

Cloud DevOps Project

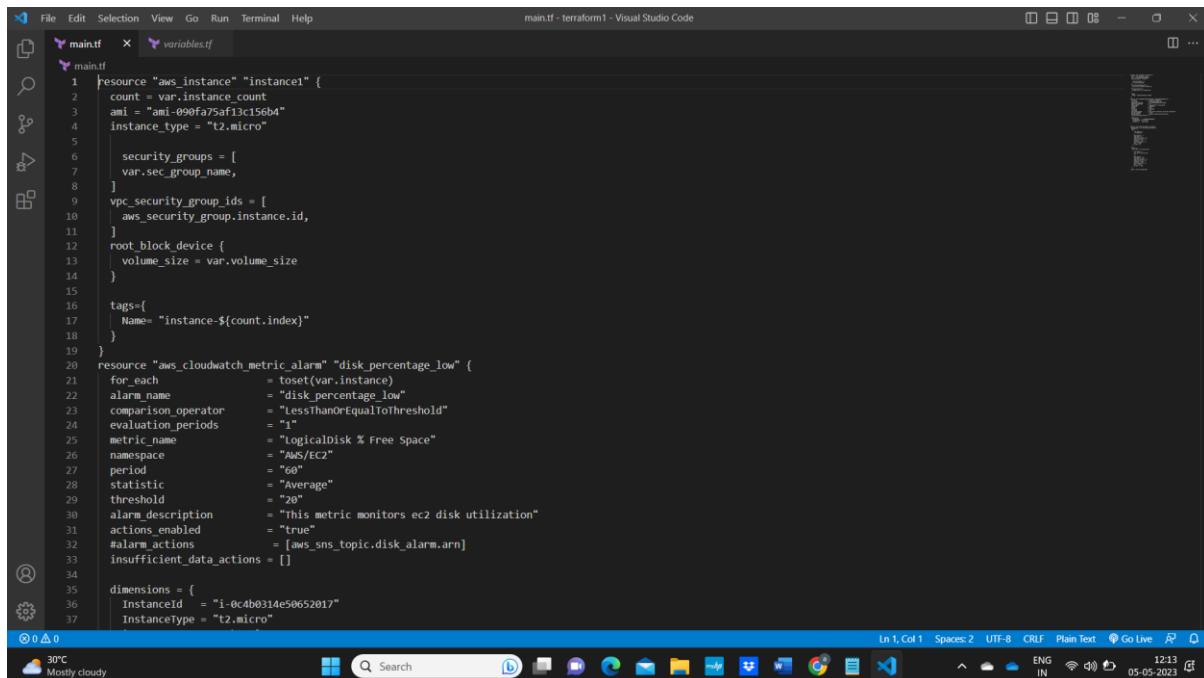
Poorna Chand Evuru

2000030276

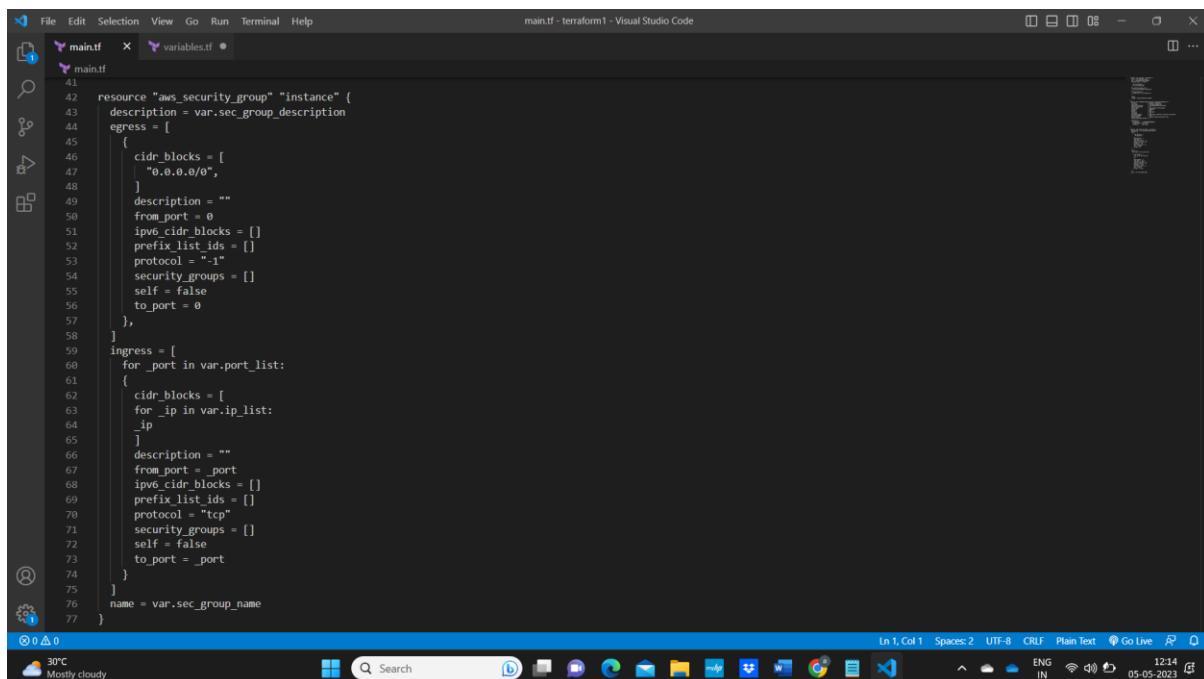
Terraform :

