Getting comfortable with oc

During this course the student will be required to use the OpenShift Container Platform oc CLI tool.

The OpenShift Container Platform (OCP) CLI exposes commands for managing your applications, as well as lower level tools to interact with each component of your system.

Tasks will describe a challenge. The student must execute the appropriate command(s) to obtain the needed information.

Be sure to review the Step-by-Step instructions and press the green colored button labeled **"Press to mark completed"** once a task has been completed.

If at any time you are needing assistance press the **Hint** button. If you are still needing assistance use the **Step-by-Step** button to get detailed instructions for the task.

Use the **oc** CLI authenticate to the OCP environment.

```
oc login https://<IP Address>:8443  -u <team> -p <team> --insecure-skip-tls-verify=false

<IP Address>  - replace with instructor provided information
<team>        - replace with team name
```

The instructor will provide the IP address needed to access the OCP cluster that will be used in this lab.

There is no hint necessary for this task.

Using the OpenShift oc CLI login to the instructor provided environment.

Item	Action
<IP Address>	Replace with instructor provided information
<team>	Replace with team name

oc login https://<IP Address>:8443 -u <team> -p <team> --insecure-skip-tls-verify=false

Once the command has completed a message will be displayed. The message will contain a count of projects available to the user. *XXX_* will provide the number of projects available to the user.

Example output:

```
Login successful.

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

Using project <team>.
```

Press to mark completed

What are the node names in the cluster? Use the oc to get this information. Additionally, use the -o wide parameter. The -o is a small letter O.

Get nodes and include the "-o wide" parameter.

Enter the following command to view the nodes in the cluster.

```
Command:

    oc get nodes   <and>
    oc get nodes -o wide


Example output:

    From: oc get nodes
    NAME                          STATUS    ROLES          AGE       VERSION
    sydney.52.117.155.20.nip.io   Ready     compute        3d        v1.11.0+d4cacc0
    sydney.52.117.155.26.nip.io   Ready     infra,master   3d        v1.11.0+d4cacc0
    sydney.52.117.155.27.nip.io   Ready     compute        3d        v1.11.0+d4cacc0
    sydney.52.117.155.29.nip.io   Ready     compute        3d        v1.11.0+d4cacc0

    From: oc get nodes -o wide
    NAME                          STATUS    ROLES          AGE       VERSION           INTERNAL-IP
EXTERNAL-IP   OS-IMAGE               KERNEL-VERSION               CONTAINER-RUNTIME
    sydney.52.117.155.20.nip.io   Ready     compute        3d        v1.11.0+d4cacc0   52.117.155.20
<none>        CentOS Linux 7 (Core)   3.10.0-957.27.2.el7.x86_64   docker://1.13.1
    sydney.52.117.155.26.nip.io   Ready     infra,master   3d        v1.11.0+d4cacc0   52.117.155.26
<none>        CentOS Linux 7 (Core)   3.10.0-957.27.2.el7.x86_64   docker://1.13.1
    sydney.52.117.155.27.nip.io   Ready     compute        3d        v1.11.0+d4cacc0   52.117.155.27
<none>        CentOS Linux 7 (Core)   3.10.0-957.27.2.el7.x86_64   docker://1.13.1
    sydney.52.117.155.29.nip.io   Ready     compute        3d        v1.11.0+d4cacc0   52.117.155.29
<none>        CentOS Linux 7 (Core)   3.10.0-957.27.2.el7.x86_64   docker://1.13.1
```

Press to mark completed

What is the Allocatable cpu count for the master node? The output from the **describe** is indented to be read by a human being and does not support the -o parameter.

