Lifecycle Management Using BOSH
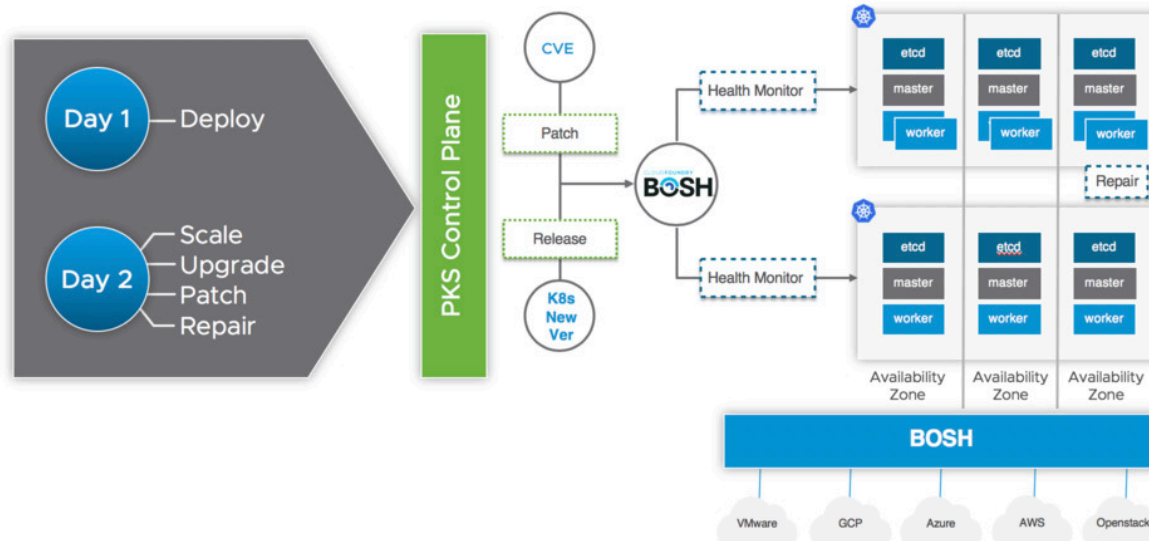
BOSH FREQUENT-USED

Name	Command
List tasks	`bosh tasks -r=10`, `bosh -d $deployment tasks -ar`
Tail latest bosh task	`bosh task -a`, `bosh task -a --debug`
List deployments and vms	`bosh deployments`, `bosh -d $deployment vms`
Bosh get current task output	`bosh -d $deployment task $id --result`
Bosh get task all detail log	`bosh -d $deployment task -a --debug`, `bosh -d $deployment task $id --debug`
Delete a deployment	`bosh delete-deployment -d $deployment`, `bosh delete-deployment -d $deployment --force`

Upload release	`bosh -n upload-release`, `bosh -n upload-release /tmp/my-release-0.22.0.tgz`
Create bosh release tar from source code	bosh-create-release.md
Get deployment manifest yaml	`bosh -d $deployment manifest > my.yaml`
Run bosh deployment from yaml	`bosh -d $deployment deploy my.yaml`
Run errand, and avoid deleting the vms	`bosh -n -d $deployment run-errand $errand_name --keep-alive`
Delete all or a given bosh deployment	cleanup-bosh-deployment.sh
Delete all or a given bosh release	cleanup-bosh-releases.sh
Common Bosh Releases	kubo-release, cfcr-etcd-release, docker-boshrelease, pxc-release, YouTube: BOSH Release

BOSH RELEASE

Name	Command
List release	`bosh -n releases`
Release folder	`/var/tempest/releases`
Create a local release	`bosh create-release --tarball=myrelease-0.4.0.tgz`
Export a release	`bosh -d $deployment export-release <my-release>/<release-version> ubuntu-xenial/170.9`
Inspect a release	`bosh inspect-release <my-release>/<release-version>`
Delete release	`bosh -n delete-release <my-release>/<release-version> --force`
Upload release	`bosh -n upload-release`, `bosh -n upload-release /tmp/my-release-0.22.0.tgz`
Reset release	`bosh reset-release`
Reference	Link: Release creation