To create various Ec2 instances automatically we will use terraform

main.tf :

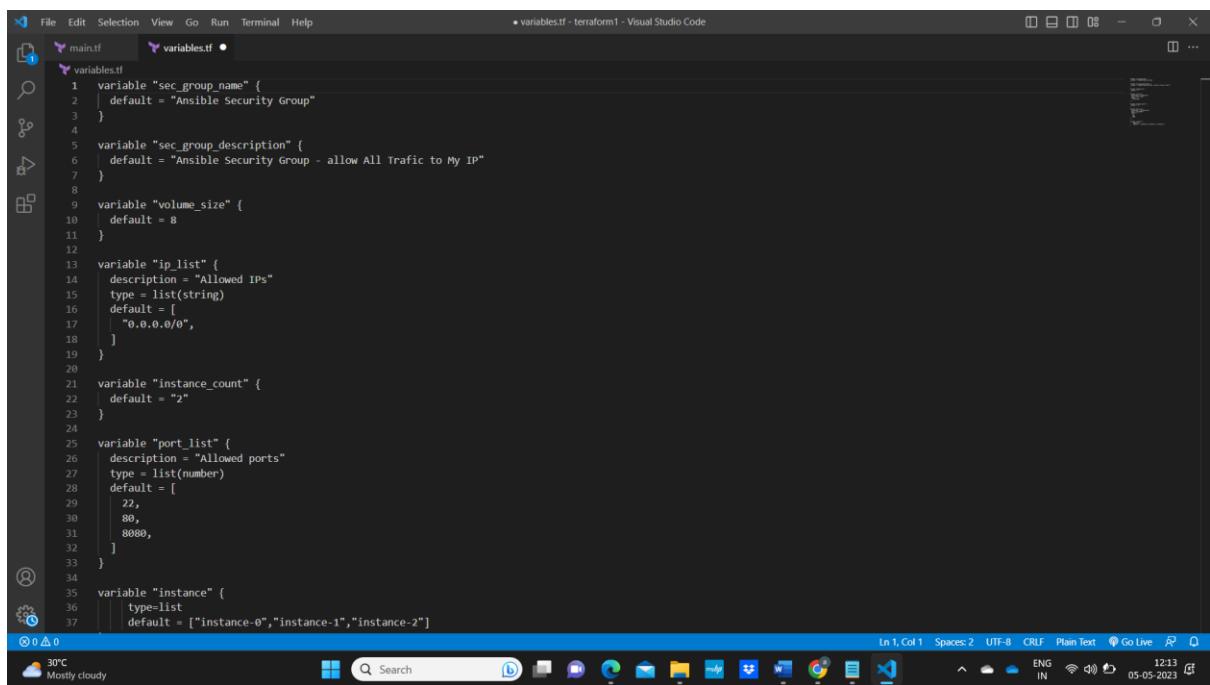


```
main.tf
File Edit Selection View Go Run Terminal Help
main.tf variables.tf
main.tf
1 resource "aws_instance" "instance1" {
2   count = var.instance_count
3   ami   = "ami-090fa75af13c156b4"
4   instance_type = "t2.micro"
5
6   security_groups = [
7     var.sec_group_name,
8   ]
9   vpc_security_group_ids = [
10    aws_security_group.instance.id,
11  ]
12   root_block_device {
13     volume_size = var.volume_size
14   }
15
16   tags={
17     Name= "instance-${count.index}"
18   }
19 }
20
resource "aws_cloudwatch_metric_alarm" "disk_percentage_low" {
21   for_each           = toset(var.instance)
22   alarm_name         = "disk_percentage_low"
23   comparison_operator = "LessThanOrEqualToThreshold"
24   evaluation_periods = "1"
25   metric_name        = "LogicalDisk % Free Space"
26   namespace          = "AWS/EC2"
27   period              = "60"
28   statistic           = "average"
29   threshold           = "20"
30   alarm_description  = "This metric monitors ec2 disk utilization"
31   actions_enabled     = "true"
32   #alarm_actions      = [aws sns topic.disk_alarmarn]
33   insufficient_data_actions = []
34
35   dimensions = [
36     InstanceId = "i-0c4b0314e90652017"
37     Instancetype = "t2.micro"
38   ]
39 }
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77 }
```



```
main.tf
File Edit Selection View Go Run Terminal Help
main.tf variables.tf
main.tf
41
42 resource "aws_security_group" "instance" {
43   description = var.sec_group_description
44   egress = [
45     {
46       cidr_blocks = [
47         ".0.0.0/0",
48       ]
49       description = ""
50       from_port = 0
51       ipv6_cidr_blocks = []
52       prefix_list_ids = []
53       protocol = "-1"
54       security_groups = []
55       self = false
56       to_port = 0
57     },
58   ]
59   ingress = [
60     for _port in var.port_list:
61     {
62       cidr_blocks = [
63         for _ip in var.ip_list:
64           _ip
65       ]
66       description = ""
67       from_port = _port
68       ipv6_cidr_blocks = []
69       prefix_list_ids = []
70       protocol = "tcp"
71       security_groups = []
72       self = false
73       to_port = _port
74     }
75   ]
76   name = var.sec_group_name
77 }
```