Describe the master node using the name from previous results.

```
Command:

    oc describe node <master node name>


Example output: (View output section Allocatable, and find cpu)

    Name:               gfstst.169.62.225.197.nip.io
    Roles:              infra,master
    Labels:             beta.kubernetes.io/arch=amd64
                        beta.kubernetes.io/os=linux
                        kubernetes.io/hostname=gfstst.169.62.225.197.nip.io
                        node-role.kubernetes.io/infra=true
                        node-role.kubernetes.io/master=true
    Annotations:        node.openshift.io/md5sum=c90cb94827c8f3a55332c5801f709754
                        volumes.kubernetes.io/controller-managed-attach-detach=true
    CreationTimestamp:  Thu, 29 Aug 2019 08:57:35 -0400
    Taints:             <none>
    Unschedulable:      false
    Conditions:
      Type             Status  LastHeartbeatTime                 LastTransitionTime
Reason                       Message
      ----             ------  -----------------                 ------------------                ----
--                         -------
      OutOfDisk        False   Tue, 10 Sep 2019 21:46:37 -0400   Thu, 29 Aug 2019 08:57:35 -0400
KubeletHasSufficientDisk     kubelet has sufficient disk space available
      MemoryPressure   False   Tue, 10 Sep 2019 21:46:37 -0400   Thu, 29 Aug 2019 08:57:35 -0400
KubeletHasSufficientMemory   kubelet has sufficient memory available
      DiskPressure     False   Tue, 10 Sep 2019 21:46:37 -0400   Thu, 29 Aug 2019 08:57:35 -0400
KubeletHasNoDiskPressure     kubelet has no disk pressure
      PIDPressure      False   Tue, 10 Sep 2019 21:46:37 -0400   Thu, 29 Aug 2019 08:57:35 -0400
KubeletHasSufficientPID      kubelet has sufficient PID available
      Ready            True    Tue, 10 Sep 2019 21:46:37 -0400   Thu, 29 Aug 2019 09:01:36 -0400
KubeletReady                 kubelet is posting ready status
    Addresses:
      InternalIP:  169.62.225.197
      Hostname:    gfstst.169.62.225.197.nip.io
    Capacity:
     cpu:            8
     hugepages-1Gi:  0
     hugepages-2Mi:  0
     memory:         16261076Ki
     pods:           250
    Allocatable:
     cpu:            8              <<<<<<---- Value to be reviewed
     hugepages-1Gi:  0
     hugepages-2Mi:  0
     memory:         16158676Ki
```

```
     pods:           250
    System Info:
     Machine ID:                 686738635e44481c83f05005ea080803
     System UUID:                5F4CB06B-FD89-3AC3-9BC2-C9F054A57ECA
     Boot ID:                    c1d0be9f-6d6e-46dc-9963-2143a81bd814
     Kernel Version:             3.10.0-957.27.2.el7.x86_64
     OS Image:                   CentOS Linux 7 (Core)
     Operating System:           linux
     Architecture:               amd64
     Container Runtime Version:  docker://1.13.1
     Kubelet Version:            v1.11.0+d4cacc0
     Kube-Proxy Version:         v1.11.0+d4cacc0
    Non-terminated Pods:         (21 in total)
      Namespace                  Name                                                CPU Requests  CPU
Limits  Memory Requests  Memory Limits
      ---------                  ----                                                ------------  -----
-----  ---------------  -------------
      default                    docker-registry-1-hsgwc                             100m (1%)     0
(0%)      256Mi (1%)       0 (0%)
      default                    registry-console-1-wc5lk                            0 (0%)        0
(0%)      0 (0%)           0 (0%)
      default                    router-1-krxfd                                      100m (1%)     0
(0%)      256Mi (1%)       0 (0%)
      kube-system                master-api-gfstst.169.62.225.197.nip.io             0 (0%)        0
(0%)      0 (0%)           0 (0%)
      kube-system                master-controllers-gfstst.169.62.225.197.nip.io     0 (0%)        0
(0%)      0 (0%)           0 (0%)
      kube-system                master-etcd-gfstst.169.62.225.197.nip.io            0 (0%)        0
(0%)      0 (0%)           0 (0%)
      openshift-console          console-54658656b7-h87tz                            100m (1%)     100m
(1%)   100Mi (0%)       100Mi (0%)
      openshift-monitoring       alertmanager-main-0                                 5m (0%)       5m
(0%)     210Mi (1%)       10Mi (0%)
      openshift-monitoring       alertmanager-main-1                                 5m (0%)       5m
(0%)     210Mi (1%)       10Mi (0%)
      openshift-monitoring       alertmanager-main-2                                 5m (0%)       5m
(0%)     210Mi (1%)       10Mi (0%)
      openshift-monitoring       cluster-monitoring-operator-66cfd97b6d-8qg7c        20m (0%)      20m
(0%)    50Mi (0%)        50Mi (0%)
      openshift-monitoring       grafana-6b9f85786f-h9fsp                            100m (1%)     200m
(2%)   100Mi (0%)       200Mi (1%)
      openshift-monitoring       kube-state-metrics-c4f86b5f8-7gpgk                  20m (0%)      40m
(0%)    40Mi (0%)        80Mi (0%)
      openshift-monitoring       node-exporter-5xwc9                                 10m (0%)      20m
(0%)    20Mi (0%)        40Mi (0%)
      openshift-monitoring       prometheus-k8s-0                                    15m (0%)      15m
(0%)    60Mi (0%)        60Mi (0%)
      openshift-monitoring       prometheus-k8s-1                                    15m (0%)      15m
(0%)    60Mi (0%)        60Mi (0%)
```

```
      openshift-monitoring       prometheus-operator-6644b8cd54-6cfl9               0 (0%)        0
(0%)      0 (0%)           0 (0%)
      openshift-node             sync-gqql7                                         0 (0%)        0
(0%)      0 (0%)           0 (0%)
      openshift-sdn              ovs-gtvfc                                          100m (1%)     0
(0%)      300Mi (1%)       0 (0%)
      openshift-sdn              sdn-fq2mf                                          100m (1%)     0
(0%)      200Mi (1%)       0 (0%)
      openshift-web-console      webconsole-7fc8759f7b-brpgq                        100m (1%)     0
(0%)      100Mi (0%)       0 (0%)
    Allocated resources:
      (Total limits may be over 100 percent, i.e., overcommitted.)
      Resource  Requests      Limits
      --------  --------      ------
      cpu       795m (9%)     425m (5%)
      memory    2172Mi (13%)  620Mi (3%)
    Events:     <none>
```

Press to mark completed

Display the top CPU and Memory for all nodes.

Top is an option of the "oc adm" capability. Use oc admin --help and review the section labeled "Maintenance".

```
Command:

    oc adm top nodes


Example output:

    NAME                          CPU(cores)   CPU%      MEMORY(bytes)   MEMORY%
    sydney.52.117.155.20.nip.io   156m         1%        2599Mi          33%
    sydney.52.117.155.26.nip.io   607m         7%        6431Mi          40%
    sydney.52.117.155.27.nip.io   362m         4%        3766Mi          48%
    sydney.52.117.155.29.nip.io   145m         1%        2420Mi          31%
```

Press to mark completed

Display the top CPU and Memory for pods in all namespaces.

All namespaces can be viewed by using the --all-namespaces parameter for the oc CLI.

```
Command:

    oc adm top pods --all-namespaces


Example output:

    NAMESPACE                           NAME                                          CPU(cores)
MEMORY(bytes)
    app-storage                         glusterblock-storage-provisioner-dc-1-bdhb8   0m
11Mi
    app-storage                         glusterfs-storage-2r7rt                       3m
159Mi
    app-storage                         glusterfs-storage-bgj5h                       4m
147Mi
    app-storage                         glusterfs-storage-k5v24                       2m
140Mi
    app-storage                         heketi-storage-1-ph6bl                        0m
16Mi
    default                             dashboard-7cc4b6645c-gpp6d                    0m
21Mi
    default                             docker-registry-1-ccsbq                       1m
17Mi
    default                             registry-console-1-x8t78                      0m
1Mi
    default                             router-1-pfz6m                                4m
40Mi
    kube-service-catalog                apiserver-gs79m                               4m
42Mi
    kube-service-catalog                controller-manager-6dtd6                      14m
26Mi
    kube-system                         master-api-sydney.52.117.155.26.nip.io        387m
887Mi
    kube-system                         master-controllers-sydney.52.117.155.26.nip.io   95m
272Mi
    kube-system                         master-etcd-sydney.52.117.155.26.nip.io       33m
529Mi
    nfsprov                             nfs-client-provisioner-9576b7995-cf8x5        2m
10Mi
    openshift-ansible-service-broker    asb-1-h7v4n                                   1m
24Mi
    openshift-console                   console-56c6db78f4-z8f5q                      1m
7Mi
    openshift-infra                     hawkular-cassandra-1-zq6qk                    250m
1336Mi
    openshift-infra                     hawkular-metrics-qxq4q                        34m
```

```
668Mi
    openshift-infra                     heapster-vdxq8                                  6m
40Mi
    openshift-metrics-server            metrics-server-56cd9bfcf-tn2bv                  2m
33Mi
    openshift-monitoring                alertmanager-main-0                             2m
27Mi
    openshift-monitoring                alertmanager-main-1                             3m
26Mi
    openshift-monitoring                alertmanager-main-2                             2m
26Mi
    openshift-monitoring                cluster-monitoring-operator-66cfd97b6d-smqh7    0m
32Mi
    openshift-monitoring                grafana-6b9f85786f-l8lk8                        4m
37Mi
    openshift-monitoring                kube-state-metrics-c4f86b5f8-s9j8f              3m
62Mi
    openshift-monitoring                node-exporter-d7h9j                             0m
23Mi
    openshift-monitoring                node-exporter-lgjq9                             1m
24Mi
    openshift-monitoring                node-exporter-nkmbr                             1m
19Mi
    openshift-monitoring                node-exporter-sd55c                             1m
21Mi
    openshift-monitoring                prometheus-k8s-0                                64m
661Mi
    openshift-monitoring                prometheus-k8s-1                                61m
616Mi
    openshift-monitoring                prometheus-operator-6644b8cd54-6f75q            0m
22Mi
    openshift-node                      sync-7fq2d                                      0m
2Mi
    openshift-node                      sync-j5fqs                                      0m
21Mi
    openshift-node                      sync-nfvxs                                      0m
2Mi
    openshift-node                      sync-sjnnn                                      0m
2Mi
    openshift-sdn                       ovs-b84v2                                       11m
78Mi
    openshift-sdn                       ovs-dcxc5                                       9m
79Mi
    openshift-sdn                       ovs-xg4jb                                       13m
78Mi
    openshift-sdn                       ovs-zl8tz                                       10m
78Mi
    openshift-sdn                       sdn-22pts                                       7m
43Mi
```

```
    openshift-sdn                       sdn-84n5k                                          9m
44Mi
    openshift-sdn                       sdn-9zlkx                                          8m
46Mi
    openshift-sdn                       sdn-nj4q5                                          7m
58Mi
    openshift-template-service-broker   apiserver-bzxlb                                    5m
29Mi
    openshift-web-console               webconsole-7fc8759f7b-dpcjm                        9m
15Mi
    team01                              team01-student-ui-7f47864588-hz7gn                 0m
18Mi
    team02                              team02-student-ui-7fdc77b4df-l9k7t                 0m
19Mi

    . . . additional output removed . . .
```