BOSH BASIC

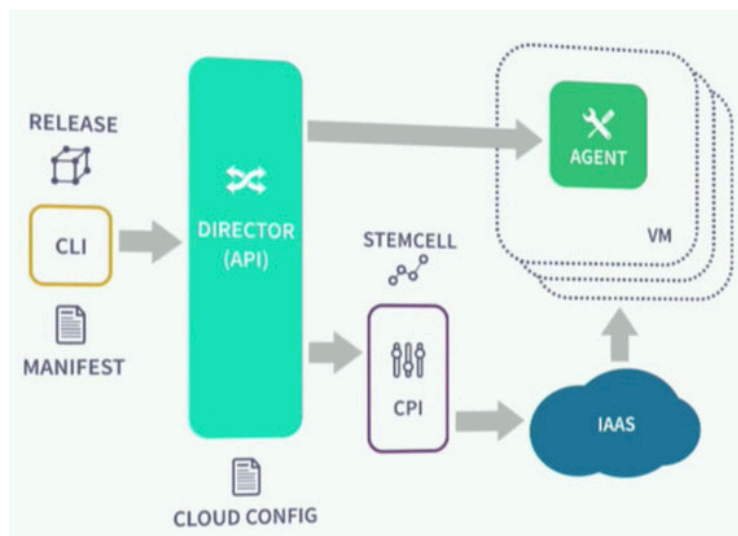| Name	Command
bosh	`apt install bosh-cli`, `/var/vcap/bosh/log`, `/var/vcap/sys/log`
List all bosh deployments	`bosh -n deployments`, `bosh -n deployments --json`
Download log files	`bosh -d $deployment_id logs`
Show deployment manifest	`bosh manifest -d $deployment`
Show current cloud config	`bosh cloud-config`, `bosh cc`, `bosh configs`
Show current CPI config	`bosh cpi-config`
List environment	`bosh env`, `bosh env --json`, `bosh envs`
List all instances	`bosh instances`
Get vms per deployment	`bosh -e $env -d $deployment vms`, `bosh instances`
Cloud consistency check	`bosh cloud-check -d $deployment`
List disks	`bosh disks -o`

BOSH INTERPOLATE

Name	Command
Bosh Interpolates variables	`bosh int /tmp/build/4dcXX/pks-lock/metadata --path=/ops_manager/username`
Bosh use a property within a template	<%= p('some-property') %>
Bosh use a property with default value	<%= p('cluster-name', <%= spec.deployment %>) %>
Bosh use a property conditionally	bosh-if-property.md
Parse json output	`bosh int --path=/uuid -`, similar to jq command

BOSH MANIFEST

Name	Command
Show bosh manifest	`bosh manifest -d $deployment`
Run bosh deployment from manifest	`bosh -d $deployment deploy my.yaml`

1.6 BOSH VM

Name	Command
List vms	`bosh -d $deployment vms`
List vms with verbose info	`bosh -d $deployment vms --vitals`
Delete a vm	`bosh -d $deployment delete-vm <vm-cid>>`
SSH to vm	`bosh -d $deployment ssh $vm_name/$GUID`
Run SSH commands	`bosh -d $deployment ssh $vm_name>/$GUID -c "sudo cat /etc/hosts"`
bosh scp	`bosh -d $deployment scp /tmp/myfile $vm_name/$GUID:/tmp/`

BOSH ERRAND

Name	Command
List errands	`bosh errands -d $deployment`
Run errand in a new vm	`bosh -n -d $deployment run-errand <errand_name>` Link: run-errand
Run errand in a new vm with env alive	`bosh -n -d $deployment run-errand <errand_name> --keep-alive`
Run errand in an existing vm	`bosh -n -d $deployment run-errand <errand_name> --instance=worker/instance-id=XXX`

BOSH BLOB

Name	Command
Reference	Link: Working with Blobs
Configure credential	Prepare `config/private.yml`
Add local file to blob	`bosh add-blob /tmp/<telegraf:1.7-alpine.tgz> container-images/telegraf:1.7-alpine.tgz`
Upload blobs	`bosh upload-blobs`
List blob	`bosh blobs`
Remove blob	`bosh remove-blob container-images/cadvisor-v0.31.0.tgz`

BOSH TASK

Name	Command
List recent tasks	`bosh -d $deployment tasks --recent`
List all tasks	`bosh -d $deployment tasks -ar`
Attach to current task	`bosh -d $deployment task -a`
Get task by id	`bosh -d $deployment task $id`
Get task detail msg	`bosh -d $deployment task $id --debug`
Get all logs for a deployment	`bosh -d $deployment logs`
Get log for one vm	`bosh -d $deployment logs $instance_name`
List bosh events	`bosh events`

BOSH JOB – SKELETON

Name	Command
Reference	Example: kubo-release/jobs
provides	Export resources for other bosh releases
consumes	Use resources from other bosh releases
packages	Packages get installed by bosh
templates	Conf files

