

Git Link : <https://github.com/maheshesh/Capstone-cloud> Jenkins EC2 Instance & cluster instances

The screenshot shows the AWS Management Console for the 'us-west-2' region. The 'Instances' page is active, displaying a list of EC2 instances. The table below summarizes the visible instances:

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
capstoneclus...	i-04d3988a5987c6eb5	t2.small	us-west-2c	running	2/2 checks passed	None	ec2-54-191-198-168.us-...	54.191.198.168
capstoneclus...	i-0fbee33fa1ae98110	t2.small	us-west-2a	running	2/2 checks passed	None	ec2-54-212-119-94.us-...	54.212.119.94
JenkinsCaps...	i-03ce1bb942760d932	t2.micro	us-west-2b	running	2/2 checks passed	None	ec2-54-185-21-84.us-w...	54.185.21.84
OldJenkins	i-03e2789eca507dfca	t2.micro	us-west-2b	stopped		None		-

The detailed view for the 'JenkinsCaps...' instance (ID: i-03ce1bb942760d932) is shown below:

Description		Status Checks	Monitoring	Tags
Instance ID	i-03ce1bb942760d932	running		
Instance state	t2.micro			
Instance type	t2.micro			
Finding	Opt-in to AWS Compute Optimizer for recommendations. Learn more			
Private DNS	ip-172-31-18-72.us-west-2.compute.internal			
Private IPs	172.31.18.72			
Secondary private IPs				
VPC ID	vpc-0823c36e			
Subnet ID	subnet-3c0bf65b			
Network interfaces	eth0			
Public DNS (IPv4)	ec2-54-185-21-84.us-west-2.compute.amazonaws.com			
IPv4 Public IP	54.185.21.84			
IPv6 IPs	-			
Elastic IPs				
Availability zone	us-west-2b			
Security groups	default, Jenkins, view inbound rules, view outbound rules			
Scheduled events	No scheduled events			
AMI ID	ubuntu/images/hvm-ssd/ubuntu-bionic-18.04-amd64-server-20190722.1 (ami-06f2f779464715dc5)			
Platform	-			
IAM role	eksworkshop-admin			

Jenkins with 2 jobs setup (Capstonecloud creates eke cluster, the second creates a docker image and then deploys to eks) Please refer: <https://github.com/maheshesh/Capstone-cloud>

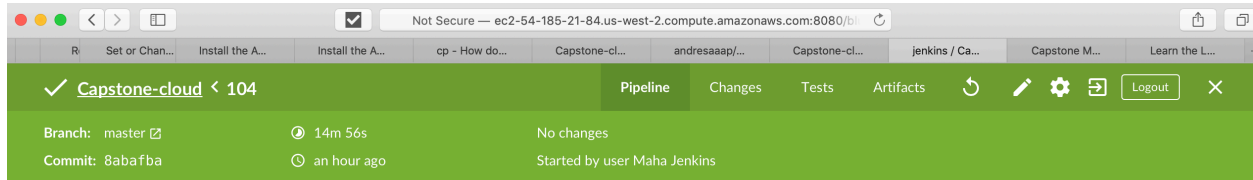
The screenshot shows the Jenkins dashboard for 'Maha Jenkins'. The 'Build History' section displays a table of recent builds:

S	W	Name ↓	Last Success	Last Failure	Last Duration	Fav
		Capstone-cloud	6 days 22 hr - log	N/A	2.6 sec	
		new deploy	22 min - log	N/A	1.4 sec	