Press to mark completed

What routes exist in all namespaces?

Be sure to use the --all-namespaces parameter

```
Command:

    oc get routes --all-namespaces


Example output:

    NAMESPACE              NAME                HOST/PORT
PATH      SERVICES            PORT      TERMINATION          WILDCARD
    app-storage            heketi-storage      heketi-storage-app-storage.gfstst.169.62.225.197.nip.io
heketi-storage      <all>                          None
    default                docker-registry     docker-registry-default.gfstst.169.62.225.197.nip.io
docker-registry     <all>     passthrough          None
    default                registry-console    registry-console-default.gfstst.169.62.225.197.nip.io
registry-console    <all>     passthrough          None
    openshift-console      console             console.gfstst.169.62.225.197.nip.io
console             https     reencrypt/Redirect   None
    openshift-monitoring   alertmanager-main   alertmanager-main-openshift-
monitoring.gfstst.169.62.225.197.nip.io             alertmanager-main   web       reencrypt
None
    openshift-monitoring   grafana             grafana-openshift-
```

```
monitoring.gfstst.169.62.225.197.nip.io                        grafana             https     reencrypt
None
    openshift-monitoring   prometheus-k8s      prometheus-k8s-openshift-
monitoring.gfstst.169.62.225.197.nip.io                prometheus-k8s      web       reencrypt
None
```

Press to mark completed

Get a list of projects, select one and describe the project. For the selected project what is the default **sa.scc.uid-range** that will be used.

Use get and describe.

```
Command:

    oc get projects

    oc describe project <name of project>

Example output:


From: oc get projects

    NAME                                DISPLAY NAME   STATUS
    app-storage                                        Active
    default                                            Active
    kube-public                                        Active
    kube-service-catalog                               Active
    kube-system                                        Active
    management-infra                                   Active
    nfsprov                                            Active
    openshift                                          Active
    openshift-ansible-service-broker                   Active
    openshift-console                                  Active
    openshift-infra                                    Active
    openshift-logging                                  Active
    openshift-metrics-server                           Active
    openshift-monitoring                               Active
    openshift-node                                     Active
    openshift-sdn                                      Active
    openshift-template-service-broker                  Active
    openshift-web-console                              Active
    team01                                             Active
```

```
    team02                                              Active

    . . . additional output removed . . .


From: oc describe project default         (project name default selected)

    Name:            default
    Created:        3 days ago
    Labels:            <none>
    Annotations:        openshift.io/node-selector=
                openshift.io/sa.scc.mcs=s0:c1,c0
                openshift.io/sa.scc.supplemental-groups=1000000000/10000
                openshift.io/sa.scc.uid-range=1000000000/10000
    Display Name:        <none>
    Description:        <none>
    Status:            Active
    Node Selector:        <none>
    Quota:            <none>
    Resource limits:    <none>
```

Press to mark completed

Using the oc adm policy capabilities determine who can get pod information.

Try **oc adm policy --help** to get more information about how to obtain the information.

```
Command:

    oc adm policy who-can get pods


Example output:

    Namespace: default
    Verb:      get
    Resource:  pods

    Users:  admin
            red
            system:admin
            system:kube-scheduler
            system:serviceaccount:default:router
```

```
            system:serviceaccount:kube-system:clusterrole-aggregation-controller
            system:serviceaccount:kube-system:deployment-controller
            system:serviceaccount:kube-system:endpoint-controller
            system:serviceaccount:kube-system:generic-garbage-collector
            system:serviceaccount:kube-system:namespace-controller
            system:serviceaccount:kube-system:persistent-volume-binder
            system:serviceaccount:kube-system:pvc-protection-controller
            system:serviceaccount:kube-system:statefulset-controller
            system:serviceaccount:management-infra:management-admin
            system:serviceaccount:nfsprov:deployer
            system:serviceaccount:openshift-infra:build-controller
            system:serviceaccount:openshift-infra:default-rolebindings-controller
            system:serviceaccount:openshift-infra:deployer-controller
            system:serviceaccount:openshift-infra:pv-recycler-controller
            system:serviceaccount:openshift-infra:sdn-controller
            system:serviceaccount:openshift-infra:template-instance-controller
            system:serviceaccount:openshift-infra:template-instance-finalizer-controller
            system:serviceaccount:openshift-monitoring:cluster-monitoring-operator
            system:serviceaccount:openshift-sdn:sdn
            team01
            team02

            . . . additional output removed . . .

    Groups: system:cluster-admins
            system:cluster-readers
            system:masters
```

Press to mark completed

View the oc session configuration.

