Installing Helm Package Manager
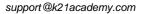
[Edition 1]

[Last Update 210927]

*For any issues/help contact : **support@k21academy.com***
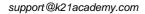
Contents

1   INTRODUCTION

Helm is an open-source tool used for packaging and deploying applications on Kubernetes.

It is often referred to as the Kubernetes Package Manager because of its similarities to any other package manager you would find on your favourite OS.

Objectives:

- Installing Helm
- Deploying application using helm
- Accessing application

2   DOCUMENTATION

2.1   Helm Documentation
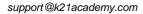
1. https://helm.sh/

3   PRE-REQUISITE

1. Ensure you have running Kubernetes cluster deployed

   <mark>Note</mark>: *Follow Activity Guide*

   AG_1_Bootstrap_Kubernetes_Cluster_Using_Kubeadm_Guide_ed *From Portal*

2. Ensure that you have logged-in as root user.

4   INSTALLING HELM & DEPLOYING APPLICATION

1. Let us download the helm package.

```
$ curl -fsSL -o get_helm.sh https://raw.githubusercontent.com/helm/helm/master/scripts/get-helm-3
```

```
$ chmod 700 get_helm.sh
```

```
$ ./get_helm.sh
```

Output:

```
[root@kube-master ~]# curl -fsSL -o get_helm.sh https://raw.githubusercontent.com/helm/helm/master/scripts/get-helm-3
[root@kube-master ~]# chmod 700 get_helm.sh
[root@kube-master ~]# ./get_helm.sh
Downloading https://get.helm.sh/helm-v3.6.3-linux-amd64.tar.gz
Verifying checksum... Done.
Preparing to install helm into /usr/local/bin
helm installed into /usr/local/bin/helm
```

2. Let us verify the version

```
$ helm version --short --client
```

Output:
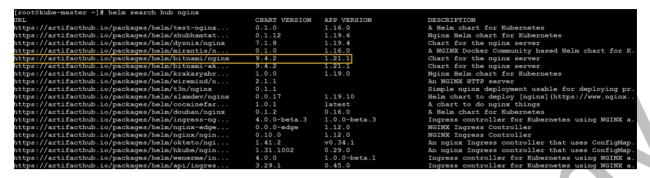
```
[root@kube-master ~]# helm version --short --client
v3.6.3+gd506314
```

3. helm search allows you to search the repo for applications such as Nginx.

```
$ helm search hub nginx
```

Output:

```
[root@kube-master ~]# helm search hub nginx
URL                                               CHART VERSION   APP VERSION   DESCRIPTION
https://artifacthub.io/packages/helm/test-nginx...  0.1.0         1.16.0        A Helm chart for Kubernetes
https://artifacthub.io/packages/helm/shubhamtat...  0.1.12        1.19.6        Nginx Helm chart for Kubernetes
https://artifacthub.io/packages/helm/dysnix/nginx   7.1.8         1.19.4        Chart for the nginx server
https://artifacthub.io/packages/helm/mirantis/n...  0.1.0         1.16.0        A NGINX Docker Community based Helm chart for K.
https://artifacthub.io/packages/helm/bitnami/nginx  9.4.2         1.21.1        Chart for the nginx server
https://artifacthub.io/packages/helm/bitnami-ak...  9.4.2         1.21.1        Chart for the nginx server
https://artifacthub.io/packages/helm/krakazyabr...  1.0.0         1.19.0        Nginx Helm chart for Kubernetes
https://artifacthub.io/packages/helm/wiremind/n...  2.1.1                       An NGINX HTTP server
https://artifacthub.io/packages/helm/t3n/nginx      0.1.1                       Simple nginx deployment usable for deploying pr.
https://artifacthub.io/packages/helm/slamdev/nginx  0.0.17        1.19.10       Helm chart to deploy [nginx](https://www.nginx..
https://artifacthub.io/packages/helm/cocainefar...  1.0.1         latest        A chart to do nginx things
https://artifacthub.io/packages/helm/douban/nginx   0.1.2         0.16.0        A Helm chart for Kubernetes
https://artifacthub.io/packages/helm/ingress-ng...  4.0.0-beta.3  1.0.0-beta.3  Ingress controller for Kubernetes using NGINX a.
https://artifacthub.io/packages/helm/nginx-edge...  0.0.0-edge    1.12.0        NGINX Ingress Controller
https://artifacthub.io/packages/helm/nginx/ngi...   0.10.0        1.12.0        NGINX Ingress Controller
https://artifacthub.io/packages/helm/okteto/ngi...  1.41.2        v0.34.1       An nginx Ingress controller that uses ConfigMap.
https://artifacthub.io/packages/helm/hkube/ngin...  1.31.1002     0.29.0        An nginx Ingress controller that uses ConfigMap.
https://artifacthub.io/packages/helm/wenerme/in...  4.0.0         1.0.0-beta.1  Ingress controller for Kubernetes using NGINX a.
https://artifacthub.io/packages/helm/api/ingres...  3.29.1        0.45.0        Ingress controller for Kubernetes using NGINX a.
```

