

HELM - TOPICS LEARNED

- Helm need and purpose
- Helm components – Client, Charts, Repositories, Release
- Chart Template
 - Built-in objects
 - Read and set values
 - Template functions and pipeline
 - Flow control and range
 - Include scope
 - Sub-Charts
 - Notes
- Chartmuseum and GitHub as Repository
 - Adding chart to repository
 - Maintaining multiple charts in repository
- Chart Management
 - Upgrade Chart
 - Rollback Chart
 - Helm Dependency
 - Chart Hook
- Testing and Verification
 - Helm Lint
 - Provenance and Integrity

EXERCISES PRACTICED IN PLAYGROUND

values.yaml

```
1 ---
2 items: ["first", "second"]
3 storageClassName: "/Local/"
4 storageClassVersion: 1
5 firstName: Raji
6 lastName: Sridharan
7
8 environment: production
9 host: minikube
10 name: example-foobar
11 someBoolean: true
12 volumeIds: [1,2,3,4]
13 configuration: [5,6,7,8]
14 environmentVariables:
15     name: username
16     value: raji
```

Variables

variables.yaml

```
1
2  apiVersion: v1
3  kind: ConfigMap
4
5  metadata:
6    name: {{ .Release.Name }}
7
8  data:
9    storageClassName: {{ .Values.storageClassName }}
10    quoted: {{ .Values.storageClassName | quote }}
11    default: {{ .Values.storageClassName | default "default value" }}
12    required: {{ .Values.storageClassName | required ".storageClassName must be set" }}
13    trim: {{ .Values.storageClassName | trim }}
14    print: {{ printf "%s- %d" .Values.storageClassName (.Values.storageClassVersion |
15
16    replace: {{ .Values.storageClassName | replace " " "example" }}
17    #{{ $fullName := printf "%s %s" .Values.firstName .Values.lastName }}
18    {{- $fullName }}
19
20    trimAll: {{ .Values.storageClassName | trimAll "/" }}
21    trimPrefix: {{ .Values.storageClassName | trimPrefix "/" }}
22    trimSuffix: {{ .Values.storageClassName | trimSuffix "/" }}
23    lower: {{ .Values.storageClassName | lower }}
24    upper: {{ .Values.storageClassName | upper }}
25
```

Render Output

```
1
2  apiVersion: v1
3  kind: ConfigMap
4
5  metadata:
6    name: sample
7
8  data:
9    storageClassName: /Local/
10    quoted: "/Local/"
11    default: /Local/
12    required: /Local/
13    trim: /Local/
14    print: /Local/- 1
15
16    replace: /Local/
17    #Raji Sridharan
18
19    trimAll: Local
20    trimPrefix: Local/
21    trimSuffix: /Local
22    lower: /local/
23    upper: /LOCAL/
24
```

Built-ins

builtin.yaml

```
1
2  apiVersion: v1
3  kind: ConfigMap
4
5  ▾ metadata:
6    name: {{ .Release.Name }}
7
8  ▾ data:
9    ReleaseName: {{ .Release.Name }}
10   ReleaseNamespace: {{ .Release.Namespace }}
11   ChartName: {{ .Chart.Name }}
12   ChartVersion: {{ .Chart.Version }}
```

Render Output

```
1
2  apiVersion: v1
3  kind: ConfigMap
4
5  ▾ metadata:
6    name: sample
7
8  ▾ data:
9    ReleaseName: sample
10   ReleaseNamespace: default
11   ChartName: sample
12   ChartVersion: 0.1.0
```

Conditionals

conditionals.yaml

```
1
2  apiVersion: v1
3  kind: ConfigMap
4
5  metadata:
6    name: {{ .Release.Name }}
7
8  data:
9    #if, else if, else
10    {{- if .Values.enablePersistence }}
11    File: {{ "enablePersistence exists" }}
12    {{- else if .Values.enableFilesystem }}
13    File: {{ "enableFilesystem exists" }}
14    {{ else }}
15    File: {{ "no existence" }}
16    {{- end }}
17
18    # equal, not equal
19    {{ if eq .Values.environment "production" -}}
20    Value-Check: {{ "value equal" }}
21    {{- end }}
22    {{- if ne .Values.environment "production" }}
23    Value-Check: {{ "value not equal" }}
24    {{- end }}
25
26    # and, or
27    {{- if and (eq .Values.environment "production") (eq .Values.host "minikube") }}
28    And: {{ "true" }}
29    {{- end }}
30    {{- if or (eq .Values.environment "production") (eq .Values.host "minikube") }}
31    Or: {{ "true" }}
32    {{- end }}
33
34
```