Review **oc config --help** for more information.

```
Command:

    oc config view


Example output:

    apiVersion: v1
    clusters:
    - cluster:
```

```
        certificate-authority-data: REDACTED
        server: https://gfstst.169.62.225.197.nip.io:8443
      name: gfstst-169-62-225-197-nip-io:8443
    contexts:
    - context:
        cluster: gfstst-169-62-225-197-nip-io:8443
        namespace: default
        user: system:admin/gfstst-169-62-225-197-nip-io:8443
      name: default/gfstst-169-62-225-197-nip-io:8443/system:admin
    - context:
        cluster: gfstst-169-62-225-197-nip-io:8443
        namespace: nfsprov
        user: system:admin/gfstst-169-62-225-197-nip-io:8443
      name: nfsprov/gfstst-169-62-225-197-nip-io:8443/system:admin
    - context:
        cluster: gfstst-169-62-225-197-nip-io:8443
        namespace: red
        user: system:admin/gfstst-169-62-225-197-nip-io:8443
      name: red/gfstst-169-62-225-197-nip-io:8443/system:admin
    current-context: red/gfstst-169-62-225-197-nip-io:8443/system:admin
    kind: Config
    preferences: {}
    users:
    - name: system:admin/gfstst-169-62-225-197-nip-io:8443
      user:
        client-certificate-data: REDACTED
        client-key-data: REDACTED
```

Press to mark completed

What are **all** the resources in the default project?

Either switch to the default project or use the namespace parameter to get all information.

```
Command:
    Option 1:

    oc project default
    oc get all

    Option 2;

    oc get all -n default
```

```
Example output:

    NAME                            READY     STATUS    RESTARTS   AGE
    pod/dns-limited                 1/1       Running   275        11d
    pod/docker-registry-1-hsgwc     1/1       Running   0          12d
    pod/registry-console-1-wc5lk    1/1       Running   0          12d
    pod/router-1-krxfd              1/1       Running   0          12d

    NAME                                    DESIRED   CURRENT   READY     AGE
    replicationcontroller/docker-registry-1    1         1         1         12d
    replicationcontroller/registry-console-1   1         1         1         12d
    replicationcontroller/router-1             1         1         1         12d

    NAME                       TYPE        CLUSTER-IP     EXTERNAL-IP   PORT(S)                   AGE
    service/docker-registry    ClusterIP   172.30.87.90   <none>        5000/TCP                  12d
    service/kubernetes         ClusterIP   172.30.0.1     <none>        443/TCP,53/UDP,53/TCP     12d
    service/registry-console   ClusterIP   172.30.49.26   <none>        9000/TCP                  12d
    service/router             ClusterIP   172.30.61.78   <none>        80/TCP,443/TCP,1936/TCP   12d

    NAME                                                REVISION   DESIRED   CURRENT   TRIGGERED BY
    deploymentconfig.apps.openshift.io/docker-registry    1          1         1         config
    deploymentconfig.apps.openshift.io/registry-console   1          1         1         config
    deploymentconfig.apps.openshift.io/router             1          1         1         config

    NAME                                        HOST/PORT
PATH      SERVICES           PORT      TERMINATION   WILDCARD
    route.route.openshift.io/docker-registry    docker-registry-default.gfstst.169.62.225.197.nip.io
docker-registry    <all>     passthrough   None
    route.route.openshift.io/registry-console   registry-console-default.gfstst.169.62.225.197.nip.io
registry-console   <all>     passthrough   None
```

Press to mark completed

View the logs for the pod that starts with “webconsole” in the openshift-web-console namespace. What IP and port are securely serving the console?

Get the list of pods in the openshift-web-console namespace to determine the full pod name to view the logs.

Review the options for the "Troubleshooting and Debugging Commands" section from **oc --help**.

Be sure to define the namespace.

```
Command:
```

```
    oc logs webconsole-7fc8759f7b-dpcjm  -n openshift-web-console


Example output:

    W0913 21:33:08.411930       1 start.go:93] Warning: config.clusterInfo.loggingPublicURL: Invalid
value: "": required to view aggregated container logs in the console, web console start will continue.
    I0913 21:33:08.998336       1 start.go:208] OpenShift Web Console Version: v3.11.0+ea42280
    I0913 21:33:08.998683       1 serve.go:89] Serving securely on 0.0.0.0:8443.  <<<--- view this line
```

Press to mark completed

Switch to the project for your team. RSH into the pod that starts with **<team>-student-ui-**

Replace **<team>** with your team name.

Change to the project.

Start a shell session in a pod the pod.

View the oc --help section labeled "Troubleshooting and Debugging Commands"

```
Command:

    oc project team01

Example output:

    Now using project "team01" on server "https://52.117.155.26:8443".



Command:

    oc get po

Example output:

    NAME                                READY     STATUS    RESTARTS   AGE
    team01-student-ui-7f47864588-hz7gn   1/1       Running   0          1d
```

```
Command:

    oc rsh team01-student-ui-7f47864588-hz7gn
Example output:

    /collector
```

Press to mark completed

Without using an interactive shell prompt, list the files in directory /collector/lib in the pod that starts with **<team>-student-ui-**

Replace **<team>** with your team name.

The command syntax needs the **-it** and **--** followed by the command to list the files.

ls -la /collector/lib will list the files.

```
Command:

    oc exec team01-student-ui-7f47864588-hz7gn  -it -- ls -la /collector/lib

    (if not in the <team> project add the -n <team> parameter)


Example output:

    total 132
    drwxrwxrwx    1 appuser  appusers      4096 Sep 13 23:44 .
    drwxrwxrwx    1 root     root          4096 Sep 13 23:44 ..
    -rwxrwxrwx    1 appuser  appusers     20786 Aug 14 20:38 cllr.js
    -rwxrwxrwx    1 appuser  appusers      4671 Aug 14 20:38 config.js
    -rwxrwxrwx    1 appuser  appusers      8030 Aug 15 15:25 courses.js
    -rwxrwxrwx    1 appuser  appusers     10738 Aug 14 20:38 insight.js
    -rwxrwxrwx    1 appuser  appusers     23135 Sep 12 01:38 parseHtmlBuffer.js
    -rwxrwxrwx    1 appuser  appusers      4405 Aug 14 20:38 printCourse.js
    -rwxrwxrwx    1 appuser  appusers      5499 Aug 17 14:59 student.js
    -rwxrwxrwx    1 appuser  appusers      2879 Aug 14 20:38 utl.js
    -rwxrwxrwx    1 appuser  appusers     28027 Aug 14 20:38 validateBuffer.js
```

Press to mark completed

Within your team project run a pod named **<team>-busybox** using the "busybox" image, open an interactive session, and never restart the pod.