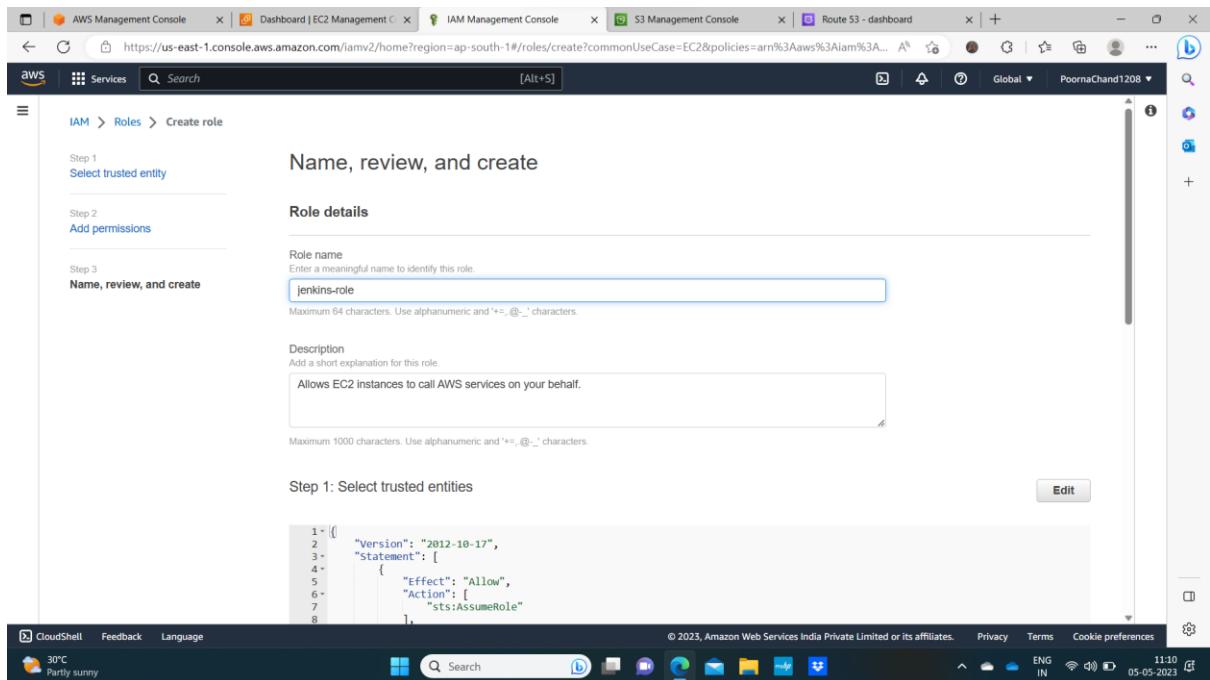
variables.tf :



```
File Edit Selection View Go Run Terminal Help
variables.tf - terraform1 - Visual Studio Code
variables.tf
1 variable "sec_group_name" {
2   default = "Ansible Security Group"
3 }
4
5 variable "sec_group_description" {
6   default = "Ansible Security Group - allow All Trafic to My IP"
7 }
8
9 variable "volume_size" {
10  default = 8
11 }
12
13 variable "ip_list" {
14   description = "Allowed IPs"
15   type = list(string)
16   default = [
17     "0.0.0.0/0",
18   ]
19 }
20
21 variable "instance_count" {
22   default = "2"
23 }
24
25 variable "port_list" {
26   description = "Allowed ports"
27   type = list(number)
28   default = [
29     22,
30     80,
31     8080,
32   ]
33 }
34
35 variable "instance" {
36   type = list
37   default = ["instance-0","instance-1","instance-2"]
}
Ln 1, Col 1  Spaces:2  UTF-8  CR/LF  Plain Text  Go Live  12:13  05-05-2023
```

Controller VM :

Here various AWS services were used Ec2,IAM,Route 53,S3 Bucket.