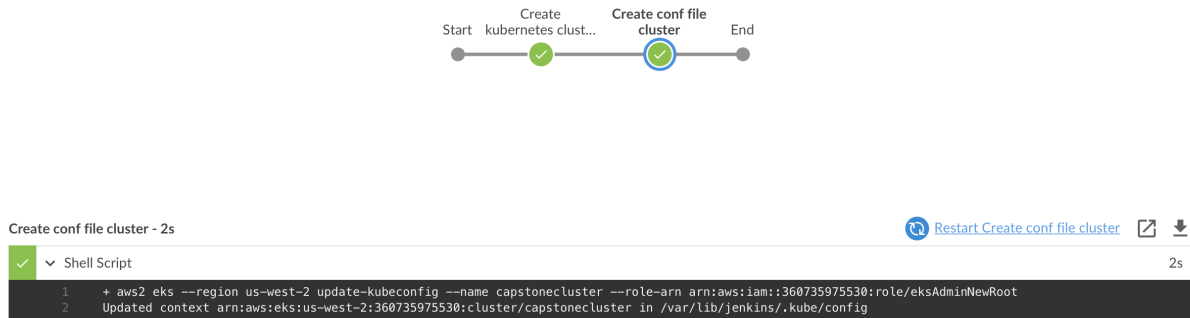
Below the table, there are links for 'Legend', 'Atom feed for all', 'Atom feed for failures', and 'Atom feed for just latest builds'.

The 'Build Queue' section at the bottom shows 'No builds in the queue.'

CapstoneCloud Job: The EKS cluster created with Jenkins job using eksctl command Jenkins Pipeline for createCluster using eksctl-cloudformation

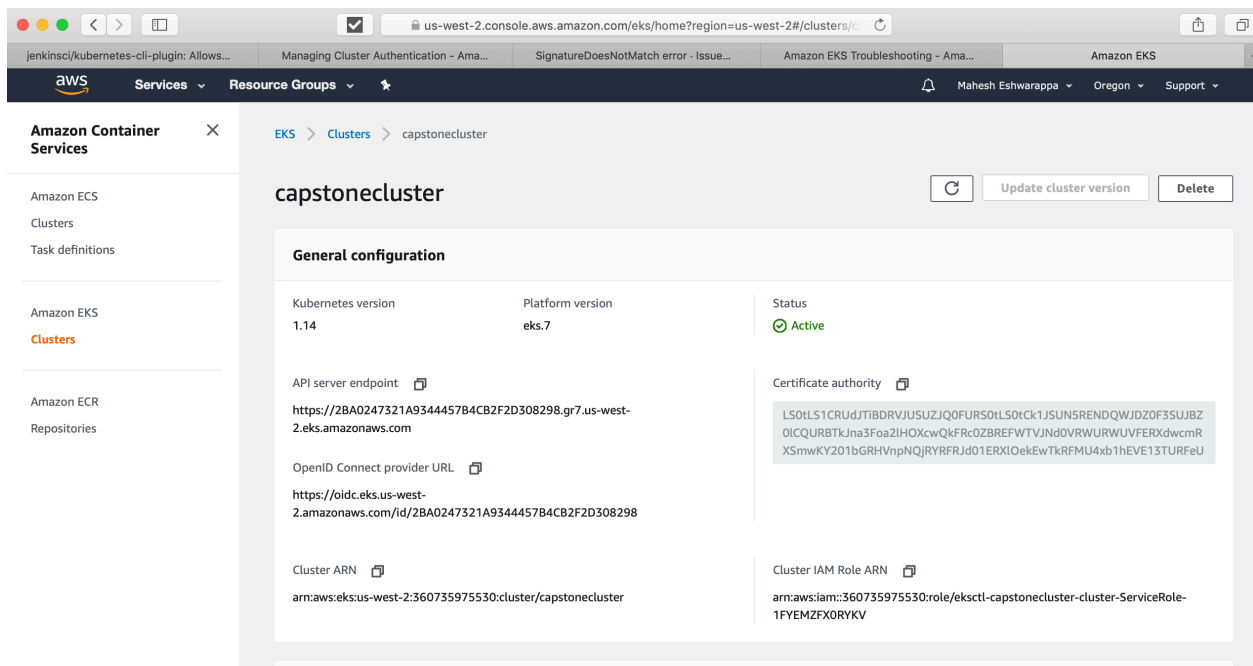


The screenshot shows the Jenkins Pipeline view for a job named 'Capstone-cloud'. The job is in a 'Completed' state, indicated by a green checkmark and the number '104'. The pipeline consists of three stages: 'Start', 'Create kubernetes clust...', and 'Create conf file cluster'. The 'Create conf file cluster' stage is the current one, showing a duration of '14m 56s' and 'No changes'. The commit is '8abafba' and it was started by 'user Maha Jenkins'.



