IBM Cloud Private 3.1.2

Lab Exercise #2

IBM Cloud Private CommandLine Walkthrough

Duration: 30 mins

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2 Login to ICP

2.1 Overview

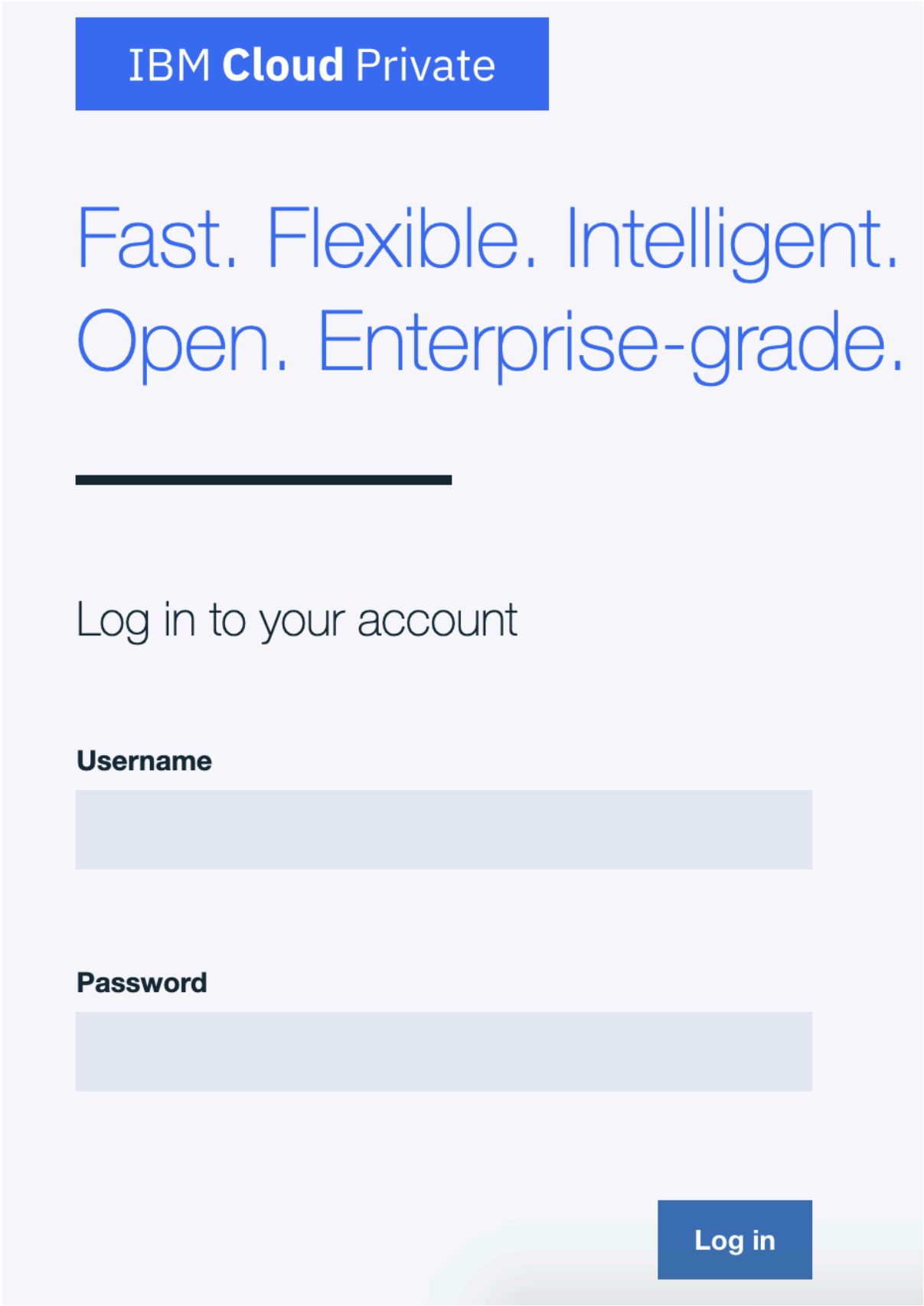
In this lab exercise, you explore the IBM Cloud Private Command Line.