The screenshot shows the AWS Management Console with multiple tabs open. The active tab is 'IAM > Roles > Create role'. The process is at 'Step 1: Select trusted entity'. The 'Role name' field is filled with 'jenkins-role'. The 'Description' field contains the text 'Allows EC2 instances to call AWS services on your behalf.' The bottom of the screen shows the AWS CloudShell interface with some code snippets and the status bar indicating 'CloudShell' and 'Feedback'.

The image shows three tabs open in a browser window:

- IAM Management Console**: The "Permissions" tab is selected. It displays a list of four AWS-managed policies:
 - AmazonEC2FullAccess
 - IAMFullAccess
 - AmazonRoute53FullAccess
 - AmazonS3FullAccess
- EC2 Management**: A notification bar at the top says "Successfully terminated i-0d709e76eb72f71e5j-0ec4f1d5c4fac0319". Below it, the "Instances" tab shows one instance named "Controller-View" (ID: i-0a538a3eeab43df10) which is "Running".
- S3 Management Console**: The "Route 53 - dashboard" tab is selected.

The left sidebar contains navigation links for IAM, EC2, and S3 services.

- ❖ Firstly We need to install kubectl
- ❖ After Installing kubectl then we need to install Kops

```
root@ip-172-31-41-55~#
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\WINDOWS\system32> ssh -i "C:\Users\hp\Downloads\poornakey.pem" ec2-user@ec2-13-232-153-75.ap-south-1.compute.amazonaws.com
The authenticity of host 'ec2-13-232-153-75.ap-south-1.compute.amazonaws.com (13.232.153.75)' can't be established.
ED25519 key fingerprint is SHA256:v4RJ5h900YTA6YZb8UqeMLjc101Tj0MYjaHB8SQ+xJA.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-13-232-153-75.ap-south-1.compute.amazonaws.com' (ED25519) to the list of known hosts.

      #_
~\_\_ ##### Amazon Linux 2023
~~ \_\_ #####\#
~~ \_\_ \#\#\#
~~ \_\_ \#\#
~~ \_\_ \#'
~~ \_\_ V~' '-> https://aws.amazon.com/linux/amazon-linux-2023
~~ \_\_ /
~~ \_\_ /'
~~ \_\_ /'
~~ \_\_ /'
~~ \_\_ /m/'

[ec2-user@ip-172-31-41-55 ~]$ sudo su
[root@ip-172-31-41-55 ec2-user]# cd
[root@ip-172-31-41-55 ~]#
```

```
root@ip-172-31-41-55~#
Default output format [None]:
[root@ip-172-31-41-55 ~]# aws configure
AWS Access Key ID [None]:
AWS Secret Access Key [None]:
Default region name [None]: ap-south-1
Default output format [None]: table
[root@ip-172-31-41-55 ~]# curl -LO https://github.com/kubernetes/kops/releases/download/$(curl -s https://api.github.com/repos/kubernetes/kops/rel
% Total    % Received % Xferd  Average Speed   Time   Time  Current
          Dload  Upload   Total Spent   Left  Speed
  0     0     0     0     0      0 0 ---:-:---:-:---:-:---:-:--- 0
100 165M 100 165M  0     0 28.3M  0 0:00:05 0:00:05 0:00:05 32.8M
[root@ip-172-31-41-55 ~]# curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"
% Total    % Received % Xferd  Average Speed   Time   Time  Current
          Dload  Upload   Total Spent   Left  Speed
100 138 100 138  0     0 433  0 ---:-:---:-:---:-:---:-:--- 433
100 46.9M 100 46.9M  0     0 44.0M  0 0:00:01 0:00:01 0:00:01 116M
[root@ip-172-31-41-55 ~]# chmod +x ./kubectl
[root@ip-172-31-41-55 ~]# mv ./kubectl bin/kubectl
mv: cannot move './kubectl' to 'bin/kubectl': No such file or directory
[root@ip-172-31-41-55 ~]# mv ./kubectl /bin/kubectl
[root@ip-172-31-41-55 ~]# kubectl
kubectl controls the Kubernetes cluster manager.

Find more information at: https://kubernetes.io/docs/reference/kubectl/

Basic Commands (Beginner):
  create      Create a resource from a file or from stdin
  expose      Take a replication controller, service, deployment or pod and expose it as a new Kubernetes service
  run         Run a particular image on the cluster
  set         Set specific features on objects

Basic Commands (Intermediate):
  explain     Get documentation for a resource
  get         Display one or many resources
  edit        Edit a resource on the server
```