BOSH DEPLOYMENT

Name	Command
List bosh deployments	`bosh deployments`
Show detail of one deployment	`bosh -d $deployment deployment`
Delete bosh deployment	`bosh -n -d $deployment delete-deployment --force`
Get deployment manifest yaml	`bosh -d $deployment manifest > my.yaml`
Run bosh deployment from yaml	`bosh -d $deployment deploy my.yaml`

BOSH VS KUBERNETES

Bosh – VM Lifecycle Management	Kubernetes – Container Lifecycle Management
`Bosh Envs`	`Kubernetes Context`
`Bosh Deployment`	`Kubernetes Deployment`
`Bosh Stemcell`	`Docker Image`
`Bosh Manifest`	`Kubernetes Configmap & Yaml`
`Bosh Monit`	`Kubernetes Kubelet`
`Bosh Errand`	`Kubernetes Job`
`Bosh Release`	`Kubernetes Chart`

Bosh Tile	Kubernetes Helm
Bosh Director	Kubernetes API server
Bosh Event	Kubernetes Event
Bosh Task	
Bosh Agent	
Bosh Addon	
Bosh Ops manager	No related feature: UI to customize your service

BOSH CONCEPTS LIST

Name	Comment
Bosh Stemcells	A versioned Operating System image. Download stemcell
Bosh Deployment	An encapsulation of software and configuration that BOSH can deploy to the cloud.
Bosh Release	Everything needed to make a software component deployable by BOSH.
Bosh Job	Each release job represents a specific chunk of work that the release performs.
Bosh Package	It contains vendored in software source and scripts to compile it.
Bosh Errand	A short-lived job that can be triggered by an operator any time after the deploy.
Bosh Tile	A *.pivotal file with everything needed to install/upgrade a PCF service.
Bosh Manifest	A YAML file that identifies one or more releases, stemcells and configurations
Bosh ops file	A YAML file that includes multiple operations to be applied to a different YAML file.
Bosh Event	Actions taken by the Director (via user or system control) are recorded as events
Bosh Director	The Director is the orchestrator of deployments.
Bosh Addon	A release job that is colocated on all VMs managed by the Director.
Bosh Agent	A process that runs continuously on each VM that BOSH deploys. one Agent process per VM
Bosh Jumpbox	A VM that acts as a single access point for the Director and deployed VMs.
Director Blobstore	A repository where BOSH stores release artifacts, logs, stemcells, and other content, etc
Cloud ID (CID)	ID returned from the Cloud identifying particular resource such as VM or disk.

BOSH STEMCELL

Name	Command
Floating stemcell	Floating stemcells allow upgrade to the minor versions of stemcells but not the major versions.
Upload stemcell	`bosh -n upload-stemcell /tmp/stemcell.tgz`
List stemcells	`bosh -n stemcells`
Delete a stemcell	`bosh delete-stemcell <stemcell-name>/<stemcell-version>`

BOSH MONIT

Name	Comment
List bosh deployed daemon processes	`sudo su -`, `monit summary`, `watch 'monit summary'`
Restart a given daemon processes	`monit restart <process_name>`
Check a given daemon processes status	`monit status <process_name>`

BOSH TOOLS

Name	Comment
bbr bosh-backup-and-restore	A framework for backing up and restoring BOSH deployments and BOSH Directors.
bbl bosh-bootloader	A command line utility for standing up BOSH on multi-clouds
bpm BOSH process manager	Isolation of BOSH jobs to make they run on many different work schedulers instead of monit only

BOSH CHALLENGES

Name	Comment
Create deployment is very slow	Need to compile packages again, and canary update for all VMs
Errands on non co-located vms	It takes 5+ minutes to spin up and destroy a VM
No repo mechanism for Bosh releases	Duplicate packages are required to make no external dependencies
Support `tail -f`	Personally I don't like the way of `bosh logs`
Retry a failed errand/task	Currently we can do it. But it's a lengthy manual process
More lightweight	Use `containers`, instead of `VMs` to run errands
Support rolling upgrade	Just like `kubectl rollout`
More declarative	End users define requirements via `yaml files`