2.2 Access your ICP Instance

Using your ICP environment, log in as `<username>` with the password `<password>`

2.3 Login to your ICP Console

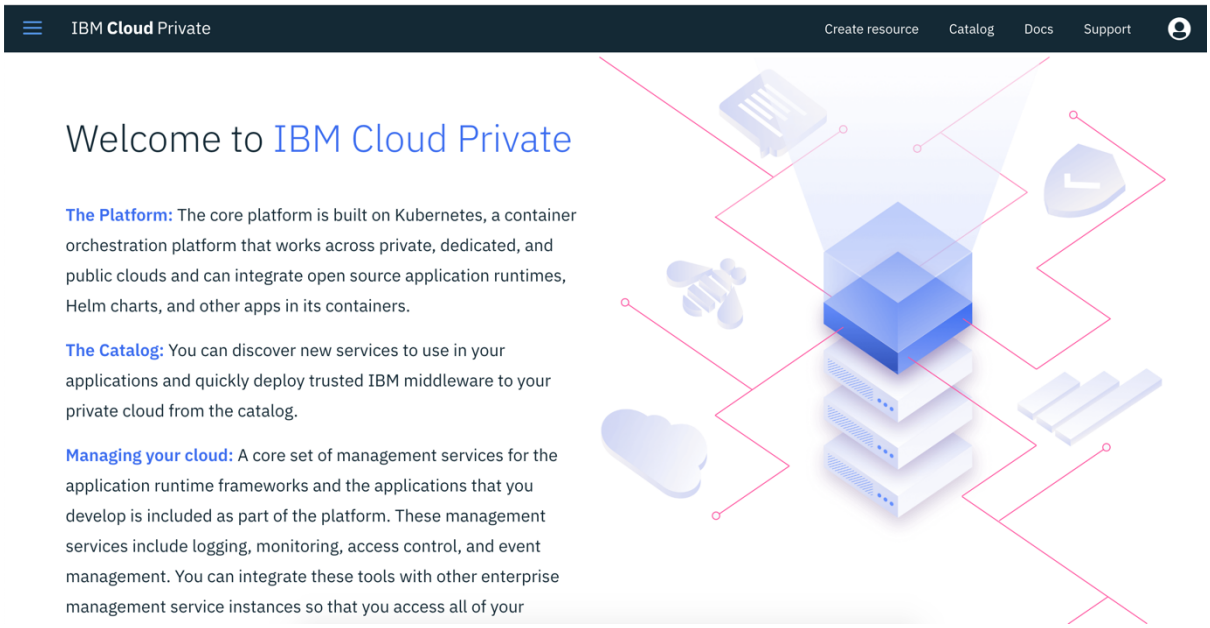
If you are not already logged in to the ICP Admin Console from a previous exercise, open a browser and navigate to `https://172.16.70.57:8443`



Log in by using `username: <username>` and `password: <password>`

2.4 Getting Started

The **Welcome** page displays after you successfully log in.