Route 53

project.in - details

Route 53 > Hosted zones > project.in

Hosted zone details

Records (2)

Record ...	Type	Routing policy	Alias	Value/Route traffic to	TTL (s...)	Health
project.in	NS	Simple	-	No ns-1536.awsdns-00.co.uk. ns-0.awsdns-00.com. ns-1024.awsdns-00.org. ns-512.awsdns-00.net.	172800	-
project.in	SOA	Simple	-	No ns-1536.awsdns-00.co.uk. a...	900	-

```
Use "kubectl <command> --help" for more information about a given command.
Use "kubectl options" for a list of global command-line options (applies to all commands).
[root@ip-172-31-41-55 ~]# curl -LO https://github.com/kubernetes/kops/releases/download/$(curl -s https://api.github.com/repos/kubernetes/kops/releases/latest | grep tag_name | cut -d '"' -f 4)/kops-linux-amd64
% Total    % Received % Xferd  Average Speed   Time   Time  Current
          % Received % Xferd  Average Speed   Time   Time  Current
          Dload  Upload   Total Spent    Left  Speed
0       0     0      0      0      0      0 ---:---:---:---:---:---:---:--- 0
100  165M  100  165M      0      0  79.8M      0:00:02  0:00:02  ---:--- 107M
[root@ip-172-31-41-55 ~]# chmod +x kops-linux-amd64
[root@ip-172-31-41-55 ~]# mv kops-linux-amd64 /bin/kops
[root@ip-172-31-41-55 ~]# aws s3 mb s3://clusters.dev.poorna.project.com
make_bucket: clusters.dev.poorna.project.com
[root@ip-172-31-41-55 ~]# ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa
Your public key has been saved in /root/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:UN8Adqa53GOS6QaVBGBzb0q+ixJ3+nALoDc2bEQC48 root@ip-172-31-41-55.ap-south-1.compute.internal
The key's randomart image is:
+--[RSA 3072]----+
| +o+.. |
| o + o . |
| + o. . . |
| E + .o.. |
| o . +.*.S |
| o.+o+.B |
| o +o+++. |
| =o.oB+oo |
| +++=o... |
+---[SHA256]-----+
[root@ip-172-31-41-55 ~]#
```

```

root@ip-172-31-41-55:~#
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa
Your public key has been saved in /root/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:UN8Adq453GOS6QaVGBBzTb0q+ixJ3+nALoLoC2bEQC48 root@ip-172-31-41-55.ap-south-1.compute.internal
The key's randomart image is:
+---[RSA 3072]----+
| +.0+.. |
| o + o . |
| + 0. . . |
| E + .o.. |
| o . +.*.S |
| o..+o+.B |
| o +o++.. |
| =o.oB+oo |
| +++=o... |
+---[SHA256]----+
[root@ip-172-31-41-55 ~]# kops create cluster --cloud=aws --zones=ap-south-1 --name=clusters.dev.poorna.project.com --dns-zone=project.in --dns private
Error: State Store: Required value: Please set the --state flag or export KOPS_STATE_STORE.
For example, a valid value follows the format s3://<bucket>.
You can find the supported stores in https://kops.sigs.k8s.io/state.
[root@ip-172-31-41-55 ~]# kops create cluster --cloud=aws --zones=ap-south-1b --name=clusters.dev.poorna.project.com --dns-zone=project.in --dns private
Error: State Store: Required value: Please set the --state flag or export KOPS_STATE_STORE.
For example, a valid value follows the format s3://<bucket>.
You can find the supported stores in https://kops.sigs.k8s.io/state.
[root@ip-172-31-41-55 ~]# export KOPS_STATE_STORE=s3://clusters.dev.poorna.project.com
[root@ip-172-31-41-55 ~]# kops create cluster --cloud=aws --zones=ap-south-1b --name=clusters.dev.poorna.project.com --dns-zone=project.in --dns private
I0505 05:57:13.641563    2651 new_cluster.go:1354] Cloud Provider ID: "aws"
I0505 05:57:14.094724    2651 subnets.go:185] Assigned CIDR 172.20.32.0/19 to subnet ap-south-1b
Previewing changes that will be made:

```



A screenshot of the AWS Management Console. The main view is the 'Properties' tab for an S3 bucket named 'clusters.dev.poorna.project.com'. The 'Bucket overview' section shows the AWS Region as 'Asia Pacific (Mumbai) ap-south-1', the Amazon Resource Name (ARN) as 'arnaws:s3::clusters.dev.poorna.project.com', and the Creation date as 'May 5, 2023, 11:25:30 (UTC+05:30)'. Below this, the 'Bucket Versioning' section is shown, indicating it is 'Disabled'. There are also sections for 'Multi-factor authentication (MFA) delete' and 'Edit' buttons. On the left sidebar, there are links for 'Buckets', 'Access Points', 'Object Lambda Access Points', 'Multi-Region Access Points', 'Batch Operations', 'IAM Access Analyzer for S3', 'Block Public Access settings for this account', 'Storage Lens' (with 'Dashboards' and 'AWS Organizations settings'), 'Feature spotlight', and 'AWS Marketplace for S3'. At the bottom, there is a navigation bar with links for 'CloudShell', 'Feedback', 'Language', and copyright information from 2023.

```

root@ip-172-31-41-55:~#
ject.com. is not permitted in zone project.in.]
      status code: 400, request id: 9ed155f5-9e14-4cea-bffb-816f238045b1
I0505 05:58:10.566739  2710 update_cluster.go:323] Exporting kubeconfig for cluster
kOps has set your kubectl context to clusters.dev.poorna.project.com

Cluster is starting. It should be ready in a few minutes.

Suggestions:
* validate cluster: kops validate cluster --wait 10m
* list nodes: kubectl get nodes --show-labels
* ssh to a control-plane node: ssh -i ~/ssh/id_rsa ubuntu@
* the ubuntu user is specific to Ubuntu. If not using Ubuntu please use the appropriate user based on your OS.
* read about installing addons at: https://kops.sigs.k8s.io/addons.

[root@ip-172-31-41-55 ~]# kops validate cluster
Using cluster from kubectl context: clusters.dev.poorna.project.com

Validating cluster clusters.dev.poorna.project.com

Error: validation failed: unexpected error during validation: unable to resolve Kubernetes cluster API URL dns: lookup api.clusters.dev.poorna.project.com on 172.31.0.2:53: no such host
[root@ip-172-31-41-55 ~]# kops validate cluster
Using cluster from kubectl context: clusters.dev.poorna.project.com

Validating cluster clusters.dev.poorna.project.com

Error: validation failed: unexpected error during validation: unable to resolve Kubernetes cluster API URL dns: lookup api.clusters.dev.poorna.project.com on 172.31.0.2:53: no such host
[root@ip-172-31-41-55 ~]# kubectl get nodes
E0505 06:01:31.607136  2846 memcache.go:265] couldn't get current server API group list: Get "https://api.clusters.dev.poorna.project.com/api?timeout=32s": dial tcp: lookup api.clusters.dev.poorna.project.com on 172.31.0.2:53: no such host
E0505 06:01:31.608341  2846 memcache.go:265] couldn't get current server API group list: Get "https://api.clusters.dev.poorna.project.com/api?timeout=32s": dial tcp: lookup api.clusters.dev.poorna.project.com on 172.31.0.2:53: no such host
E0505 06:01:31.609467  2846 memcache.go:265] couldn't get current server API group list: Get "https://api.clusters.dev.poorna.project.com/api?timeout=32s": dial tcp: lookup api.clusters.dev.poorna.project.com on 172.31.0.2:53: no such host

```

Various clusters are created we can check it using the command
“kubectl get nodes:

Name	Instance ID	Instance state	Instance type	Status check
nodes-ap-south-1b.clusters.dev.poorna.project.com	i-0c30becccb166ff5a	Running	t3.medium	2/2 checks passed
control-plane-ap-south-1b.masters.clusters.dev.poorna.project.com	i-02beb7f8eff49e003	Running	t3.medium	2/2 checks passed
Controller-View	i-0a53a3eeab43df10	Running	t2.micro	2/2 checks passed

AWS Management Console

Instances | EC2 Management Con... clusters.dev.poorna.project.com project.in - details

https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#InstancesInstanceState=running

Mumbai PoornaChand1208

New EC2 Experience Tell us what you think

EC2 Dashboard

EC2 Global View

Events

Limits

Instances Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Images AMIs

AMI Catalog

Elastic Block Store Volumes Snapshots

CloudShell Feedback Language

30°C Partly sunny

Instances (5) Info

Find instance by attribute or tag (case-sensitive)

Instance state = running X Clear filters

Name	Instance ID	Instance state	Instance type	Status check	Ala
nodes-ap-south-1b.clusters.dev.poorna.project.com	i-0c30beccc166ff5a	Running	t3.medium	2/2 checks passed	No
control-plane-ap-south-1b.masters.clusters.dev.poorna.project.com	i-02beb7f8eff49e003	Running	t3.medium	2/2 checks passed	No
Controller-View	i-0a538a3eeab43df10	Running	t2.micro	2/2 checks passed	No
Jenkins	i-05c53f1c019c8356ba	Running	t2.micro	2/2 checks passed	No
Ansible	i-0efc3d888cc5d86b0	Running	t2.micro	2/2 checks passed	No

Select an instance

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The screenshot shows the AWS Management Console interface for the EC2 service. The main pane displays a table of running instances with columns for Name, Instance ID, Instance state, Instance type, Status check, and Alarms. Below the table, a modal window titled 'Select an instance' lists the same five instances. The left sidebar contains a navigation menu with links to various EC2 features and other AWS services. The bottom of the screen shows the AWS navigation bar with links to CloudShell, Feedback, Language, and various AWS services like CloudWatch, Lambda, and S3.

