

[Hands-on] 15. Helm

자주 사용되는 Helm 명령어들을 실습해 보겠습니다.

먼저 어떤 명령어들이 있는지 살펴볼까요?

```
ubuntu@ip-10-0-1-161:~$ helm --help
The Kubernetes package manager
```

Common actions for Helm:

- helm search: search for charts
- helm pull: download a chart to your local directory to view
- helm install: upload the chart to Kubernetes
- helm list: list releases of charts

Environment variables:

Name	Description
-----	-----
\$HELM_CACHE_HOME	set an alternative location for storing cached files.
\$HELM_CONFIG_HOME	set an alternative location for storing Helm configuration.
\$HELM_DATA_HOME	set an alternative location for storing Helm data.
\$HELM_DEBUG	indicate whether or not Helm is running in Debug mode
\$HELM_DRIVER	set the backend storage driver. Values are: configmap, secret, memory, sql.
\$HELM_DRIVER_SQL_CONNECTION_STRING	set the connection string the SQL storage driver should use.
\$HELM_MAX_HISTORY	set the maximum number of helm release history.
\$HELM_NAMESPACE	set the namespace used for the helm operations.
\$HELM_NO_PLUGINS	disable plugins. Set HELM_NO_PLUGINS=1 to disable plugins.
\$HELM_PLUGINS	set the path to the plugins directory

...생략...

명령어 : `helm --help`

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이제 설치(install)를 한 번 진행해볼까요?

먼저 Repository를 add해줍니다.

```
ubuntu@ip-10-0-1-161:~$ helm repo add bitnami https://charts.bitnami.com/bitnami  
"bitnami" has been added to your repositories
```

명령어 : `helm repo add bitnami https://charts.bitnami.com/bitnami`

Repository 목록도 볼 수 있습니다.

```
ubuntu@ip-10-0-1-161:~$ helm repo list  
NAME      URL  
bitnami   https://charts.bitnami.com/bitnami
```

명령어 : `helm repo list`

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검색도 가능하구요.

```
ubuntu@ip-10-0-1-161:~$ helm search repo bitnami
```

NAME	CHART VERSION	APP VERSION	DESCRIPTION
bitnami/airflow	12.5.12	2.3.2	Apache Airflow is a tool to express and execute...
bitnami/apache	9.1.13	2.4.54	Apache HTTP Server is an open-source HTTP serve...
bitnami/argo-cd	3.4.4	2.4.3	Argo CD is a continuous delivery tool for Kuber...
bitnami/argo-workflows	2.3.5	3.3.8	Argo Workflows is meant to orchestrate Kuberne...
bitnami/aspnet-core	3.4.10	6.0.6	ASP.NET Core is an open-source framework for we...
bitnami/cassandra	9.2.7	4.0.4	Apache Cassandra is an open source distributed ...
bitnami/cert-manager	0.7.1	1.8.2	Cert Manager is a Kubernetes add-on to automate...
bitnami/common	1.16.0	1.16.0	A Library Helm Chart for grouping common logic ...
bitnami/concourse	1.3.7	7.8.1	Concourse is an automation system written in Go...
bitnami/consul	10.7.3	1.12.2	HashiCorp Consul is a tool for discovering and ...
bitnami/contour	8.0.4	1.21.1	Contour is an open source Kubernetes ingress co...
bitnami/contour-operator	1.2.1	1.20.1	The Contour Operator extends the Kubernetes API...

...생략...

명령어 : `helm search repo bitnami`

Wordpress를 한 번 찾아볼까요?

```
ubuntu@ip-10-0-1-161:~$ helm search repo wordpress
```

NAME	CHART VERSION	APP VERSION	DESCRIPTION
bitnami/wordpress	15.0.7	6.0.0	WordPress is the world's most popular blogging ...
bitnami/wordpress-intel	2.0.7	6.0.0	WordPress for Intel is the most popular blogg...