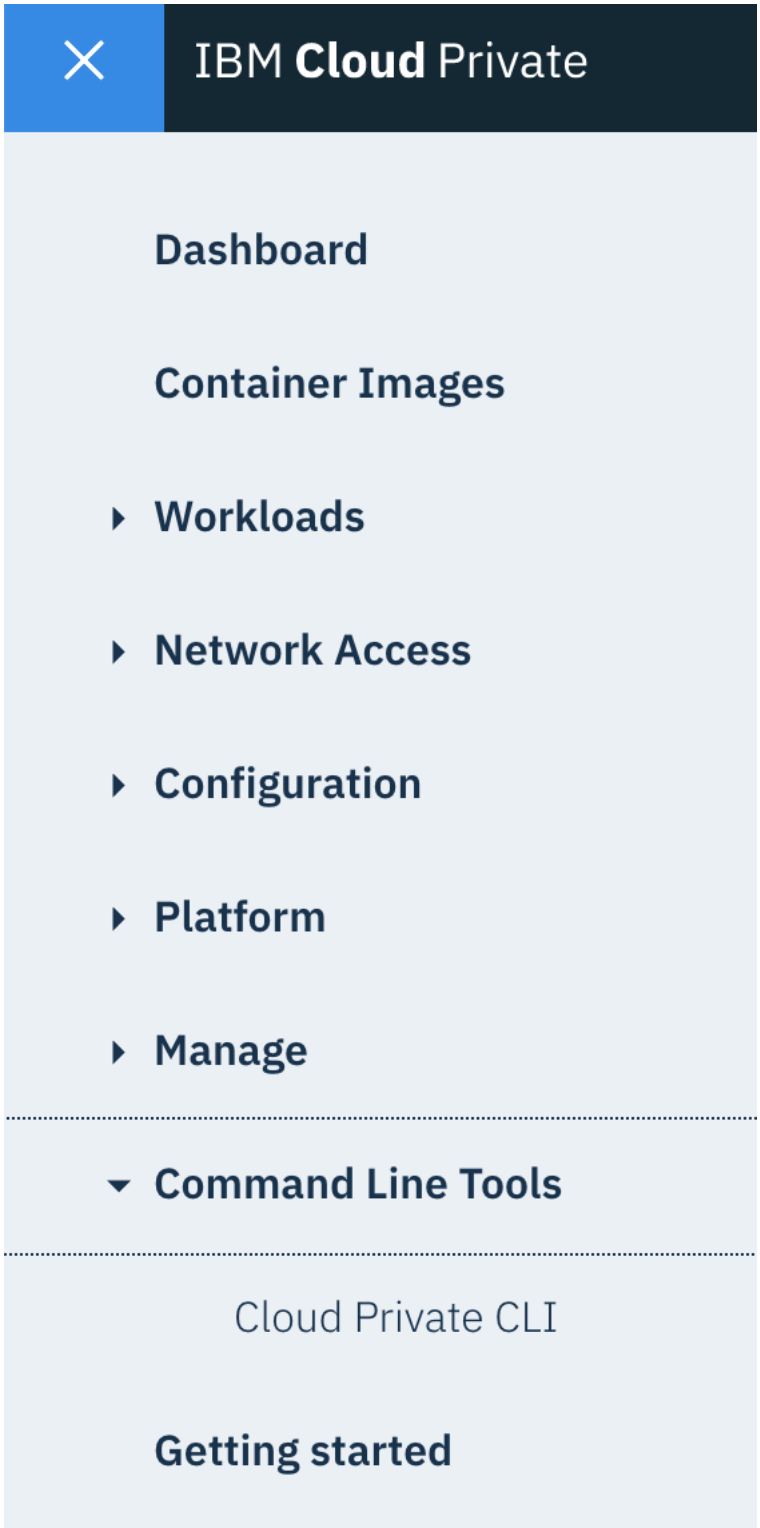


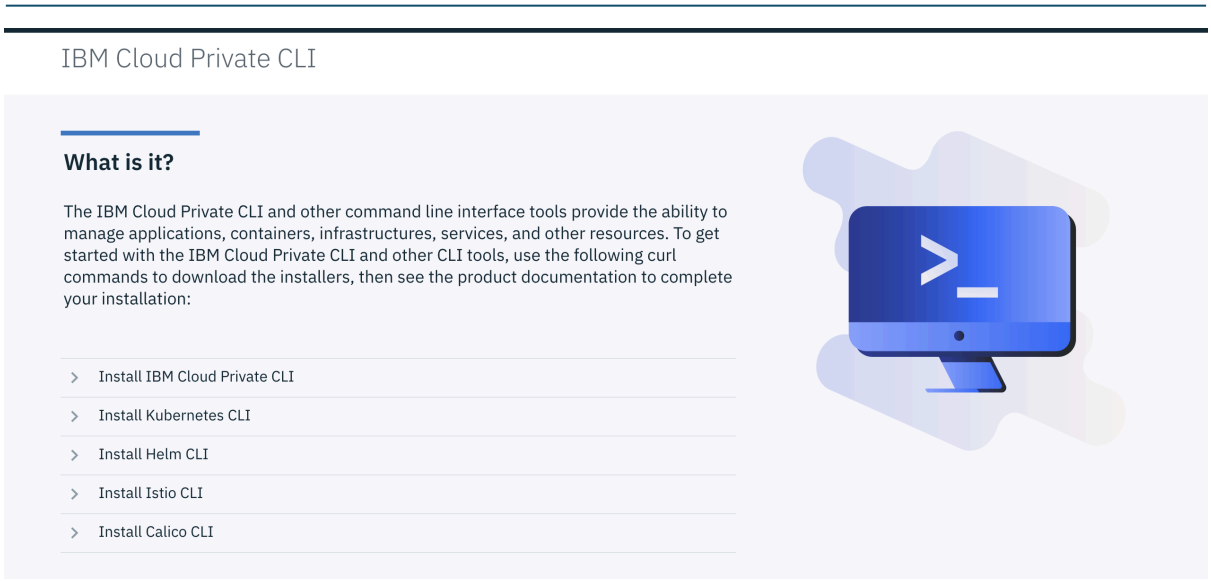
2.5 Install ICP command Line

You can install and use the IBM Cloud Private command line interface (CLI) to manage one or multiple clusters.