A single command can be used to accomplish all of the above.

Replace **<team>** with your team name.

Once the interactive prompt opens run the following command:

cat /etc/resolv.conf

Exit the interactive session.

Ensure to use the -it, --image, and --restart options

```
Command:

    oc run -it team01-busybox --image=busybox --restart=Never

Example output:

    If you don't see a command prompt, try pressing enter.
    / #



Command in the interactive session:

    cat /etc/resolv.conf

Example output:

    nameserver 10.171.184.210
    search team01.svc.cluster.local svc.cluster.local cluster.local
    options ndots:5


Command in the interactive session:

    exit

Example output:

    The command prompt from the terminal session will be shown.
```

Press to mark completed

Using the pod created in the previous task edit the pod (named **<team>-busybox**) adding the following label in the metadata.labels section.

work: training

Save the changes and then describe the pod to validate the label is defined.

When the pod is saved and you attempt to close the editor it will not close if the proper syntax is not used.

Now, add a second annotation by usin the oc patch and not edit. Patch uses the -p parameter followed by the patch data. The input for the patch would be JSON formatted. This additional annotation should be:

```
play: gaming
```

Example:

'{"metadata":{"annotations":{"play":"gaming"}}}'

The default editor "vi" will open when the command is executed. If you desire to use the “nano” editor add the following parameter:

KUBE_EDITOR="nano" oc edit po <team>-busybox

```
Command:

    oc edit po team01-busybox

Example output:


    # Please edit the object below. Lines beginning with a '#' will be ignored,
    # and an empty file will abort the edit. If an error occurs while saving this file will be
    # reopened with the relevant failures.
    #
    apiVersion: v1
    kind: Pod
    metadata:
      annotations:
        openshift.io/scc: anyuid
      creationTimestamp: 2019-09-17T21:57:03Z
      labels:
        run: team01-busybox         <<<--- insert new all after this line
      name: team01-busybox
      namespace: team01
      resourceVersion: "962458"
      selfLink: /api/v1/namespaces/team01/pods/team01-busybox
      uid: 151c3f3f-d996-11e9-ab08-06c0ef66d8ff
    spec:

    . . . additional output removed . . .
```

```
Insert the following in the editor

    work: training

Save the modified pod definition file:



Command:

    oc describe po team01-busybox

Example output:

    Name:               team01-busybox
    Namespace:          team01
    Priority:           0
    PriorityClassName:  <none>
    Node:               sydney.52.117.155.29.nip.io/52.117.155.29
    Start Time:         Tue, 17 Sep 2019 16:57:03 -0500
    Labels:             run=team01-busybox
                        work=training
    Annotations:        openshift.io/scc=anyuid
    Status:             Succeeded

    . . . additional output removed . . .


Command:

    oc patch po team01-student-ui-7f47864588-hz7gn -p '{"metadata":{"annotations":{"play":"gaming"}}}'


Example output:

    pod/team01-student-ui-7f47864588-hz7gn patched


Command:

    oc describe po team01-busybox

Example output:

    Name:               team01-busybox
    Namespace:          team01
```

```
    Priority:           0
    PriorityClassName:  <none>
    Node:               sydney.52.117.155.29.nip.io/52.117.155.29
    Start Time:         Tue, 17 Sep 2019 16:57:03 -0500
    Labels:             run=team01-busybox
                        work=training
                        play=gaming
    Annotations:        openshift.io/scc=anyuid
    Status:             Succeeded

    . . . additional output removed . . .
```

> Press to mark completed

Delete the pod created a previous task named **<team>-busybox**.

Ensure a pod is deleted.

Ensure to include the proper namespace or switch to the project where the pod was created.

```
Command:

    oc delete po team01-busybox

Example output:

    pod "team01-busybox" deleted
```

> Press to mark completed

Get storage related resources Persistent Volumes and Storage Classes for the cluster and get Persistent Volumes Claims for all namespaces.

Abbreivations can be used:

Abbr	Resource	Namespaced
pv	Persistent Volumes	no
sc	StorageClass	no
pvc	Persistent Volumes Claims	yes

```
Command:

    oc get pv

Example output:

    NAME                                       CAPACITY   ACCESS MODES   RECLAIM POLICY   STATUS
CLAIM                STORAGECLASS          REASON    AGE
    pvc-b209ee09-d66e-11e9-ab08-06c0ef66d8ff   1Mi        RWX            Delete           Bound
nfsprov/test-claim   managed-nfs-storage             4d



Command:

    oc get sc

Example output:

    NAME                       PROVISIONER               AGE
    glusterfs-storage          kubernetes.io/glusterfs   4d
    glusterfs-storage-block    gluster.org/glusterblock   4d
    managed-nfs-storage        myokd/nfs                 4d



Command:

    oc get pvc --all-namespaces

Example output:

    NAMESPACE   NAME         STATUS    VOLUME                                     CAPACITY   ACCESS
MODES   STORAGECLASS          AGE
    nfsprov     test-claim   Bound     pvc-b209ee09-d66e-11e9-ab08-06c0ef66d8ff   1Mi        RWX
managed-nfs-storage   4d
```

Press to mark completed

List all supported API resources on the server in the cluster. Ensure the **-o wide** parameter is included to provide the VERBS permitted for each resource.