명령어 : `helm search repo wordpress`

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이제 설치를 진행해 보겠습니다.

```
ubuntu@ip-10-0-1-161:~$ helm repo update
Hang tight while we grab the latest from your chart repositories...
...Successfully got an update from the "bitnami" chart repository
Update Complete. *Happy Helming!*
```

명령어 : `helm repo update`

```
ubuntu@ip-10-0-1-161:~$ helm install my-wordpress bitnami/wordpress
NAME: my-wordpress
LAST DEPLOYED: Thu Jul  7 16:28:16 2022
NAMESPACE: default
STATUS: deployed
REVISION: 1
TEST SUITE: None
NOTES:
CHART NAME: wordpress
CHART VERSION: 15.0.7
APP VERSION: 6.0.0
```

**** Please be patient while the chart is being deployed ****

Your WordPress site can be accessed through the following DNS name from within your cluster:

`my-wordpress.default.svc.cluster.local` (port 80)

To access your WordPress site from outside the cluster follow the steps below:

1. Get the WordPress URL by running these commands:

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앞장에서 계속

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

export SERVICE_IP=$(kubectl get svc --namespace default my-wordpress --include "{{ range (index .status.loadBalancer.ingress 0) }}{{ . }}{{ end }}" )
echo "WordPress URL: http://$SERVICE_IP/"
echo "WordPress Admin URL: http://$SERVICE_IP/admin"

2. Open a browser and access WordPress using the obtained URL.

3. Login with the following credentials below to see your blog:

echo Username: user
echo Password: $(kubectl get secret --namespace default my-wordpress -o jsonpath="{.data.wordpress-password}" | base64 -d)
```

명령어 : `helm install my-wordpress bitnami/wordpress`

설치된 Helm chart는 **Release**라고 합니다.
Release의 목록은 다음 명령으로 조회할 수 있구요.

```
ubuntu@ip-10-0-1-161:~$ helm list
```

NAME	NAMESPACE	REVISION	UPDATED	STATUS	CHART	APP VERSION
my-wordpress	default	1	2022-07-07 16:28:16.316510487 +0000 UTC	deployed	wordpress-15.0.7	6.0.0

명령어 : `helm list`

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쿠버네티스 명령어로 어떤 리소스들이 생성됐나 볼까요?

```
ubuntu@ip-10-0-1-161:~$ kubectl get all
```

NAME	READY	STATUS	RESTARTS	AGE
pod/my-wordpress-56bff78c5d-szzbg	1/1	Running	0	3m40s
pod/my-wordpress-mariadb-0	1/1	Running	0	3m39s

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
service/kubernetes	ClusterIP	10.96.0.1	<none>	443/TCP	3d5h
service/my-wordpress	LoadBalancer	10.103.84.122	<pending>	80:30798/TCP,443:31520/TCP	3m40s
service/my-wordpress-mariadb	ClusterIP	10.110.56.55	<none>	3306/TCP	3m40s

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
deployment.apps/my-wordpress	1/1	1	1	3m40s

NAME	DESIRED	CURRENT	READY	AGE
replicaset.apps/my-wordpress-56bff78c5d	1	1	1	3m40s

NAME	READY	AGE
statefulset.apps/my-wordpress-mariadb	1/1	3m40s

명령어 : `kubectl get all`

와우~ 뭔가 Wordpress 소프트웨어에 필요한 모든게 한 번에 설치가 된 것 같네요. 패키지로...

이게 바로 **Helm** 이랍니다.

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chart를 다운로드(pull)도 해볼게요.

```
ubuntu@ip-10-0-1-161:~$ helm pull bitnami/wordpress --version 15.0.7
ubuntu@ip-10-0-1-161:~$ ls wordpress*
wordpress-15.0.7.tgz
```

명령어 : `helm pull bitnami/wordpress --version 15.0.7`

tar 파일로 받아지네요.

압축도 풀어볼까요?

```
ubuntu@ip-10-0-1-161:~$ tar -xvf wordpress-15.0.7.tgz
wordpress/Chart.yaml
wordpress/Chart.lock
wordpress/values.yaml
wordpress/values.schema.json
wordpress/templates/NOTES.txt
wordpress/templates/_helpers.tpl
wordpress/templates/config-secret.yaml
wordpress/templates/deployment.yaml
wordpress/templates/externaldb-secrets.yaml
wordpress/templates/extra-list.yaml
...생략...
```

명령어 : `tar -xvf wordpress-15.0.7.tgz`

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어떤 파일들이 있는지 한 번 살펴보겠습니다.

```
ubuntu@ip-10-0-1-161:~$ tree ./wordpress
./wordpress
├── Chart.lock
├── Chart.yaml
├── README.md
├── charts
│   └── common
│       ├── Chart.yaml
│       ├── README.md
│       └── templates
│           ├── _affinities.tpl
│           ├── _capabilities.tpl
│           ├── _errors.tpl
│           ├── _images.tpl
│           ├── _ingress.tpl
│           ├── _labels.tpl
│           └── _names.tpl
```

명령어 : `tree ./wordpress`

여기까지 Helm 에 대해 알아보았습니다.

수고하셨습니다. (" ·̇_·̇) ♪