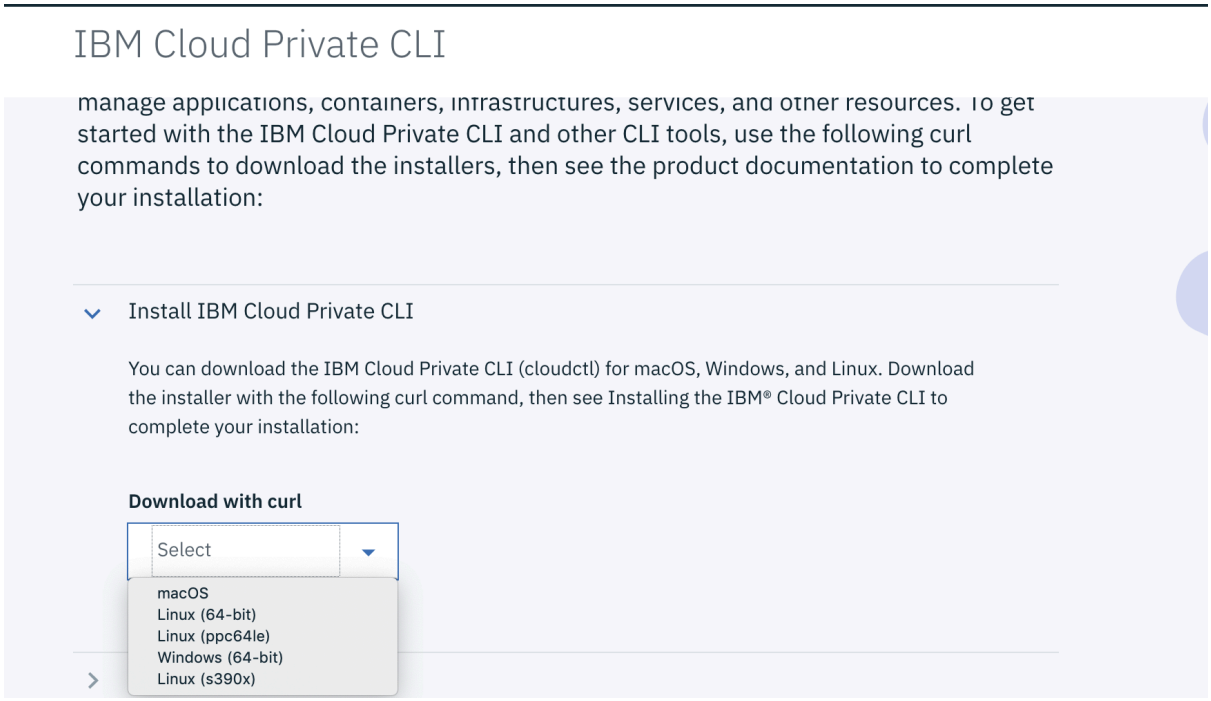
After you install IBM Cloud Private, you can install the CLI on Windows™, Linux®, or macOS.

From the IBM Cloud Private management console, click **Menu** > **Command Line Tools** > **Cloud Private CLI** to download the installer with a `curl` command.


IBM Cloud Private
Dashboard
Container Images
Workloads
Network Access
Configuration
Platform
Manage
Command Line Tools
Cloud Private CLI
Getting started



Copy and run the curl command for your operating system, then continue the installation procedure:



Choose the curl command for the applicable operating system.

Use the ICP Command Line installation guide from the IBM Knowledge Center.