View the section labeled "Advanced Commands" output from oc --help command.

```
Command:

    oc api-resources


Example output:

    NAME                                SHORTNAMES     APIGROUP                       NAMESPACED
KIND                                VERBS
    bindings                                                                       true
Binding                             [create]
    componentstatuses                   cs                                         false
ComponentStatus                     [get list]
    configmaps                          cm                                         true
ConfigMap                           [create delete deletecollection get list patch update watch]
    endpoints                           ep                                         true
Endpoints                           [create delete deletecollection get list patch update watch]
    events                              ev                                         true
Event                               [create delete deletecollection get list patch update watch]
    limitranges                         limits                                     true
LimitRange                          [create delete deletecollection get list patch update watch]
    namespaces                          ns                                         false
Namespace                           [create delete get list patch update watch]
    nodes                               no                                         false
Node                                [create delete deletecollection get list patch update watch]
    persistentvolumeclaims              pvc                                        true
PersistentVolumeClaim               [create delete deletecollection get list patch update watch]
    persistentvolumes                   pv                                         false
PersistentVolume                    [create delete deletecollection get list patch update watch]
    pods                                po                                         true
Pod                                 [create delete deletecollection get list patch update watch]
    podtemplates                                                                   true
PodTemplate                         [create delete deletecollection get list patch update watch]
    replicationcontrollers              rc                                         true
ReplicationController               [create delete deletecollection get list patch update watch]
    resourcequotas                      quota                                      true
ResourceQuota                       [create delete deletecollection get list patch update watch]
    secrets                                                                        true
Secret                              [create delete deletecollection get list patch update watch]
    securitycontextconstraints          scc                                        false
SecurityContextConstraints          [create delete deletecollection get list patch update watch]
    serviceaccounts                     sa                                         true
ServiceAccount                      [create delete deletecollection get list patch update watch]
    services                            svc                                        true
Service                             [create delete get list patch update watch]
    mutatingwebhookconfigurations                  admissionregistration.k8s.io   false
```

```
MutatingWebhookConfiguration         [create delete deletecollection get list patch update watch]
    validatingwebhookconfigurations                    admissionregistration.k8s.io   false
ValidatingWebhookConfiguration       [create delete deletecollection get list patch update watch]
    customresourcedefinitions            crd,crds      apiextensions.k8s.io           false
CustomResourceDefinition             [create delete deletecollection get list patch update watch]
    apiservices                                        apiregistration.k8s.io         false
APIService                           [create delete deletecollection get list patch update watch]
    controllerrevisions                                apps                           true
ControllerRevision                   [create delete deletecollection get list patch update watch]
    daemonsets                           ds            apps                           true
DaemonSet                            [create delete deletecollection get list patch update watch]
    deployments                          deploy        apps                           true
Deployment                           [create delete deletecollection get list patch update watch]
    replicasets                          rs            apps                           true
ReplicaSet                           [create delete deletecollection get list patch update watch]
    statefulsets                         sts           apps                           true
StatefulSet                          [create delete deletecollection get list patch update watch]
    deploymentconfigs                    dc            apps.openshift.io              true
DeploymentConfig                     [create delete deletecollection get list patch update watch]
    tokenreviews                                       authentication.k8s.io          false
TokenReview                          [create]
    localsubjectaccessreviews                          authorization.k8s.io           true
LocalSubjectAccessReview             [create]
    selfsubjectaccessreviews                           authorization.k8s.io           false
SelfSubjectAccessReview              [create]
    selfsubjectrulesreviews                            authorization.k8s.io           false
SelfSubjectRulesReview               [create]
    subjectaccessreviews                               authorization.k8s.io           false
SubjectAccessReview                  [create]
    clusterrolebindings                                authorization.openshift.io     false
ClusterRoleBinding                   [create delete get list patch update]
    clusterroles                                       authorization.openshift.io     false
ClusterRole                          [create delete get list patch update]
    localresourceaccessreviews                         authorization.openshift.io     true
LocalResourceAccessReview            [create]
    localsubjectaccessreviews                          authorization.openshift.io     true
LocalSubjectAccessReview             [create]
    resourceaccessreviews                              authorization.openshift.io     false
ResourceAccessReview                 [create]
    rolebindingrestrictions                            authorization.openshift.io     true
RoleBindingRestriction               [create delete deletecollection get list patch update watch]
    rolebindings                                       authorization.openshift.io     true
RoleBinding                          [create delete get list patch update]
    roles                                              authorization.openshift.io     true
Role                                 [create delete get list patch update]
    selfsubjectrulesreviews                            authorization.openshift.io     true
SelfSubjectRulesReview               [create]
    subjectaccessreviews                               authorization.openshift.io     false
SubjectAccessReview                  [create]
```

```
    subjectrulesreviews                                authorization.openshift.io     true
SubjectRulesReview                  [create]
    bundlebindings                                     automationbroker.io            true
BundleBinding                       [delete deletecollection get list patch create update watch]
    bundleinstances                                    automationbroker.io            true
BundleInstance                      [delete deletecollection get list patch create update watch]
    bundles                                            automationbroker.io            true
Bundle                              [delete deletecollection get list patch create update watch]
    horizontalpodautoscalers            hpa            autoscaling                    true
HorizontalPodAutoscaler             [create delete deletecollection get list patch update watch]
    cronjobs                            cj             batch                          true
CronJob                             [create delete deletecollection get list patch update watch]
    jobs                                               batch                          true
Job                                 [create delete deletecollection get list patch update watch]
    buildconfigs                        bc             build.openshift.io             true
BuildConfig                         [create delete deletecollection get list patch update watch]
    builds                                             build.openshift.io             true
Build                               [create delete deletecollection get list patch update watch]
    certificatesigningrequests          csr            certificates.k8s.io            false
CertificateSigningRequest           [create delete deletecollection get list patch update watch]
    events                              ev             events.k8s.io                  true
Event                               [create delete deletecollection get list patch update watch]
    daemonsets                          ds             extensions                     true
DaemonSet                           [create delete deletecollection get list patch update watch]
    deployments                         deploy         extensions                     true
Deployment                          [create delete deletecollection get list patch update watch]
    ingresses                           ing            extensions                     true
Ingress                             [create delete deletecollection get list patch update watch]
    networkpolicies                     netpol         extensions                     true