The screenshot shows the 'Create conf file cluster - 2s' stage view. It displays a 'Shell Script' with two commands:

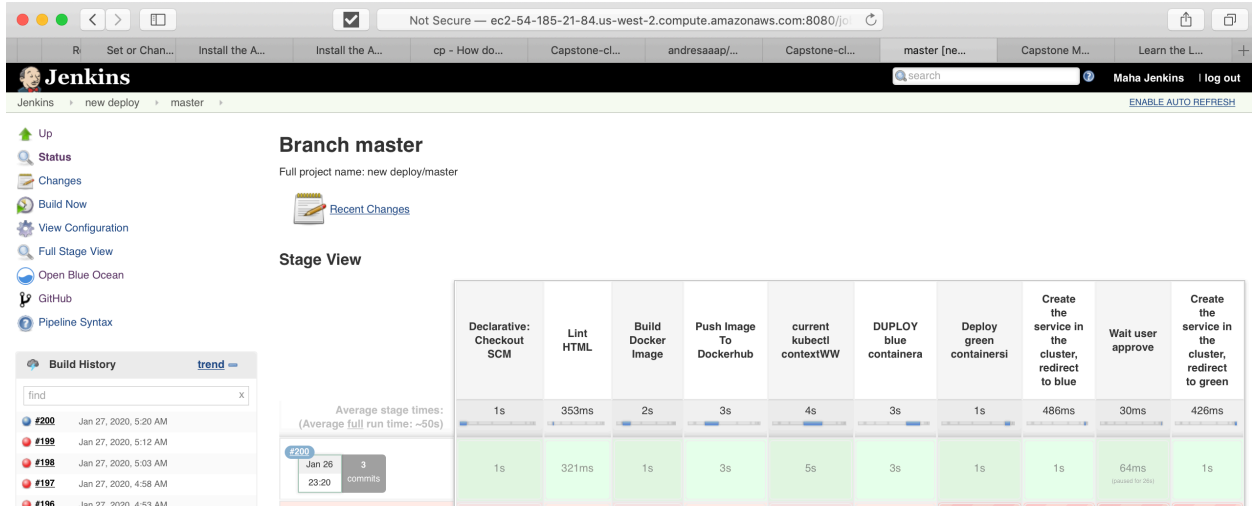
```
1 + aws2 eks --region us-west-2 update-kubeconfig --name capstonecluster --role-arn arn:aws:iam::360735975530:role/eksAdminNewRoot
2 Updated context arn:aws:eks:us-west-2:360735975530:cluster/capstonecluster in /var/lib/jenkins/.kube/config
```



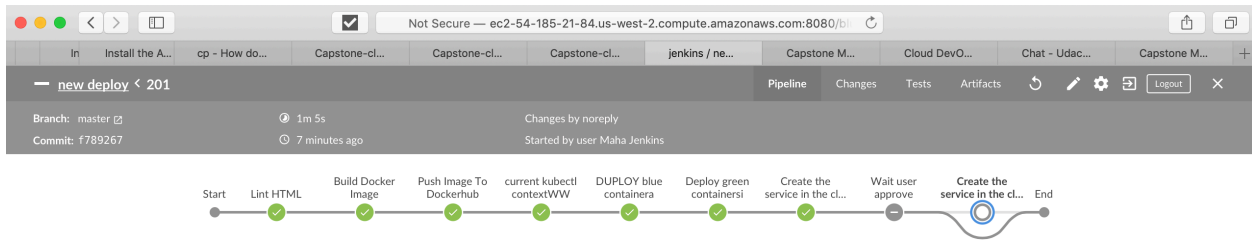
The screenshot shows the AWS Management Console for the 'capstonecluster' EKS cluster. The cluster is in an 'Active' state. The general configuration includes:

- Kubernetes version: 1.14
- Platform version: eks.7
- Status: Active
- API server endpoint: <https://2BA0247321A9344457B4CB2F2D308298.gr7.us-west-2.eks.amazonaws.com>
- OpenID Connect provider URL: <https://oidc.eks.us-west-2.amazonaws.com/id/2BA0247321A9344457B4CB2F2D308298>
- Cluster ARN: arn:aws:eks:us-west-2:360735975530:cluster/capstonecluster
- Certificate authority: LS0tLS1CRUdJTiBDRVJUSUZJQ0FURS0tLS0tCk1JSUN5RENDQWJDZ0F3SUJBZ0lCQURBTKJna3Foa2lHOXcwQkFrc0ZBREFTVjNld0VRWURWUUVFERXdwcmRXSmwkY201bGRHVnpNQjRYRFRjd01ERXlOekEwTkRfMU4xb1hEVE13TURFeU
- Cluster IAM Role ARN: arn:aws:iam::360735975530:role/eksctl-capstonecluster-cluster-ServiceRole-1FYEMZFXORYKV

Second Job: To deploy to the EKS Cluster



Deployed to BLUE



SERVICE PODS DEPLOYED TO BLUE

```
ubuntu@ip-172-31-18-72:~$ kubectl describe services bluegreenlb
Name: bluegreenlb
Namespace: default
Labels: app=bluegreenlb
Annotations: kubectl.kubernetes.io/last-applied-configuration: {"apiVersion":"v1","kind":"Service","metadata":{"annotations":{"labels":{"app":"bluegreenlb"},"name":"bluegreenlb","namespace":"default"...
Selector: app=blue
Type: LoadBalancer
IP: 10.100.175.82
LoadBalancer Ingress: acf0bdea240c411eaac490efa6067e8c-1516858558.us-west-2.elb.amazonaws.com
Port: <unset> 8000/TCP
TargetPort: 80/TCP
NodePort: <unset> 30777/TCP
Endpoints: 192.168.48.71:80
Session Affinity: None
External Traffic Policy: Cluster
Events:
  Type Reason Age From Message
  ----
  Normal EnsuringLoadBalancer 4m4s (x3 over 38m) service-controller Ensuring load balancer
  Normal EnsuredLoadBalancer 4m3s (x3 over 38m) service-controller Ensured load balancer
ubuntu@ip-172-31-18-72:~$ kubectl get pods
NAME READY STATUS RESTARTS AGE
blue-gtfs6 1/1 Running 0 46m
green-nngjj 1/1 Running 0 38m
ubuntu@ip-172-31-18-72:~$
```

Switching in Jenkins to approve for Green deployment

```
64         ...
65     }
66 }
67 }
68
69 stage('Create the service in the cluster, redirect to blue') {
70     steps {
71         withAWS(region:'us-west-2', credentials:'mahajenkinsA') {
72             sh '''
73                 kubectl apply -f deploy-containers-pipeline/blue-service.json
74             '''
75         }
76     }
77 }
78 stage('Wait user approve') {
79     steps {
80         input "Ready to redirect traffic to green?"
81     }
82 }
83
84 stage('Create the service in the cluster, redirect to green') {
85     steps {
86         withAWS(region:'us-west-2', credentials:'mahajenkinsA') {
87             sh '''
88                 kubectl apply -f deploy-containers-pipeline/green-service.json
89             '''
90         }
91     }
92 }
93
94 }
95 }
```

```
Jenkins > new deploy > master > #200

[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Create the service in the cluster, redirect to blue)
[Pipeline] withAWS
Constructing AWS CredentialsSetting AWS region us-west-2
[Pipeline] {
[Pipeline] sh
+ kubectl apply -f ./deploy-containers-pipeline/blue-service.json
service/bluegreenlb created
[Pipeline] }
[Pipeline] // withAWS
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Wait user approve)
[Pipeline] input
Ready to redirect traffic to green?
Proceed or Abort
Approved by Raha_Jenkins
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Create the service in the cluster, redirect to green) (hide)
[Pipeline] withAWS
Constructing AWS CredentialsSetting AWS region us-west-2
[Pipeline] {
[Pipeline] sh
+ kubectl apply -f ./deploy-containers-pipeline/green-service.json
service/bluegreenlb configured
[Pipeline] }
[Pipeline] // withAWS
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline

GitHub has been notified of this commit's build result

Finished: SUCCESS
```