1. Download the command line tools from ICP Console.

```
C:\Users\Administrator>dir
 Volume in drive C has no label.
 Volume Serial Number is 1EA9-8239

 Directory of C:\Users\Administrator

05/22/2019  06:32 AM    <DIR>          .
05/22/2019  06:32 AM    <DIR>          ..
05/22/2019  06:19 AM    <DIR>          .bluemix
05/22/2019  06:19 AM    <DIR>          .cloudctl
02/19/2019  05:39 PM    <DIR>          .ssh
03/08/2019  02:14 PM    <DIR>          3D Objects
05/22/2019  06:32 AM        27,797,504 calicoctl-win-amd64-v3.3.1.exe
05/22/2019  06:18 AM        20,747,264 cloudctl-win-amd64-3.1.2-1203.exe
03/08/2019  02:14 PM    <DIR>          Contacts
03/08/2019  02:14 PM    <DIR>          Desktop
03/08/2019  02:14 PM    <DIR>          Documents
03/08/2019  02:14 PM    <DIR>          Downloads
03/08/2019  02:14 PM    <DIR>          Favorites
05/22/2019  06:21 AM         9,207,793 helm-win-amd64-v2.9.1.tar.gz
05/22/2019  06:31 AM        59,583,488 istioctl-win-amd64-v1.0.2.exe
05/22/2019  06:19 AM        57,636,864 kubectl-win-amd64-v1.12.4.exe
03/08/2019  02:15 PM    <DIR>          Links
03/08/2019  02:14 PM    <DIR>          Music
05/22/2019  04:44 AM    <DIR>          OneDrive
03/08/2019  02:14 PM    <DIR>          Pictures
03/08/2019  02:15 PM    <DIR>          Saved Games
03/08/2019  02:14 PM    <DIR>          Searches
03/08/2019  02:14 PM    <DIR>          Videos
05/22/2019  06:31 AM    <DIR>          windows-amd64
               5 File(s)    174,972,913 bytes
              19 Dir(s)  245,575,991,296 bytes free

C:\Users\Administrator>_
```

Rename the executables –

```
C:\Users\Administrator>move calicoctl-win-amd64-v3.3.1.exe calicoctl.exe
        1 file(s) moved.

C:\Users\Administrator>move cloudctl-win-amd64-3.1.2-1203.exe cloudctl.exe
        1 file(s) moved.

C:\Users\Administrator>move istioctl-win-amd64-v1.0.2.exe istioctl.exe
        1 file(s) moved.

C:\Users\Administrator>move kubectl-win-amd64-v1.12.4.exe kubectl.exe
        1 file(s) moved.
```

Create an icp folder -

```
C:\Users\Administrator>mkdir c:\icp
```

Move the files to icp folder

```
C:\Users\Administrator>move calicoctl.exe c:\icp
        1 file(s) moved.

C:\Users\Administrator>move cloudctl.exe c:\icp
        1 file(s) moved.

C:\Users\Administrator>move kubectl.exe c:\icp
        1 file(s) moved.

C:\Users\Administrator>move windows-amd64\helm.exe c:\icp
        1 file(s) moved.

C:\Users\Administrator>move istioctl.exe c:\icp
        1 file(s) moved.

C:\Users\Administrator>
```

Add the ICP folder in the path variable

```
C:\Users\Administrator>set PATH=%PATH%;c:\icp
```

2.5.1 Install IBM Cloud Private CLI

https://www.ibm.com/support/knowledgecenter/en/SSBS6K_3.1.2/manage_cluster/install_cli.html

2.5.2 Install Kubernetes CLI

https://www.ibm.com/support/knowledgecenter/SSBS6K_3.1.2/manage_cluster/install_kubectl.html

2.5.3 Install Helm CLI

https://www.ibm.com/support/knowledgecenter/SSBS6K_3.1.2/app_center/create_helm_cli.html

2.5.4 Install Istio CLI

https://www.ibm.com/support/knowledgecenter/SSBS6K_3.1.2/manage_cluster/install_istioctl.html

2.5.5 Install Calico CLI

https://www.ibm.com/support/knowledgecenter/SSBS6K_3.1.2/manage_network/calicoctl.html?pos=2

3 Cloudctl commands

3.1 Cloudctl version

Check CLI and API version compatibility.

```
cloudctl version
```

3.2 Cloudctl api

View the API endpoint and API version for the service.

```
cloudctl api
```

```
API Endpoint:          https://mycluster.icp:8443
API Version:           v1
Skip SSL Validation:   true
```