NetworkPolicy                       [create delete deletecollection get list patch update watch]
    podsecuritypolicies                 psp            extensions                     false
PodSecurityPolicy                   [create delete deletecollection get list patch update watch]
    replicasets                         rs             extensions                     true
ReplicaSet                          [create delete deletecollection get list patch update watch]
    images                                             image.openshift.io             false
Image                               [create delete deletecollection get list patch update watch]
    imagesignatures                                    image.openshift.io             false
ImageSignature                      [create delete]
    imagestreamimages                   isimage        image.openshift.io             true
ImageStreamImage                    [get]
    imagestreamimports                                 image.openshift.io             true
ImageStreamImport                   [create]
    imagestreammappings                                image.openshift.io             true
ImageStreamMapping                  [create]
    imagestreams                        is             image.openshift.io             true
ImageStream                         [create delete deletecollection get list patch update watch]
    imagestreamtags                     istag          image.openshift.io             true
ImageStreamTag                      [create delete get list patch update]
    nodes                                              metrics.k8s.io                 false
```

```
NodeMetrics                          [get list]
    pods                                          metrics.k8s.io                 true
PodMetrics                           [get list]
    alertmanagers                                 monitoring.coreos.com          true
Alertmanager                         [delete deletecollection get list patch create update watch]
    prometheuses                                  monitoring.coreos.com          true
Prometheus                           [delete deletecollection get list patch create update watch]
    prometheusrules                               monitoring.coreos.com          true
PrometheusRule                       [delete deletecollection get list patch create update watch]
    servicemonitors                               monitoring.coreos.com          true
ServiceMonitor                       [delete deletecollection get list patch create update watch]
    clusternetworks                               network.openshift.io           false
ClusterNetwork                       [create delete deletecollection get list patch update watch]
    egressnetworkpolicies                         network.openshift.io           true
EgressNetworkPolicy                  [create delete deletecollection get list patch update watch]
    hostsubnets                                   network.openshift.io           false
HostSubnet                           [create delete deletecollection get list patch update watch]
    netnamespaces                                 network.openshift.io           false
NetNamespace                         [create delete deletecollection get list patch update watch]
    networkpolicies                   netpol      networking.k8s.io              true
NetworkPolicy                        [create delete deletecollection get list patch update watch]
    oauthaccesstokens                             oauth.openshift.io             false
OAuthAccessToken                     [create delete deletecollection get list patch update watch]
    oauthauthorizetokens                          oauth.openshift.io             false
OAuthAuthorizeToken                  [create delete deletecollection get list patch update watch]
    oauthclientauthorizations                     oauth.openshift.io             false
OAuthClientAuthorization             [create delete deletecollection get list patch update watch]
    oauthclients                                  oauth.openshift.io             false
OAuthClient                          [create delete deletecollection get list patch update watch]
    poddisruptionbudgets              pdb         policy                         true
PodDisruptionBudget                  [create delete deletecollection get list patch update watch]
    podsecuritypolicies               psp         policy                         false
PodSecurityPolicy                    [create delete deletecollection get list patch update watch]
    projectrequests                               project.openshift.io           false
ProjectRequest                       [create list]
    projects                                      project.openshift.io           false
Project                              [create delete get list patch update watch]
    appliedclusterresourcequotas                  quota.openshift.io             true
AppliedClusterResourceQuota          [get list]
    clusterresourcequotas             clusterquota quota.openshift.io            false
ClusterResourceQuota                 [create delete deletecollection get list patch update watch]
    clusterrolebindings                           rbac.authorization.k8s.io      false
ClusterRoleBinding                   [create delete deletecollection get list patch update watch]
    clusterroles                                  rbac.authorization.k8s.io      false
ClusterRole                          [create delete deletecollection get list patch update watch]
    rolebindings                                  rbac.authorization.k8s.io      true
RoleBinding                          [create delete deletecollection get list patch update watch]
    roles                                         rbac.authorization.k8s.io      true
Role                                 [create delete deletecollection get list patch update watch]
```

```
    routes                                          route.openshift.io            true
Route                              [create delete deletecollection get list patch update watch]
    priorityclasses                      pc         scheduling.k8s.io             false
PriorityClass                      [create delete deletecollection get list patch update watch]
    podsecuritypolicyreviews                        security.openshift.io         true
PodSecurityPolicyReview            [create]
    podsecuritypolicyselfsubjectreviews             security.openshift.io         true
PodSecurityPolicySelfSubjectReview [create]
    podsecuritypolicysubjectreviews                 security.openshift.io         true
PodSecurityPolicySubjectReview     [create]
    rangeallocations                                security.openshift.io         false
RangeAllocation                    [create delete deletecollection get list patch update watch]
    securitycontextconstraints           scc        security.openshift.io         false
SecurityContextConstraints         [create delete deletecollection get list patch update watch]
    clusterservicebrokers                           servicecatalog.k8s.io         false
ClusterServiceBroker               [create delete deletecollection get list patch update watch]
    clusterserviceclasses                           servicecatalog.k8s.io         false
ClusterServiceClass                [create delete deletecollection get list patch update watch]
    clusterserviceplans                             servicecatalog.k8s.io         false
ClusterServicePlan                 [create delete deletecollection get list patch update watch]
    servicebindings                                 servicecatalog.k8s.io         true
ServiceBinding                     [create delete deletecollection get list patch update watch]
    servicebrokers                                  servicecatalog.k8s.io         true
ServiceBroker                      [create delete deletecollection get list patch update watch]
    serviceclasses                                  servicecatalog.k8s.io         true
ServiceClass                       [create delete deletecollection get list patch update watch]
    serviceinstances                                servicecatalog.k8s.io         true
ServiceInstance                    [create delete deletecollection get list patch update watch]
    serviceplans                                    servicecatalog.k8s.io         true
ServicePlan                        [create delete deletecollection get list patch update watch]
    storageclasses                       sc         storage.k8s.io                false
StorageClass                       [create delete deletecollection get list patch update watch]
    volumeattachments                               storage.k8s.io                false
VolumeAttachment                   [create delete deletecollection get list patch update watch]
    brokertemplateinstances                         template.openshift.io         false
BrokerTemplateInstance             [create delete deletecollection get list patch update watch]
    processedtemplates                              template.openshift.io         true
Template                           [create]
    templateinstances                               template.openshift.io         true
TemplateInstance                   [create delete deletecollection get list patch update watch]
    templates                                       template.openshift.io         true
Template                           [create delete deletecollection get list patch update watch]
    groups                                          user.openshift.io             false
Group                              [create delete deletecollection get list patch update watch]
    identities                                      user.openshift.io             false
Identity                           [create delete deletecollection get list patch update watch]
    useridentitymappings                            user.openshift.io             false
UserIdentityMapping                [create delete get patch update]
```

```
    users                                                  user.openshift.io              false
User                                [create delete deletecollection get list patch update watch]
```