Render Output

```
1
2  apiVersion: v1
3  kind: ConfigMap
4
5  metadata:
6    name: sample
7
8  data:
9    #if, else if, else
10    File: no existence
11
12    # equal, not equal
13    Value-Check: value equal
14
15    # and, or
16    And: true
17    Or: true
18
19
```

Loops

loop.yaml

```
1
2 apiVersion: v1
3 kind: ConfigMap
4
5 ▾ metadata:
6   name: {{ .Release.Name }}
7
8 ▾ data:
9   # simple
10  ▾ volumes:
11    {{- range .Values.volumeIds }}
12    - volumeName: {{ . }}
13    {{- end }}
14
15    # with named variable
16  ▾ volumes:
17    {{- range $volumeId := .Values.volumeIds }}
18    - volumeName: {{ $volumeId }}
19    {{- end }}
20
21    # with index (array) or key (dict)
22  ▾ volumes:
23    {{- range $key, $value := .Values.configuration }}
24    - {{ $key }}: {{ $value }}
25    {{- end }}
```

Render Output

```
1
2 apiVersion: v1
3 kind: ConfigMap
4
5 ▾ metadata:
6   name: sample
7
8 ▾ data:
9   # simple
10  ▾ volumes:
11    - volumeName: 1
12    - volumeName: 2
13    - volumeName: 3
14    - volumeName: 4
15
16    # with named variable
17  ▾ volumes:
18    - volumeName: 1
19    - volumeName: 2
20    - volumeName: 3
21    - volumeName: 4
22
23    # with index (array) or key (dict)
24  ▾ volumes:
25    - 0: 5
26    - 1: 6
27    - 2: 7
28    - 3: 8
```

Includes

include.yaml

```
1  apiVersion: v1
2  kind: ConfigMap
3
4  metadata:
5    name: {{ .Release.Name }}
6    {{- template "chart.version" $ }}
7    {{- include "chart.properties" . | indent 8 }}
8
9  data:
10    ReleaseName: {{ .Release.Name }}
11    ReleaseNamespace: {{ .Release.Namespace }}
12    ChartName: {{ .Chart.Name }}
13    ChartVersion: {{ .Chart.Version }}
```

Render Output

```
1  apiVersion: v1
2  kind: ConfigMap
3
4  metadata:
5    name: sample
6    labels:
7      app_name: sample
8      app_version: 0.1.0
9      drive: ssd
10     machine: frontdrive
11     rack: 4c
12
13  data:
14    ReleaseName: sample
15    ReleaseNamespace: default
16    ChartName: sample
17    ChartVersion: 0.1.0
```

Dates

date.yaml

```
1  apiVersion: v1
2  kind: ConfigMap
3
4  ▾ metadata:
5    name: {{ .Release.Name }}
6    {{- template "chart.version" $ }}
7    {{- include "chart.properties" . | indent 8 }}
8
9  ▾ data:
10   date: {{ now | date "2006-01-02" }}
```

Render Output

```
1  apiVersion: v1
2  kind: ConfigMap
3
4  ▾ metadata:
5  ▾   name: sample
6  ▾   labels:
7     app_name: sample
8     app_version: 0.1.0
9     drive: ssd
10    machine: frontdrive
11    rack: 4c
12
13 ▾ data:
14   date: 2022-06-28
```

Base64

base64.yaml

```
1  apiVersion: v1
2  kind: ConfigMap
3
4  metadata:
5    name: {{ .Release.Name }}
6    {{- template "chart.version" $ }}
7    {{- include "chart.properties" . | indent 8 }}
8
9  data:
10   afterEncode: {{ $enc := .Values.name | b64enc }}
11   {{ $enc }}
12
13   afterDecode: {{ $dec := $enc | b64dec }}
14   {{ $dec }}
```

Render Output

```
1  apiVersion: v1
2  kind: ConfigMap
3
4  metadata:
5    name: sample
6    labels:
7      app_name: sample
8      app_version: 0.1.0
9      drive: ssd
10     machine: frontdrive
11     rack: 4c
12
13  data:
14    afterEncode:
15      ZXhhbXBsZS1mb29iYXI=
16
17    afterDecode:
18      example-foobar
```


UUIDs

uuid.yaml

```
1  apiVersion: v1
2  kind: ConfigMap
3
4  ▼ metadata:
5    name: {{ .Release.Name }}
6    {{- template "chart.version" $ }}
7    {{- include "chart.properties" . | indent 8 }}
8
9  ▼ data:
10   id: {{ uuidv4 }}
```

Render Output

```
1  apiVersion: v1
2  kind: ConfigMap
3
4  ▼ metadata:
5  ▼   name: sample
6  ▼   labels:
7     app_name: sample
8     app_version: 0.1.0
9     drive: ssd
10    machine: frontdrive
11    rack: 4c
12
13  ▼ data:
14    id: 48f14ab6-540f-49fa-b874-cc2c4e946153
```