3.3 Cloudctl login

Log user in.

```
cloudctl login [-a CLUSTER_URL] [-u USERNAME] [-p PASSWORD] [-c ACCOUNT_ID
or ACCOUNT_NAME] [-n namespace] [--skip-ssl-validation]

      WARNING: It is best practice to avoid providing your password in the
command line option. Your password might be visible to others and might be
recorded in your shell history.

      EXAMPLE:
      cloudctl login
          To interactively provide your user name and password, omit the
user name and password options.
      cloudctl login -u name@example.com -p pa55woRD
          Specify your username and password as arguments.
      cloudctl login -u name@example.com -p "my password"
          Use quotation marks (") around passwords that have spaces.
      cloudctl login -u name@example.com -p "\"password"\"
          If your password contains quotation mark characters (“), use
backslash characters (\) to escape them.
```

```
PARAMETERS:
   -a value               The URL that you use to access the management
console, such as https://<ip_address>:8443.
   -u value               Username
   -p value               Password
   -c value               Account ID or name
   -n value               Name of a namespace
   --skip-ssl-validation  Bypass SSL validation of HTTP requests. This
option is not recommended.
```

```
cloudctl login -a https://172.16.70.57:8443

Username> admin

Password>
Authenticating...
OK

Targeted account mycluster Account (id-mycluster-account)

Select a namespace:
1. cert-manager
2. default
3. ibmcom
4. istio-system
5. kube-public
6. kube-system
7. platform
8. services
Enter a number> 2
Targeted namespace default

Configuring kubectl ...
Property "clusters.mycluster" unset.
Property "users.mycluster-user" unset.
Property "contexts.mycluster-context" unset.
Cluster "mycluster" set.
User "mycluster-user" set.
Context "mycluster-context" created.
Switched to context "mycluster-context".
OK

Configuring helm: /Users/surbhi/.helm
OK
```

3.4 Cloudctl logout

Log user out.

```
cloudctl logout
```

```
Logging out...
OK
```

3.5 Cloudctl target

Set or view the targeted namespace.

```
cloudctl target [-n NAMESPACE]

PARAMETERS:
   --namespace value, -n value  Name of the namespace to target
```

3.6 Cloudctl help

It provides the various options with cloudctl commands.

```
cloudctl --help
```

```
NAME:
   cloudctl - A command line tool to interact with IBM Cloud Private

USAGE:
[environment variables] cloudctl [global options] command
[arguments...] [command options]

VERSION:
   3.1.1-973+c18caee2d82dc45146f843cb82ae7d5c28da7bc7

COMMANDS:
   api       View the API endpoint and API version for the service.
   catalog   Manage catalog
   cm        Manage cluster
   config    Write default values to the configuration.
   iam       Manage identities and access to resources
   login     Log user in.
   logout    Log user out.
   plugin    Manage plugins
   pm        Manage passwords
   target    Set or view the targeted namespace.
   tokens    Display the oauth tokens for the current session. Run
`cloudctl login` to retrieve the tokens.
   version   Check CLI and API version compatibility.
   help
```

```
Enter 'cloudctl help [command]' for more information about a
command.

ENVIRONMENT VARIABLES:
   CLOUDCTL_COLOR=false                    Do not colorize output
   CLOUDCTL_HOME=path/to/dir               Path to config directory
   CLOUDCTL_TRACE=true                     Print API request
diagnostics to stdout
   CLOUDCTL_TRACE=path/to/trace.log        Append API request
diagnostics to a log file

GLOBAL OPTIONS:
   --help, -h                        Show help
```

4kubectl commands

4.1 Overview of kubectl

To manage Kubernetes clusters and IBM Cloud Private you can use the kubectl commands. In this section we show you some of the kubectl commands that would help you manage your cluster and IBM Cloud Private Installation.

4.1 kubectl get

```
root@vicp312-master:~# kubectl get pods
NAME                                                              READY
STATUS      RESTARTS   AGE
audit-logging-fluentd-ds-6fvqt                                    1/1
Running     0          36d
audit-logging-fluentd-ds-dbdwf                                    1/1
Running     0          36d
audit-logging-fluentd-ds-rtxfv                                    1/1
Running     0          36d
audit-logging-fluentd-ds-vmckn                                    1/1
Running     0          36d
auth-apikeys-r8hj4                                                1/1
Running     0          36d
auth-idp-2d8gc                                                    4/4
Running     1          43h
auth-pap-4b5n5                                                    2/2
Running     0          36d
auth-pdp-v264t                                                    2/2
Running     0          36d
calico-kube-controllers-69c9dc655d-f7lj9                          1/1
Running     0          36d
calico-node-6xdx5                                                 2/2
Running     0          36d
```