ONLINE HELP USAGE

```
kubo@jumper:~$ bosh --help

Usage:

  bosh [OPTIONS] <command>


Application Options:

  -v, --version          Show CLI version
```

```
      --config=             Config file path (default: ~/.bosh/config) [$BOSH_CONFIG]
  -e, --environment=        Director environment name or URL [$BOSH_ENVIRONMENT]
      --ca-cert=            Director CA certificate path or value [$BOSH_CA_CERT]
      --sha2               Use SHA256 checksums [$BOSH_SHA2]
      --parallel=          The max number of parallel operations (default: 5)
      --client=            Override username or UAA client [$BOSH_CLIENT]
      --client-secret=     Override password or UAA client secret [$BOSH_CLIENT_SECRET]
  -d, --deployment=        Deployment name [$BOSH_DEPLOYMENT]
      --column=            Filter to show only given column(s)
      --json               Output as JSON
      --tty                Force TTY-like output
      --no-color           Toggle colorized output
  -n, --non-interactive    Don't ask for user input [$BOSH_NON_INTERACTIVE]


Help Options:
  -h, --help               Show this help message


Available commands:
  add-blob                 Add blob                                      https://bosh.io/docs/cli-v2#add-blob
  alias-env                Alias environment to save URL and CA certificate   https://bosh.io/docs/cli-v2#alias-env
  attach-disk              Attaches disk to an instance                  https://bosh.io/docs/cli-v2#attach-disk
  blobs                    List blobs                                    https://bosh.io/docs/cli-v2#blobs
  cancel-task              Cancel task at its next checkpoint            https://bosh.io/docs/cli-v2#cancel-task
(aliases: ct)
```

```
clean-up            Clean up releases, stemcells, disks, etc.    https://bosh.io/docs/cli-v2#clean-up
cloud-check         Cloud consistency check and interactive repair    https://bosh.io/docs/cli-v2#cloud-check
(aliases: cck, cloudcheck)
cloud-config        Show current cloud config                    https://bosh.io/docs/cli-v2#cloud-confi
g (aliases: cc)
config              Show current config for either ID or both type and name https://bosh.io/docs/cli-v2#config
(aliases: c)
configs             List configs                                 https://bosh.io/docs/cli-v2#configs (al
iases: cs)
cpi-config          Show current CPI config                      https://bosh.io/docs/cli-v2#cpi-config
create-env          Create or update BOSH environment            https://bosh.io/docs/cli-v2#create-env
create-release      Create release                               https://bosh.io/docs/cli-v2#create-rele
ase (aliases: cr)
delete-config       Delete config                                https://bosh.io/docs/cli-v2#delete-conf
ig (aliases: dc)
delete-deployment   Delete deployment                            https://bosh.io/docs/cli-v2#delete-depl
oyment (aliases: deld)
delete-disk         Delete disk                                  https://bosh.io/docs/cli-v2#delete-disk
delete-env          Delete BOSH environment                      https://bosh.io/docs/cli-v2#delete-env
delete-release      Delete release                               https://bosh.io/docs/cli-v2#delete-rele
ase (aliases: delr)
delete-snapshot     Delete snapshot                              https://bosh.io/docs/cli-v2#delete-snap
shot
delete-snapshots    Delete all snapshots in a deployment         https://bosh.io/docs/cli-v2#delete-snap
shots
delete-stemcell     Delete stemcell                              https://bosh.io/docs/cli-v2#delete-stem
cell (aliases: dels)
delete-vm           Delete VM                                    https://bosh.io/docs/cli-v2#delete-vm
```

```
  deploy                Update deployment                          https://bosh.io/docs/cli-v2#deploy (ali
ases: d)

  deployment            Show deployment information                https://bosh.io/docs/cli-v2#deployment
(aliases: dep)

  deployments           List deployments                           https://bosh.io/docs/cli-v2#deployments
(aliases: ds, deps)

  diff-config           Diff two configs by ID                     https://bosh.io/docs/cli-v2#diff-config

  disks                 List disks                                 https://bosh.io/docs/cli-v2#disks

  environment           Show environment                           https://bosh.io/docs/cli-v2#environment
(aliases: env)

  environments          List environments                          https://bosh.io/docs/cli-v2#environment
s (aliases: envs)

  errands               List errands                               https://bosh.io/docs/cli-v2#errands (al
iases: es)

  event                 Show event details                         https://bosh.io/docs/cli-v2#event

  events                List events                                https://bosh.io/docs/cli-v2#events

  export-release        Export the compiled release to a tarball   https://bosh.io/docs/cli-v2#export-rele
ase

  finalize-release      Create final release from dev release tarball   https://bosh.io/docs/cli-v2#finalize-re
lease

