.testing:6443>

The server uses a certificate signed by an unknown authority.

You can bypass the certificate check, but any data you send to the server could be intercepted by others.

Use insecure connections? (y/n): y

Login successful.

You have access to 53 projects, the list has been suppressed. You can list all projects with 'oc projects'

Using project "default".

Confirm cluster setup.

$ oc cluster-info

Kubernetes master is running at <https://api.crc.testing:6443>

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.

$ oc get nodes

NAME STATUS ROLES AGE VERSION

crc-2n9vw-master-0 Ready master,worker 5d13h v1.14.6+6ac6aa4b0

$ oc config view

apiVersion: v1

clusters:

- cluster:

insecure-skip-tls-verify: true

server: <https://api.crc.testing:6443>

name: api-crc-testing:6443

- cluster:

certificate-authority: /home/jmutai/.minikube/ca.crt

server: <https://192.168.39.35:8443>

name: minikube

contexts:

- context:

cluster: api-crc-testing:6443

user: developer/api-crc-testing:6443

name: /api-crc-testing:6443/developer

- context:

cluster: api-crc-testing:6443

namespace: default

user: kube:admin/api-crc-testing:6443

name: default/api-crc-testing:6443/kube:admin

- context:

cluster: minikube

user: minikube

name: minikube

current-context: default/api-crc-testing:6443/kube:admin

kind: Config

preferences: {}

users:

- name: developer/api-crc-testing:6443

user:

token: Pvqjq-b5HkV9UQtOYH8P9yOtm17MrOUVs-eaiSeQqXA

- name: kube:admin/api-crc-testing:6443

user:

token: LDrdGJMUpPUAxtg0IvWynedbtSBLjs8S2S6kdpvbMU8

- name: minikube

user:

client-certificate: /home/jmutai/.minikube/client.crt

client-key: /home/jmutai/.minikube/client.key

To view cluster operators:

$ oc get clusteroperators

NAME VERSION AVAILABLE PROGRESSING DEGRADED SINCE

authentication 4.3.1 True False False 23d

cloud-credential 4.3.1 True False False 23d

cluster-autoscaler 4.3.1 True False False 23d

console 4.3.1 True False False 23d

dns 4.3.1 True False False 16m

image-registry 4.3.1 True False False 23d

ingress 4.3.1 True False False 23d

insights 4.3.1 True False False 23d

kube-apiserver 4.3.1 True False False 23d

kube-controller-manager 4.3.1 True False False 23d

kube-scheduler 4.3.1 True False False 23d

machine-api 4.3.1 True False False 23d

machine-config 4.3.1 True False False 23d

marketplace 4.3.1 True False False 15m

monitoring 4.3.1 True False False 23d

network 4.3.1 True False False 23d

node-tuning 4.3.1 True False False 16m

openshift-apiserver 4.3.1 True False False 23d

openshift-controller-manager 4.3.1 True False False 10m

openshift-samples 4.3.1 True False False 23d

operator-lifecycle-manager 4.3.1 True False False 23d

operator-lifecycle-manager-catalog 4.3.1 True False False 23d

operator-lifecycle-manager-packageserver 4.3.1 True False False 15m

service-ca 4.3.1 True False False 23d

service-catalog-apiserver 4.3.1 True False False 23d

service-catalog-controller-manager 4.3.1 True False False 23d

storage 4.3.1 True False False 23d

Step 4: Access OpenShift Cluster

You can access the OpenShift cluster deployed locally from CLI or by opening the OpenShift 4.x console on your web browser.

$ oc login -u developer -p developer <https://api.crc.testing:6443>

The server uses a certificate signed by an unknown authority.

You can bypass the certificate check, but any data you send to the server could be intercepted by others.

Use insecure connections? (y/n): y

Login successful.

You don't have any projects. You can try to create a new project, by running

oc new-project <projectname>

Access as admin:

$ oc login -u kubeadmin -p UMeRe-hBQAi-JJ4Bi-8ynRD <https://api.crc.testing:6443>

Login successful.

You have access to 51 projects, the list has been suppressed. You can list all projects with 'oc projects'

Using project "default".

To open the console from your default web browser, run:

$ crc console

Login with the credentials printed earlier.

There you have a cluster running.

Step 5: Stopping OpenShift Cluster

To stop your OpenShift cluster, run the command:

$ crc stop

Stopping the OpenShift cluster, this may take a few minutes...

Stopped the OpenShift cluster

The virtual machine can be started any time by running the command:

$ crc start

INFO Checking if running as non-root

INFO Checking if oc binary is cached

INFO Checking if Virtualization is enabled

INFO Checking if KVM is enabled

INFO Checking if libvirt is installed

INFO Checking if user is part of libvirt group

INFO Checking if libvirt is enabled

INFO Checking if libvirt daemon is running

INFO Checking if a supported libvirt version is installed

INFO Checking if crc-driver-libvirt is installed

INFO Checking if libvirt 'crc' network is available

INFO Checking if libvirt 'crc' network is active

INFO Checking if NetworkManager is installed

INFO Checking if NetworkManager service is running

INFO Checking if /etc/NetworkManager/conf.d/crc-nm-dnsmasq.conf exists

INFO Checking if /etc/NetworkManager/dnsmasq.d/crc.conf exists

INFO Starting CodeReady Containers VM for OpenShift 4.2.8...

INFO Verifying validity of the cluster certificates ...

INFO Check internal and public DNS query ...

INFO Starting OpenShift cluster ... [waiting 3m]

INFO

INFO To access the cluster, first set up your environment by following 'crc oc-env' instructions

INFO Then you can access it by running 'oc login -u developer -p developer <https://api.crc.testing:6443'>

INFO To login as an admin, username is 'kubeadmin' and password is UMeRe-hBQAi-JJ4Bi-8ynRD

INFO

...

Deleting CodeReady Containers virtual machine

If you want to delete an existing CodeReady Containers virtual machine, run:

$ crc delete