4.2 kubectl logs

The kubectl logs command shows the logs of a resource or a pod. This command is useful when troubleshooting an application and when you need more information about it.

```
kubectl logs mqapp-ibm-mq-0
{"host":"mqapp-ibm-mq-0","ibm_datetime":"2019-04-
25T09:45:45.060Z","ibm_processId":"1","ibm_processName":"runmqserver
","ibm_serverName":"TEST1","ibm_userName":"root","loglevel":"INFO","
message":"Using queue manager name: TEST1","type":"mq_containerlog"}
{"host":"mqapp-ibm-mq-0","ibm_datetime":"2019-04-
25T09:45:45.060Z","ibm_processId":"1","ibm_processName":"runmqserver
","ibm_serverName":"TEST1","ibm_userName":"root","loglevel":"INFO","
message":"CPU architecture: amd64","type":"mq_containerlog"}
{"host":"mqapp-ibm-mq-0","ibm_datetime":"2019-04-
25T09:45:45.061Z","ibm_processId":"1","ibm_processName":"runmqserver
","ibm_serverName":"TEST1","ibm_userName":"root","loglevel":"INFO","
message":"Linux kernel version: 3.10.0-
862.14.4.el7.x86_64","type":"mq_containerlog"}
{"host":"mqapp-ibm-mq-0","ibm_datetime":"2019-04-
25T09:45:45.061Z","ibm_processId":"1","ibm_processName":"runmqserver
","ibm_serverName":"TEST1","ibm_userName":"root","loglevel":"INFO","
message":"Container runtime: kube","type":"mq_containerlog"}
```

4.3 kubectl describe

The command kubectl describe is used to get information about pods, nodes, and other Kubernetes resources:

To get information on a specific node run:

kubectl describe nodes <nodename>

To get information on a specific pod run:

kubectl describe pods/<podname>

To get information on all pods run:

kubectl describe pods

4.4 kubectl explain

Get documentation of various resources. For instance, pods, nodes, services, etc.

```
kubectl explain [--recursive=false] [flags]
```

```
kubectl explain pod
KIND:     Pod
VERSION:  v1

DESCRIPTION:
     Pod is a collection of containers that can run on a host. This
resource is
     created by clients and scheduled onto hosts.

FIELDS:
   apiVersion    <string>
     APIVersion defines the versioned schema of this representation
of an
     object. Servers should convert recognized schemas to the latest
internal
     value, and may reject unrecognized values. More info:
     https://git.k8s.io/community/contributors/devel/api-
conventions.md#resources

   kind  <string>
     Kind is a string value representing the REST resource this
object
     represents. Servers may infer this from the endpoint the client
submits
     requests to. Cannot be updated. In CamelCase. More info:
     https://git.k8s.io/community/contributors/devel/api-
conventions.md#types-kinds

   metadata  <Object>
     Standard object's metadata. More info:
     https://git.k8s.io/community/contributors/devel/api-
conventions.md#metadata

   spec  <Object>
     Specification of the desired behavior of the pod. More info:
     https://git.k8s.io/community/contributors/devel/api-
conventions.md#spec-and-status

   status    <Object>
     Most recently observed status of the pod. This data may not be
up to date.
     Populated by the system. Read-only. More info:
     https://git.k8s.io/community/contributors/devel/api-
conventions.md#spec-and-status
```

5 helm commands

5.1 Overview

The Helm package manager for Kubernetes.

5.2 Helm version

```
helm version --tls
Client: &version.Version{SemVer:"v2.9.1",
GitCommit:"20adb27c7c5868466912eebdf6664e7390ebe710",
GitTreeState:"clean"}
Server: &version.Version{SemVer:"v2.9.1+icp",
GitCommit:"420a6e6c4e8420efba6ea5c2eba846bdc9a086c1",
GitTreeState:"clean"}
```

5.3 Helm repo – add, list, remove, update and index chart repositories

This command consists of multiple subcommands to interact with chart repositories.

