

IBM Cloud Pak for Automation includes entitlement to use Red Hat OpenShift Container Platform, Red Hat Enterprise Linux CoreOS (RHCOS), and Red Hat Enterprise Linux (RHEL). RHCOS is the only supported operating system for OpenShift Container Platform master node hosts. RHCOS and RHEL are both supported operating systems for OpenShift Container Platform worker node hosts, though RHCOS is the default.

Installing Red Hat OpenShift Container Platform

OpenShift Container Platform 4.x can be downloaded and installed by accessing Red Hat OpenShift Cluster Manager at <https://cloud.redhat.com/openshift/install> using your Red Hat account, which can be created freely, without a paid Red Hat subscription entitlement to any IBM offering.

If you do not yet have a Red Hat account, create one for free at <https://www.redhat.com/wapps/ugc/register.html> before following the remaining instructions.

If you have a Red Hat account, navigate to <https://cloud.redhat.com/openshift/install> and log in with your account credentials.

The cluster manager will display several tiles representing various cloud providers and infrastructure types. Click the tile for the type of infrastructure where you would like to install the OpenShift Container Platform. Some cloud providers support Installer-Provisioned Infrastructure, which installs OpenShift Container Platform on cloud infrastructure that is automatically provisioned by the Cluster Manager. For other cloud providers an infrastructure types, a cluster can be installed on User-Provisioned Infrastructure.

Select your preferred infrastructure type and choose Installer-Provisioned Infrastructure or User-Provisioned Infrastructure, then follow the instructions that are displayed.

For any of the User-Provisioned Infrastructure types, including the “Bare Metal” tile, you will be presented with a short series of steps to follow. For detailed installation instructions, you can click the “Get Started” link to open the official installation documentation. For the “Bare Metal” infrastructure type, the documentation can be located at https://docs.openshift.com/container-platform/4.2/installing/installing_bare_metal/installing-bare-metal.html.

1. Download the OpenShift installer using the link provided by the Cluster Manager website. These files are accessible directly over the internet, and do not require a Red Hat ID to download.
2. Download or copy your OpenShift pull secret. This step requires you to be logged in with a Red Hat ID but does not require a paid subscription.
3. Download Red Hat Enterprise Linux CoreOS (RHCOS) using the link provided by the Cluster Manager website. These files are accessible directly over the internet, and do not require a Red Hat ID to download.

4. Download the OpenShift Command Line Tools (openshift-install) using the link provided by the Cluster Manager website and add them to your PATH. These files are accessible directly over the internet, and do not require a Red Hat ID to download.
5. Follow the official documentation for your infrastructure type to complete the installation using the openshift-install command. When the installer is complete you will see the console URL and credentials for accessing your new cluster. A kubeconfig file will also be generated for you to use with the oc CLI tools you downloaded.

Optional: accessing Red Hat Enterprise Linux installation binaries

RHCOS is the only supported operating system for OpenShift Container Platform master node hosts. RHCOS and RHEL are both supported operating systems for OpenShift Container Platform worker node hosts, though RHCOS is the default. If you prefer to use Red Hat Enterprise Linux (RHEL) as the operating system for the worker node hosts, you will need to download the RHEL installation binaries separately, as they are not available to download without paid entitlement.

The preferred method of accessing and installing RHEL is to follow the standard installation documentation from Red Hat and register your systems using your Red Hat Network subscription. Installation binaries, documentation, and entitlement information can all be accessed from the Red Hat Customer Portal at <https://access.redhat.com>. If you are new to the Red Hat Customer Portal, click **Getting Started** after you have logged in (or use this link: <https://access.redhat.com/start/>) to take a guided tour of the and learn how to get the most out of your Red Hat subscription.

Preferred method for accessing RHEL: using the Red Hat Customer Portal

Accessing installation binaries through the Red Hat Customer Portal

After your Cloud Pak order has been processed, you will receive an email from Red Hat at the address associated with your order indicating that the entitlement quantities for your Red Hat OpenShift Container Platform and subscription has been updated.