Press to mark completed

Using the -v 9 parameter get the pods in your team namespace. The -v parameter will display detail communication sent to the cluster API server.

Did your output include any **curl** commands?

Ensure you are in the team project or include the -n parameter.

```
Command:

    oc get po -n team01 -v 9

Example output:

    I0917 19:28:48.023894   66924 loader.go:359] Config loaded from file
/Users/daveweilert/.kube/config
    I0917 19:28:48.027878   66924 loader.go:359] Config loaded from file
/Users/daveweilert/.kube/config
    I0917 19:28:48.034776   66924 loader.go:359] Config loaded from file
/Users/daveweilert/.kube/config
    I0917 19:28:48.041968   66924 loader.go:359] Config loaded from file
/Users/daveweilert/.kube/config
    I0917 19:28:48.042310   66924 round_trippers.go:386] curl -k -v -XGET  -H "Accept:
application/json;as=Table;v=v1beta1;g=meta.k8s.io, application/json" -H "User-Agent: oc/v1.11.0+d4cacc0
(darwin/amd64) kubernetes/d4cacc0" -H "Authorization: Bearer
fKqnT6ZLdI0PLYbyXGzjwUxWHr6H87cCwJUBwvq9Ktk" 'https://52.117.155.26:8443/api/v1/namespaces/team01/pods?
limit=500'
    I0917 19:28:48.104043   66924 round_trippers.go:405] GET
https://52.117.155.26:8443/api/v1/namespaces/team01/pods?limit=500 200 OK in 61 milliseconds
    I0917 19:28:48.104098   66924 round_trippers.go:411] Response Headers:
    I0917 19:28:48.104113   66924 round_trippers.go:414]     Date: Wed, 18 Sep 2019 00:28:48 GMT
    I0917 19:28:48.104122   66924 round_trippers.go:414]     Cache-Control: no-store
    I0917 19:28:48.104140   66924 round_trippers.go:414]     Content-Type: application/json
    I0917 19:28:48.104151   66924 round_trippers.go:414]     Content-Length: 3385
    I0917 19:28:48.104238   66924 request.go:897] Response Body:
{"kind":"Table","apiVersion":"meta.k8s.io/v1beta1","metadata":
{"selfLink":"/api/v1/namespaces/team01/pods","resourceVersion":"986995"},"columnDefinitions":
[{"name":"Name","type":"string","format":"name","description":"Name must be unique within a namespace.
Is required when creating resources, although some resources may allow a client to request the
generation of an appropriate name automatically. Name is primarily intended for creation idempotence
and configuration definition. Cannot be updated. More info: http://kubernetes.io/docs/user-
```

guide/identifiers#names","priority":0},{"name":"Ready","type":"string","format":"","description":"The aggregate readiness state of this pod for accepting traffic.","priority":0},
{"name":"Status","type":"string","format":"","description":"The aggregate status of the containers in this pod.","priority":0},{"name":"Restarts","type":"integer","format":"","description":"The number of times the containers in this pod have been restarted.","priority":0},
{"name":"Age","type":"string","format":"","description":"CreationTimestamp is a timestamp representing the server time when this object was created. It is not guaranteed to be set in happens-before order across separate operations. Clients may not set this value. It is represented in RFC3339 form and is in UTC.\n\nPopulated by the system. Read-only. Null for lists. More info: https://git.k8s.io/community/contributors/devel/api-conventions.md#metadata","priority":0},
{"name":"IP","type":"string","format":"","description":"IP address allocated to the pod. Routable at least within the cluster. Empty if not yet allocated.","priority":1},
{"name":"Node","type":"string","format":"","description":"NodeName is a request to schedule this pod onto a specific node. If it is non-empty, the scheduler simply schedules this pod onto that node, assuming that it fits resource requirements.","priority":1},{"name":"Nominated Node","type":"string","format":"","description":"nominatedNodeName is set only when this pod preempts other pods on the node, but it cannot be scheduled right away as preemption victims receive their graceful termination periods. This field does not guarantee that the pod will be scheduled on this node. Scheduler may decide to place the pod elsewhere if other nodes become available sooner. Scheduler may also decide to give the resources on this node to a higher priority pod that is created after preemption. As a result, this field may be different than PodSpec.nodeName when the pod is scheduled.","priority":1}],"rows":[{"cells":["team01-student-ui-7f47864588-hz7gn","1/1","Running",0,"1d","10.130.0.223","sydney.52.117.155.27.nip.io","\u003cnone\u003e"],"object":{"kind":"PartialObjectMetadata","apiVersion":"meta.k8s.io/v1beta1","metadata":{"name":"team01-student-ui-7f47864588-hz7gn","generateName":"team01-student-ui-7f47864588-","namespace":"team01","selfLink":"/api/v1/namespaces/team01/pods/team01-student-ui-7f47864588-hz7gn","uid":"7cd9d5ac-d81c-11e9-ab08-06c0ef66d8ff","resourceVersion":"516858","creationTimestamp":"2019-09-16T00:54:07Z","labels":{"app":"team01-student-ui","pod-template-hash":"3903420144"},"annotations":{"openshift.io/scc":"restricted"},"ownerReferences":[{"apiVersion":"apps/v1","kind":"ReplicaSet","name":"team01-student-ui-7f47864588","uid":"7cd76843-d81c-11e9-ab08-06c0ef66d8ff","controller":true,"blockOwnerDeletion":true}]}}}]}
    I0917 19:28:48.105754   66924 get.go:443] no kind is registered for the type v1beta1.Table in scheme "k8s.io/kubernetes/pkg/api/legacyscheme/scheme.go:29"
```
    NAME                                READY     STATUS    RESTARTS   AGE
    team01-student-ui-7f47864588-hz7gn   1/1       Running   0          1d
```

Press to mark completed

The "oc get" command provides an ability to view realtime actions of the resource that is the focus of the get. Provide an additional parameter, **--watch**.

View realtime events for all namespaces in the cluster. Be sure to include the **--watch** parameter.

To stop realtime viewing escape or Control-C the terminal output to exit the command.

Ensure to include the --all-namespaces and --watch parameters.

```
Command:

    oc get events --all-namespaces --watch

Example output:

    NAMESPACE              LAST SEEN   FIRST SEEN   COUNT     NAME
KIND                   SUBOBJECT                             TYPE      REASON           SOURCE
MESSAGE
    default                3m          4d           1185      ansible-service-broker.15c41d2da5b24ada
ClusterServiceBroker                                         Normal    FetchedCatalog   service-
catalog-controller-manager     Successfully fetched catalog entries from broker.
    default                7m          4d           594       template-service-broker.15c41d2ce1a60932
ClusterServiceBroker                                         Normal    FetchedCatalog   service-
catalog-controller-manager     Successfully fetched catalog entries from broker.
    kube-service-catalog   1h          7h           3         apiserver-gs79m.15c5485c2851f574
Pod                    spec.containers{apiserver}            Warning   Unhealthy        kubelet,
sydney.52.117.155.26.nip.io   Readiness probe failed: HTTP probe failed with statuscode: 500
    kube-service-catalog   1h          7h           3         controller-manager-6dtd6.15c5485d06865607
Pod                    spec.containers{controller-manager}   Warning   Unhealthy        kubelet,
sydney.52.117.155.26.nip.io   Readiness probe failed: HTTP probe failed with statuscode: 500
```

Press to mark completed