1 OpenShift CheatSheet   Cloud

- PDF Link: cheatsheet-openshift-A4.pdf, Category: Cloud

- Blog URL: `https://cheatsheet.dennyzhang.com/cheatsheet-openshift-A4`

- Related posts: PKS CheatSheet, Kubectl CheatSheet, #denny-cheatsheets

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1.1 New Concepts From OpenShift

Name	Command
BuildConfig	
Source2Image(s2i)	
Templates	Like helm chart
Pipelines	Jenkins
Fine grained security policies OOTB	Like k8s psp
Security Context Contraints(SCC)	
Red Hat Container Catalog (RHCC)	
Route	Like k8s ingress
Metering and Chargeback	
Operator SDK	

1.2 OpenShift Key Components

Name	Command
Computing virtualization	RHV (Red Hat Virtualization), based on KVM
Container runtime	cri-o
SDN networking	Based upon OVS
VM/Cluster lifecycle management	CloudForms ?
Disater Recovery	
Control Plane	
Docker image registry	Redhat Quay
Packages k8s cluster orchestrator	tectonic
Container optimized OS	
Persistent volume	Gluster
Management Console	
Docker Image Compliance Scan	CloudForms OpenSCAP, like Harbor Clair
Reference	Link: OpenShift Key Components, Link: PKS Key Components

https://raw.githubusercontent.com/dennyzhang/cheatsheet.dennyzhang.com/master/cheatsheet-openshift-A4/architecture$_{overview.p}$

1.3 OpenShift Solutions

Name	Command
OKD	
Minishift	
OpenShift Dedicated	

1.4 OpenShift Glossary

Name	Command
OKD	The Origin Community Distribution of Kubernetes that powers Red Hat OpenShift.
oc command line	OpenShift command line: `oc <action> <object_type> <object_name_or_id>`
Project	Namespace in Kubernetes. Resources are aggregated by projects. `oc get project`
Build	Builds create a new image from source code, other images, Dockerfiles, etc. `oc get build`
Build Configuration	How to build source code and a base image into a new image. `oc get bc`
Route	Endpoint in Kubernetes. A route is an external DNS entry
Deployment Configuration	`oc get dc`
ImageStream	`oc get is`
ImageStreamTag	`oc get istag`
ImageStreamImage	`oc get isimage`
Template	`oc get template`
Template Instance	`oc get templateinstance`
Explain	Online manual `oc explain pod`
Red Hat Registry	By default, all images are pulled from registry.redhat.io.
OpenShift SaaS Version	`https://openshift.io/`
OpenShift online	`https://cloud.openshift.com`
Reference	Minishift CheatSheet Link: Minishift
Reference	OpenShift CheatSheet, Rancher CheatSheet, PKS CheatSheet

1.5 OC - Highlights

Name	Command
Get api requests verbose output with kubectl call	`oc --loglevel 999 get pod/dummy-deployment-6d6759c786-5kwth`
Start a pod and get a shell for debug	`oc debug dc/jorge`
Impersonate for oc command	`oc --as=jorge get pods`, `oc --as-group=developers get pods`
Use oc to do admin operations	`oc adm <sub-command>`
Try experimental commands of oc	`oc ex <sub-command>`
Explain OpenShift/Kubernetes concepts to me	`oc explain pod`, `oc explain replicaset`
Enable oc shell autocompletion	`echo "source <(oc completion zsh)" »~/.zshrc`, then reload terminal
Reference	OpenShift CheatSheet, Kubectl CheatSheet

1.6 OC - Admin

Name	Command
Login/logout	`oc login`, `oc logout`, `oc whoami`
List route	`oc get route`
List all object types	`oc types`, `oc api-resources`
Start a local OpenShift all-in-one cluster	`oc cluster up`

1.7 OC - Developer

Name	Command
Create a project	`oc new-project <projectname> --description=<description> --display-name=<`
Check status of current project	`oc status` Link: OC CLI Operations
Show oc cli profile	`oc config view` Link: Managing CLI Profiles
Get all resource	`oc get all`
Switch project	`oc project <projectname>`
Create an application	`oc new-app https://github.com/sclorg/cakephp-ex`
Create a new build	`oc new-build https://github.com/sclorg/cakephp-ex`
Manually start a build with given conf	`oc start-build <buildconfig_name>`
Stop a build that is in progress	`oc cancel-build <build_name>`
Import an external image	`oc import-image <image_stream>`
Tag an image	`oc tag <current_image> <image_stream>`