4. To add the chart with the release name web-server-repository .

helm repo add web-server-repository https://charts.bitnami.com/bitnami

Output:

```
[root@kube-master ~]# helm repo add web-server-repository  https://charts.bitnami.com/bitnami
"web-server-repository" has been added to your repositories
```

5. If you want to list the chart repositories

helm repo list

Output:

```
[root@kube-master ~]# helm repo list
NAME                     URL
web-server-repository    https://charts.bitnami.com/bitnami
```

6. To install the chart with the release name web-server-repository:

$ helm install web-server web-server-repository/nginx

Output:

```
[root@kube-master ~]# helm install web-server web-server-repository/nginx
NAME: web-server
LAST DEPLOYED: Wed Aug 18 11:48:42 2021
NAMESPACE: default
STATUS: deployed
REVISION: 1
TEST SUITE: None
NOTES:
** Please be patient while the chart is being deployed **

NGINX can be accessed through the following DNS name from within your cluster:

    web-server-nginx.default.svc.cluster.local (port 80)

To access NGINX from outside the cluster, follow the steps below:

1. Get the NGINX URL by running these commands:

  NOTE: It may take a few minutes for the LoadBalancer IP to be available.
        Watch the status with: 'kubectl get svc --namespace default -w web-server-nginx'

    export SERVICE_PORT=$(kubectl get --namespace default -o jsonpath="{.spec.ports[0].port}" services web-server-nginx)
    export SERVICE_IP=$(kubectl get svc --namespace default web-server-nginx -o jsonpath='{.status.loadBalancer.ingress[0].ip}')
    echo "http://${SERVICE_IP}:${SERVICE_PORT}"
```

7. Let us list the pod to verify whether the pod is deployed or not

```
$ kubectl get pods
```

Output:

```
[root@kube-master ~]# kubectl get pods
NAME                                READY    STATUS     RESTARTS    AGE
web-server-nginx-6f59494766-c6sr8   1/1      Running    0           2m48s
```

8. Automatically service is also created let's verify

```
$ kubectl get svc
```

Output:

```
[root@kube-master ~]# kubectl get svc
NAME               TYPE           CLUSTER-IP       EXTERNAL-IP     PORT(S)        AGE
kubernetes         ClusterIP      10.96.0.1        <none>          443/TCP        9d
web-server-nginx   LoadBalancer   10.100.130.210   <pending>       80:31584/TCP   3m50s
```

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9. Let is access the application from browser.

http://192.168.100.11:**31584**/

Output:

⚠ Not secure | 192.168.100.11:31584

Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org. Commercial support is available at nginx.com.
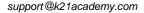
Thank you for using nginx.

10. Let us uninstall the chart

$ helm delete web-server

Output:

```
[root@kube-master ~]# helm delete web-server
release "web-server" uninstalled
```

5   SUMMARY

In this guide we Covered:

- **Installing** Helm
- **Deploying** application using helm
- Accessing application