Installing Red Hat Enterprise Linux

OpenShift Container Platform 4.2 is supported on Red Hat Enterprise Linux 7.6 or later. If you do not already have Red Hat Enterprise Linux installed, use the following documentation to complete the installation of Red Hat Enterprise Linux.

Red Hat Enterprise Linux 7.7 installation media can be accessed through the Red Hat Customer portal at https://access.redhat.com/downloads/content/69/ver=/rhel---7/7.7/x86_64/product-software.

Instructions for downloading and installing Red Hat Enterprise Linux 7, including registering your installation using Subscription Manager, can be found in the Red Hat Customer Portal at: https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/7/html/installation_guide/chap-getting-started

Installing Red Hat OpenShift Container Platform

Once you have successfully provisioned hosts or virtual machines with Red Hat Enterprise Linux installed and registered, proceed to install OpenShift Container Platform 4.2 by following the documentation provided in the Red Hat Customer Portal:

https://access.redhat.com/documentation/en-us/openshift_container_platform/4.2/html-single/installing/index

Alternate Method for accessing RHEL: using IBM Passport Advantage

Accessing binaries for manual installation from IBM Passport Advantage

If you require the ability to install the Cloud Pak before your entitlements have been updated in the Red Hat Customer Portal, all of the binary files necessary to perform an installation of Red Hat OpenShift Container Platform and Red Hat Enterprise Linux CoreOS are available for download using a freely available Red Hat ID as described earlier. These binaries are not available for download using IBM Passport Advantage.

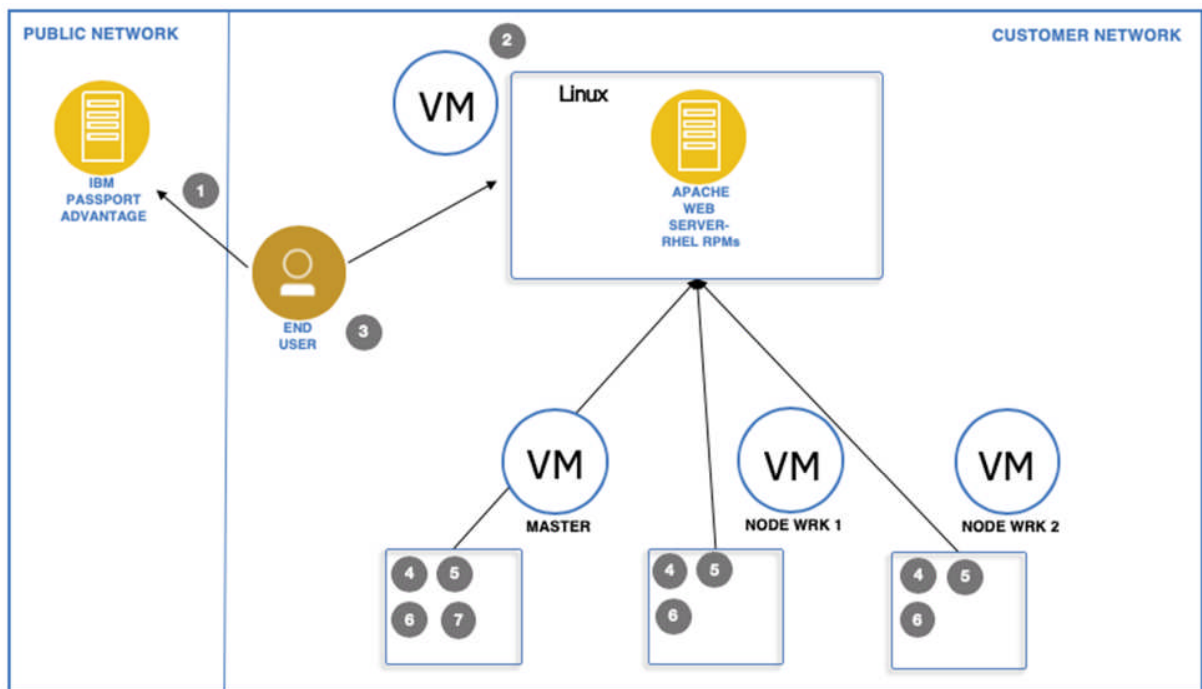
If you choose to install Red Hat Enterprise Linux as the host operating system on your worker nodes before and do not yet have an active Red Hat subscription, Red Hat Enterprise Linux 7.7 is accessible through IBM Passport Advantage. Installation images and RPMs for Red Hat Enterprise Linux 7.7 can be downloaded from IBM Passport Advantage (Part number CC4KJEN) , which is part of your Cloud Pak eAssembly.) This file has the description “IBM Red Hat Enterprise Linux English only eImage” in IBM Passport Advantage. This installation is required to be registered and associated with your Red Hat Network ID at a later time.