1.8 All openshift resources: oc api-resources

NAME	SHORTNAMES	APIGROUP	NAMESPACED	KIND
bindings			true	Binding
componentstatuses	cs		false	ComponentStatus
configmaps	cm		true	ConfigMap
endpoints	ep		true	Endpoints
events	ev		true	Event
limitranges	limits		true	LimitRange
namespaces	ns		false	Namespace
nodes	no		false	Node
persistentvolumeclaims	pvc		true	PersistentVolumeC
persistentvolumes	pv		false	PersistentVolume
pods	po		true	Pod
podtemplates			true	PodTemplate
replicationcontrollers	rc		true	ReplicationContro
resourcequotas	quota		true	ResourceQuota
secrets			true	Secret
serviceaccounts	sa		true	ServiceAccount
services	svc		true	Service
mutatingwebhookconfigurations		admissionregistration.k8s.io	false	MutatingWebhook
validatingwebhookconfigurations		admissionregistration.k8s.io	false	ValidatingWebhoo
customresourcedefinitions	crd,crds	apiextensions.k8s.io	false	CustomResourceD
apiservices		apiregistration.k8s.io	false	APIService
controllerrevisions		apps	true	ControllerRevision
daemonsets	ds	apps	true	DaemonSet
deployments	deploy	apps	true	Deployment
replicasets	rs	apps	true	ReplicaSet
statefulsets	sts	apps	true	StatefulSet
deploymentconfigs	dc	apps.openshift.io	true	DeploymentConfig
tokenreviews		authentication.k8s.io	false	TokenReview
localsubjectaccessreviews		authorization.k8s.io	true	LocalSubjectAcces
selfsubjectaccessreviews		authorization.k8s.io	false	SelfSubjectAccessI
selfsubjectrulesreviews		authorization.k8s.io	false	SelfSubjectRulesR
subjectaccessreviews		authorization.k8s.io	false	SubjectAccessRev
clusterrolebindings		authorization.openshift.io	false	ClusterRoleBindin
clusterroles		authorization.openshift.io	false	ClusterRole
localresourceaccessreviews		authorization.openshift.io	true	LocalResourceAcc
localsubjectaccessreviews		authorization.openshift.io	true	LocalSubjectAcces
resourceaccessreviews		authorization.openshift.io	false	ResourceAccessRe
rolebindingrestrictions		authorization.openshift.io	true	RoleBindingRestri
rolebindings		authorization.openshift.io	true	RoleBinding
roles		authorization.openshift.io	true	Role
selfsubjectrulesreviews		authorization.openshift.io	true	SelfSubjectRulesR
subjectaccessreviews		authorization.openshift.io	false	SubjectAccessRev
subjectrulesreviews		authorization.openshift.io	true	SubjectRulesRevie
horizontalpodautoscalers	hpa	autoscaling	true	HorizontalPodAut
cronjobs	cj	batch	true	CronJob
jobs		batch	true	Job
buildconfigs	bc	build.openshift.io	true	BuildConfig
builds		build.openshift.io	true	Build
certificatesigningrequests	csr	certificates.k8s.io	false	CertificateSigning
events	ev	events.k8s.io	true	Event
daemonsets	ds	extensions	true	DaemonSet
deployments	deploy	extensions	true	Deployment
ingresses	ing	extensions	true	Ingress
networkpolicies	netpol	extensions	true	NetworkPolicy
podsecuritypolicies	psp	extensions	false	PodSecurityPolicy
replicasets	rs	extensions	true	ReplicaSet
images		image.openshift.io	false	Image
imagesignatures		image.openshift.io	false	ImageSignature
imagestreamimages	isimage	image.openshift.io	true	ImageStreamImag
imagestreamimports		image.openshift.io	true	ImageStreamImpo
imagestreammappings		image.openshift.io	true	ImageStreamMapp
imagestreams	is	image.openshift.io	true	ImageStream

1.9   OpenShift Source Code

Name	Command
Openshift Ansible Deployment	GitHub: openshift-ansible/playbooks

1.10   OpenShift Opportunty

Name	Command
Doesn't support multiple clusters	
OC command line could be a strengh or a weakness	
Lack of SDN solution	
Time-consuming for administrators' operations	