It can be used to add, remove, list, and index chart repositories

Helm repo add a chart repository

helm repo add [flags] [NAME] [URL]

<Don't add on this instance>

Helm list chart repositories

helm repo list [flags]

```
    helm repo list
NAME         URL
stable       https://kubernetes-charts.storage.googleapis.com
local        http://127.0.0.1:8879/charts

incubator  https://kubernetes-charts-
incubator.storage.googleapis.com/
```

5.4 Helm search – search for charts

Search reads through all of the repositories configured on the system and looks for matches.

```
helm search [keyword] [flags]
```

```
helm search
NAME                                            CHART VERSION APP
VERSION                  DESCRIPTION
incubator/artifactory                           5.2.1         5.2.0
    DEPRECATED Universal Repository Manager support...
incubator/aws-alb-ingress-controller            0.1.8         v1.1.2
    A Helm chart for AWS ALB Ingress Controller
incubator/azuremonitor-containers               0.6.0         4.0.0-0
    Helm chart for deploying Azure Monitor containe...
incubator/burrow                                0.3.3         0.17.1
    Burrow is a permissionable smart contract machine
incubator/buzzfeed-sso                          0.0.1         1.1.0
    Single sign-on for your Kubernetes services usi...
incubator/cassandra                             0.12.2        3.11.3
    Apache Cassandra is a free and open-source dist...
incubator/cassandra-reaper                      0.2.0         1.3.0
    Reaper is a centralized, stateful, and highly c...
incubator/chartmuseum                           1.1.1         0.5.1
    Helm Chart Repository with support for Amazon S...
incubator/check-mk                              0.2.1         1.4.0p26
    check_mk monitoring
incubator/cockroachdb                           0.1.1
    CockroachDB Helm chart for Kubernetes.
incubator/common                                  0.0.5
     0.0.5                           Common chartbuilding
components and helpers
```

```
helm search mongo
NAME                                CHART VERSION   APP VERSION
    DESCRIPTION
incubator/mongodb                   0.1.1
    MongoDB Helm chart for Kubernetes.
incubator/mongodb-replicaset        0.2.0
    NoSQL document-oriented database that stores JS...
stable/mongodb                      5.17.0          4.0.9
    NoSQL document-oriented database that stores JS...
stable/mongodb-replicaset           3.9.4           3.6
    NoSQL document-oriented database that stores JS...
stable/prometheus-mongodb-exporter  2.1.0           v0.7.0
    A Prometheus exporter for MongoDB metrics
stable/unifi                        0.4.2           5.10.19
     Ubiquiti Network's Unifi Controller
```

5.5 Helm list – list releases of charts

This command lists all of the releases.

By default, it lists only releases that are deployed or failed. Flags like '–deleted' and '–all' will alter this behavior. Such flags can be combined: '–deleted –failed'.

```
$ helm list --tls
```

```
NAME                            REVISION UPDATED
    STATUS   CHART                                NAMESPACE
acedemo                         1        Tue Jan 22 12:42:50 2019
    DEPLOYED ibm-ace-dashboard-dev-1.0.0       default
anand-qm1                       2        Wed May  1 12:32:09 2019
    DEPLOYED ibm-mqadvanced-server-dev-3.0.1   default
audit-logging                   1        Fri Dec 21 13:39:19 2018
    DEPLOYED audit-logging-3.1.1               kube-system
auth-apikeys                    1        Fri Dec 21 13:31:25 2018
    DEPLOYED auth-apikeys-3.1.1                kube-system
auth-idp                        1        Fri Dec 21 13:31:20 2018
    DEPLOYED auth-idp-3.1.1                    kube-system
auth-pap                        1        Fri Dec 21 13:31:29 2018
    DEPLOYED auth-pap-3.1.1                    kube-system
auth-pdp                        1        Fri Dec 21 13:31:33 2018
    DEPLOYED auth-pdp-3.1.1                    kube-system
calico                          1        Fri Dec 21 13:28:16 2018
    DEPLOYED calico-3.1.1                      kube-system
catalog-ui                      1        Fri Dec 21 13:38:07 2018
    DEPLOYED icp-catalog-chart-3.1.1           kube-system
cert-manager                    1        Fri Dec 21 13:29:26 2018
    DEPLOYED ibm-cert-manager-3.1.1            cert-manager
custom-metrics-adapter          1        Fri Dec 21 13:38:42 2018
    DEPLOYED ibm-custom-metrics-adapter-3.1.1  kube-system

heapster                    1          Fri Dec 21 13:37:53 2018
     DEPLOYED   heapster-3.1.1                   kube-system
```