The download is approximately 50GB in size, and additional storage will be required when extracting the files.

This manual installation process requires the creation of a local HTTP server to host the RPM files that are provided in the above download package. These steps are not required when using the preferred installation method described above, since that scenario enables access to the necessary files through Red Hat Network.

To perform a manual installation, follow the procedure outlined below:

1. Download the Red Hat Enterprise Linux installation files from Passport Advantage (if you don't already have Red Hat Enterprise Linux installed)
2. Provision a web server to host a Yum repository
3. Copy the downloaded files to the web server
4. Install Red Hat Enterprise Linux on the worker nodes
5. Install OpenShift Container Platform using the official documentation



Download the Red Hat Enterprise Linux installation files from Passport Advantage

Log into IBM Passport Advantage and download “IBM Red Hat Enterprise Linux English only elimage” (part number CC4KJEN) which is associated with the Cloud Pak eAssembly. This will download a file named **IBM_RED_HAT_ENTERPRISE_LINUX_ENGLISH.tgz**.

Provision a web server to host a Yum repository

Provision a physical host or virtual machine with an HTTP server to support the local installation. You can use the web server of your choice as the repository.

If you do not have a web server available, you can install and configure the Apache web server on a Red Hat Enterprise Linux system using the documentation provided by Red Hat under the

heading “Prepare and populate the repository server”: https://docs.openshift.com/container-platform/3.11/install/disconnected_install.html#disconnected-repo-server

Copy the downloaded files to the web server

Copy IBM_RED_HAT_ENTERPRISE_LINUX_ENGLISH.tgz to the web server and extract it into a subdirectory named “repos” under your web server’s document root (/var/www/html/repos if you have created a web server using the documentation above.)

Ensure that the repository files can be read by any user (chmod -R +r /var/www/html/repos)

Install Red Hat Enterprise Linux on the worker nodes

If you don’t already have Red Hat Enterprise Linux installed, provision the hosts or VMs that will be used for the master and worker nodes for the OpenShift Container Platform cluster where you will install the Cloud Pak, and install Red Hat Enterprise Linux using the ISO downloaded from IBM Passport Advantage.

Complete instructions for downloading and installing Red Hat Enterprise Linux, including prerequisites and host preparation, can be found in the Red Hat Customer Portal at:

https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/7/html/installation_guide/chap-getting-started

- An ISO image of the installation media (rhel-server-7.7-x86_64-dvd.iso) can be found in the directory where you extracted the file downloaded from IBM Passport Advantage above. Use these files in place of steps in Chapter 2 of the Red Hat Enterprise Linux installation guide that describe downloading Red Hat Enterprise Linux from the Red Hat Customer Portal. If you are creating virtual machines to provision your nodes, this image can be used directly.
- If you are installing Red Hat Enterprise Linux on a physical host, refer to Chapter 3 of the Red Hat Enterprise Linux installation guide for information on creating physical installation media or accessing installation media over a network:
https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/7/html/installation_guide/chap-making-media

Install Red Hat OpenShift Container Platform using the official documentation

Follow the documentation provided by Red Hat to install OpenShift Container Platform 4.2:
https://access.redhat.com/documentation/en-us/openshift_container_platform/4.2/html-single/installing/index