1.11   OpenShift CLI Help All

```
/User/zdenny > oc --help
OpenShift Client

This client helps you develop, build, deploy, and run your applications on any OpenShift or Kubernetes compat
platform. It also includes the administrative commands for managing a cluster under the 'adm' subcommand.

Usage:
  oc [flags]

Basic Commands:
  types          An introduction to concepts and types
  login          Log in to a server
  new-project    Request a new project
  new-app        Create a new application
  status         Show an overview of the current project
  project        Switch to another project
  projects       Display existing projects
  explain        Documentation of resources
  cluster        Start and stop OpenShift cluster

Build and Deploy Commands:
  rollout        Manage a Kubernetes deployment or OpenShift deployment config
  rollback       Revert part of an application back to a previous deployment
  new-build      Create a new build configuration
  start-build    Start a new build
  cancel-build   Cancel running, pending, or new builds
  import-image   Imports images from a Docker registry
  tag            Tag existing images into image streams

Application Management Commands:
  get            Display one or many resources
  describe       Show details of a specific resource or group of resources
  edit           Edit a resource on the server
  set            Commands that help set specific features on objects
  label          Update the labels on a resource
  annotate       Update the annotations on a resource
  expose         Expose a replicated application as a service or route
  delete         Delete one or more resources
  scale          Change the number of pods in a deployment
  autoscale      Autoscale a deployment config, deployment, replication controller, or replica set
  secrets        Manage secrets
  serviceaccounts Manage service accounts in your project

Troubleshooting and Debugging Commands:
  logs           Print the logs for a resource
```

```
    rsh             Start a shell session in a pod
    rsync           Copy files between local filesystem and a pod
    port-forward    Forward one or more local ports to a pod
    debug           Launch a new instance of a pod for debugging
    exec            Execute a command in a container
    proxy           Run a proxy to the Kubernetes API server
    attach          Attach to a running container
    run             Run a particular image on the cluster
    cp              Copy files and directories to and from containers.
    wait            Experimental: Wait for one condition on one or many resources

Advanced Commands:
    adm             Tools for managing a cluster
    create          Create a resource from a file or from stdin.
    replace         Replace a resource by filename or stdin
    apply           Apply a configuration to a resource by filename or stdin
    patch           Update field(s) of a resource using strategic merge patch
    process         Process a template into list of resources
    export          Export resources so they can be used elsewhere
    extract         Extract secrets or config maps to disk
    idle            Idle scalable resources
    observe         Observe changes to resources and react to them (experimental)
    policy          Manage authorization policy
    auth            Inspect authorization
    convert         Convert config files between different API versions
    import          Commands that import applications
    image           Useful commands for managing images
    registry        Commands for working with the registry
    api-versions    Print the supported API versions on the server, in the form of "group/version"
    api-resources   Print the supported API resources on the server

Settings Commands:
    logout          End the current server session
    config          Change configuration files for the client
    whoami          Return information about the current session
    completion      Output shell completion code for the specified shell (bash or zsh)

Other Commands:
    ex              Experimental commands under active development
    help            Help about any command
    plugin          Runs a command-line plugin
    version         Display client and server versions

Use "oc <command> --help" for more information about a given command.
Use "oc options" for a list of global command-line options (applies to all commands).
```

1.12   OpenShift CLI Help Admin

```
/User/zdenny > oc adm
Administrative Commands


Commands for managing a cluster are exposed here. Many administrative actions involve interaction with the co
client as well.

Usage:
  oc adm [flags]


Component Installation:
  router                          Install a router
```

```
  ipfailover                      Install an IP failover group to a set of nodes
  registry                        Install the integrated Docker registry

Security and Policy:
  new-project                     Create a new project
  policy                          Manage policy
  groups                          Manage groups
  ca                              Manage certificates and keys
  certificate                     Modify certificate resources.

Node Management:
  create-node-config              Create a configuration bundle for a node
  manage-node                     Manage nodes - list pods, evacuate, or mark ready
  cordon                          Mark node as unschedulable
  uncordon                        Mark node as schedulable
  drain                           Drain node in preparation for maintenance
  taint                           Update the taints on one or more nodes
  pod-network                     Manage pod network

Maintenance:
  diagnostics                     Diagnose common cluster problems
  prune                           Remove older versions of resources from the server
  build-chain                     Output the inputs and dependencies of your builds
  migrate                         Migrate data in the cluster
  top                             Show usage statistics of resources on the server
  verify-image-signature          Verify the image identity contained in the image signature

Configuration:
  create-kubeconfig               Create a basic .kubeconfig file from client certs
  create-api-client-config        Create a config file for connecting to the server as a user
  create-bootstrap-project-template  Create a bootstrap project template
  create-bootstrap-policy-file    Create the default bootstrap policy
  create-login-template           Create a login template
  create-provider-selection-template Create a provider selection template
  create-error-template           Create an error page template

Other Commands:
  completion                      Output shell completion code for the specified shell (bash or zsh)
  config                          Change configuration files for the client

Use "oc adm <command> --help" for more information about a given command.
Use "oc adm options" for a list of global command-line options (applies to all commands).
```

1.13   More Resources

```
https://www.okd.io/
   https://access.redhat.com/documentation/en-us/openshift_container_platform/3.11/
   https://access.redhat.com/documentation/en-us/openshift_container_platform/3.11/html/cli_reference/
cli-reference-basic-cli-operations
   https://docs.okd.io/latest/minishift/getting-started/quickstart.html
   https://www.openshift.com/
   https://docs.openshift.com/online/architecture/index.html
```
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