SERVICE PODS DEPLOYED TO GREEN

```
ubuntu@ip-172-31-18-72:~$ aws2 eks --region us-west-2 update-kubeconfig --name capstonecluster --role-arn arn:aws:iam::360735975530:role/eksAdminNewRoot
Added new context arn:aws:eks:us-west-2:360735975530:cluster/capstonecluster to /home/ubuntu/.kube/config
ubuntu@ip-172-31-18-72:~$
ubuntu@ip-172-31-18-72:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
blue-gtfs6    1/1     Running   0           15m
green-nngjj    1/1     Running   0           7m45s
ubuntu@ip-172-31-18-72:~$ kubectl describe services bluegreenlb
Name:          bluegreenlb
Namespace:     default
Labels:        app=bluegreenlb
Annotations:    kubectl.kubernetes.io/last-applied-configuration:
                  {"apiVersion":"v1","kind":"Service","metadata":{"annotations":{"labels":{"app":"bluegreenlb"},"name":"bluegreenlb","namespace":
Selector:      app=green
Type:          LoadBalancer
IP:            10.100.175.82
LoadBalancer Ingress: acf0bdea240c411eac490efa6067e8c-1516858558.us-west-2.elb.amazonaws.com
Port:          <unset> 8000/TCP
TargetPort:    80/TCP
NodePort:      <unset> 30777/TCP
Endpoints:     192.168.18.68:80
Session Affinity: None
External Traffic Policy: Cluster
Events:
  Type    Reason              Age             From              Message
  ----    -
  Normal  EnsuringLoadBalancer 8m9s (x2 over 8m38s) service-controller Ensuring load balancer
  Normal  EnsuredLoadBalancer  8m9s (x2 over 8m36s) service-controller Ensured load balancer
ubuntu@ip-172-31-18-72:~$
```

The screenshot shows a Jenkins pipeline interface. At the top, there's a navigation bar with tabs like 'Set or Chan...', 'Install the A...', 'cp - How do...', 'Capstone-cl...', 'andresaaap/...', 'Capstone-cl...', 'jenkins / ne...', 'Capstone M...', and 'Learn the L...'. Below this, a green banner indicates 'new deploy < 200'. The main area shows a pipeline graph with steps: Start, Lint HTML, Build Docker Image, Push Image To Dockerhub, current kubectl contextWWW, DUPLOY blue containera, Deploy green containers!, Create the service in the cl..., Wait user approve, and Create the service in the cl... (highlighted with a blue circle). Below the graph, a log entry shows the command 'kubectl apply -f ./deploy-containers-pipeline/green-service.json' and its output: 'service/bluegreenlb configured'.

Website

The screenshot shows a web browser window with the address bar displaying the URL 'acf0bdea240c411eac490efa6067e8c-1516858558.us-west-2.elb.amazonaws.co'. The browser tabs include 'Set or Chan...', 'Install the A...', 'cp - How do...', 'Capstone-cl...', 'andresaaap/...', 'Capstone-cl...', 'new deploy...', 'Capstone M...', and 'Learn the L...'. The page content is mostly blank, indicating a successful redirect to the green environment.

Capstone project CSS EKS in AWS.