  generate-job          Generate job                               https://bosh.io/docs/cli-v2#generate-jo
b

  generate-package      Generate package                           https://bosh.io/docs/cli-v2#generate-pa
ckage

  help                  Show this help message                     https://bosh.io/docs/cli-v2#help

  ignore                Ignore an instance                         https://bosh.io/docs/cli-v2#ignore

  init-release          Initialize release                         https://bosh.io/docs/cli-v2#init-releas
e
```

```
  inspect-release      List release contents such as jobs         https://bosh.io/docs/cli-v2#inspect-rel
ease
  instances            List all instances in a deployment          https://bosh.io/docs/cli-v2#instances (
aliases: is)
  interpolate          Interpolates variables into a manifest      https://bosh.io/docs/cli-v2#interpolate
(aliases: int)
  locks                List current locks                          https://bosh.io/docs/cli-v2#locks
  log-in               Log in                                      https://bosh.io/docs/cli-v2#log-in (ali
ases: l, login)
  log-out              Log out                                     https://bosh.io/docs/cli-v2#log-out (al
iases: logout)
  logs                 Fetch logs from instance(s)                 https://bosh.io/docs/cli-v2#logs
  manifest             Show deployment manifest                    https://bosh.io/docs/cli-v2#manifest (a
liases: man)
  orphan-disk          Orphan disk                                 https://bosh.io/docs/cli-v2#orphan-disk
  recreate             Recreate instance(s)                        https://bosh.io/docs/cli-v2#recreate
  releases             List releases                               https://bosh.io/docs/cli-v2#releases (a
liases: rs)
  remove-blob          Remove blob                                 https://bosh.io/docs/cli-v2#remove-blob
  repack-stemcell      Repack stemcell                             https://bosh.io/docs/cli-v2#repack-stem
cell
  reset-release        Reset release                               https://bosh.io/docs/cli-v2#reset-relea
se
  restart              Restart instance(s)                         https://bosh.io/docs/cli-v2#restart
  run-errand           Run errand                                  https://bosh.io/docs/cli-v2#run-errand
  runtime-config       Show current runtime config                 https://bosh.io/docs/cli-v2#runtime-con
fig (aliases: rc)
```

```
  scp                 SCP to/from instance(s)                      https://bosh.io/docs/cli-v2#scp

  snapshots           List snapshots                               https://bosh.io/docs/cli-v2#snapshots

  ssh                 SSH into instance(s)                         https://bosh.io/docs/cli-v2#ssh

  start               Start instance(s)                            https://bosh.io/docs/cli-v2#start

  stemcells           List stemcells                               https://bosh.io/docs/cli-v2#stemcells (
aliases: ss)

  stop                Stop instance(s)                             https://bosh.io/docs/cli-v2#stop

  sync-blobs          Sync blobs                                   https://bosh.io/docs/cli-v2#sync-blobs

  take-snapshot       Take snapshot                                https://bosh.io/docs/cli-v2#take-snapsh
ot

  task                Show task status and start tracking its output   https://bosh.io/docs/cli-v2#task (alias
es: t)

  tasks               List running or recent tasks                 https://bosh.io/docs/cli-v2#tasks (alia
ses: ts)

  unignore            Unignore an instance                         https://bosh.io/docs/cli-v2#unignore

  update-cloud-config Update current cloud config                  https://bosh.io/docs/cli-v2#update-clou
d-config (aliases: ucc)

  update-config       Update config                                https://bosh.io/docs/cli-v2#update-conf
ig (aliases: uc)

  update-cpi-config   Update current CPI config                    https://bosh.io/docs/cli-v2#update-cpi-
config

  update-resurrection Enable/disable resurrection                  https://bosh.io/docs/cli-v2#update-resu
rrection

  update-runtime-config Update current runtime config              https://bosh.io/docs/cli-v2#update-runt
ime-config (aliases: urc)

  upload-blobs        Upload blobs                                 https://bosh.io/docs/cli-v2#upload-blob
s
```

```
  upload-release        Upload release                                    https://bosh.io/docs/cli-v2#upload-rele
ase (aliases: ur)

  upload-stemcell       Upload stemcell                                   https://bosh.io/docs/cli-v2#upload-stem
cell (aliases: us)

  variables             List variables                                    https://bosh.io/docs/cli-v2#variables (
aliases: vars)

  vendor-package        Vendor package                                    https://bosh.io/docs/cli-v2#vendor-pack
age

  vms                   List all VMs in all deployments                   https://bosh.io/docs/cli-v2#vms


Succeeded
```

MORE RESOURCES

https://github.com/bosh-tips/tips

http://engineering.pivotal.io/post/compiled-releases-for-pipelines/