Name	Instance ID	Instance state	Instance type	Status check	Ala
nodes-ap-south-1b.clusters.dev.poorna.project.com	i-0c30beccc166ff5a	Running	t3.medium	2/2 checks passed	No
control-plane-ap-south-1b.masters.clusters.dev.poorna.project.com	i-02beb7f8eff49e003	Running	t3.medium	2/2 checks passed	No
Controller-View	i-0a538a3eeab43df10	Running	t2.micro	2/2 checks passed	No
Jenkins	i-05c53f1c019c8356ba	Running	t2.micro	2/2 checks passed	No
Ansible	i-0efc3d888cc5d86b0	Running	t2.micro	2/2 checks passed	No

Continuous Integration with Jenkins :

The screenshot shows a Windows PowerShell window with several tabs open. The active tab displays Jenkins setup steps:

```
PS C:\Windows\system32> ssh -i "C:\Users\vp\Downloads\poornakay.pem" ec2-user@ec2-13-234-202-185.ap-south-1.compute.amazonaws.com
The authenticity of host 'ec2-13-234-202-185.ap-south-1.compute.amazonaws.com (13.234.202.185)' can't be established.
ED25519 key fingerprint is SHA256:yU/TQmBENs24gUPSNQOytinAxSGKOMqlqJ3hx8iBpA.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-13-234-202-185.ap-south-1.compute.amazonaws.com' (ED25519) to the list of known hosts.
```

Below this, the terminal shows Java installation logs:

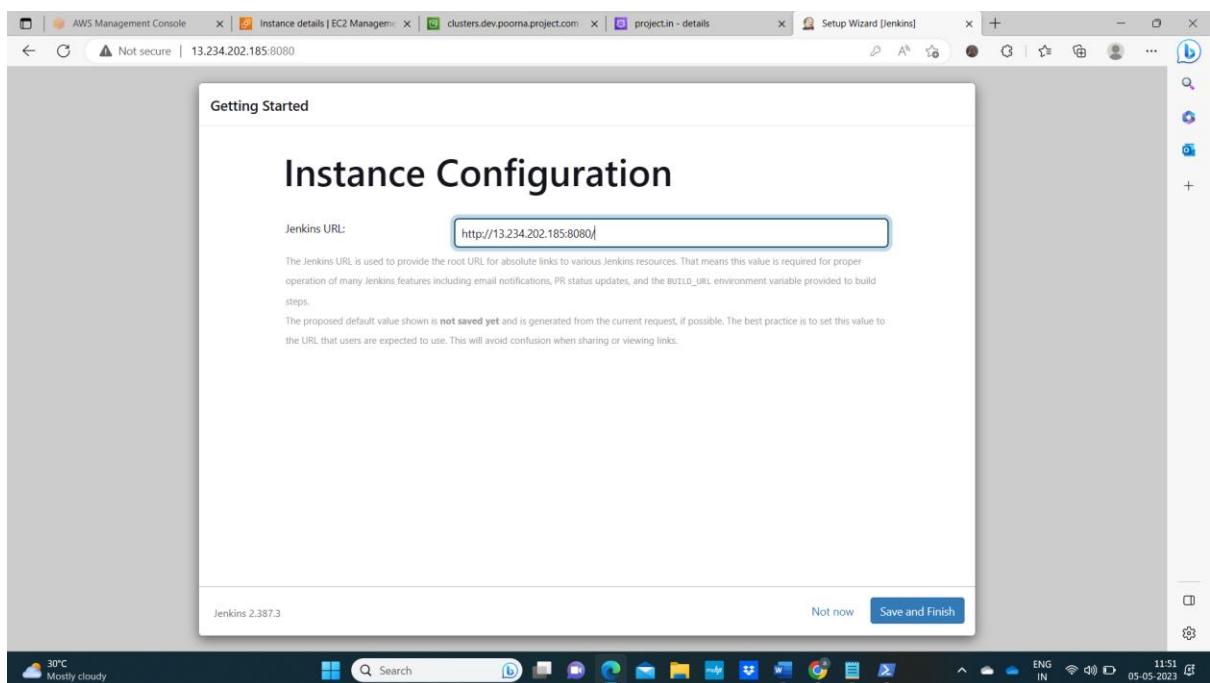
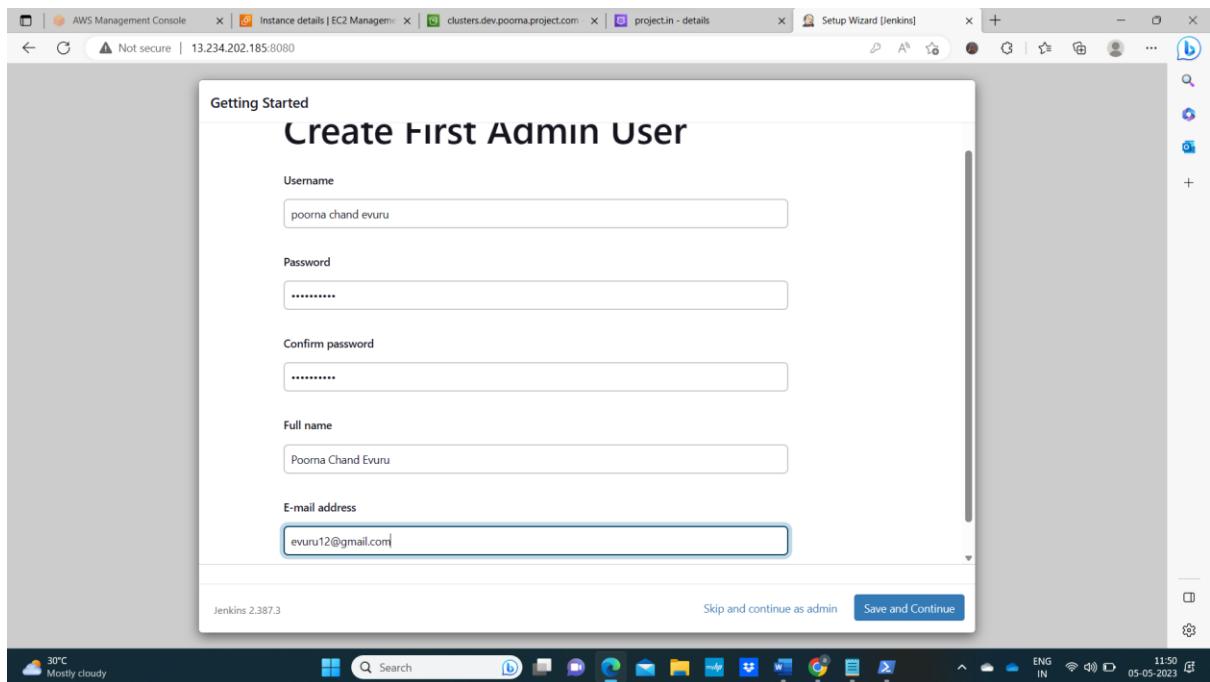
```
[ec2-user@ip-172-31-43-84 ~]$ sudo su
[root@ip-172-31-43-84 ec2-user]$ cd
[root@ip-172-31-43-84 ~]$ yum install java
Last metadata expiration check: 0:03:59 ago on Fri May  5 06:04:57 2023.
Dependencies resolved.
=====
Repository      Size
java-17-amazon-corretto x86_64    1:17.0.7+7-1.amzn2023.1      amazonlinux   188 k
=====
Installing:
amazonlinux      504 k
amazonlinux      674 k
amazonlinux      1.3 M
amazonlinux      467 k
amazonlinux      1.0 M
amazonlinux      273 k
amazonlinux      8.7 k
amazonlinux      418 k
amazonlinux      409 k
amazonlinux      15 k
amazonlinux      492 k
amazonlinux      97 k
amazonlinux      868 k
amazonlinux      91 M
amazonlinux      13 k
amazonlinux      10 k
amazonlinux      71 k
amazonlinux      42 k
=====
[root@ip-172-31-43-84 ~]$
```

The terminal also shows a progress bar for a download:

```
Total download size: 100 M
Installed size: 261 M
Is this ok [y/N]: y
Downloaded packages:
(1/35): alsa-lib-1.2.7.2-1.amzn2023.0.x86_64.rpm
(2/35): java-17-amazon-corretto-17.0.7+7-1.amzn2023.1.x86_64.rpm
(3/35): libXeender-0.9.10-14.amzn2023.0.x86_64.rpm
(4/35): libXandr-1.5.2-6.amzn2023.0.x86_64.rpm
(5/35): freetype-2.12.1.3-1.amzn2023.0.1.x86_64.rpm
(6/35): libXtst-1.2.3-14.amzn2023.0.2.x86_64.rpm
(7/35): libXinerama-1.1.4-8.amzn2023.0.2.x86_64.rpm
(8/35): libXext-1.3.4-6.amzn2023.0.2.x86_64.rpm
(9/35): graphite2-1.2.7-7.amzn2023.0.2.x86_64.rpm
(10/35): libXcursor-1.1.13-1.amzn2023.0.2.x86_64.rpm
(11/35): libSM-1.2.1-3.8.amzn2023.0.2.x86_64.rpm
(12/35): giflib-5.2.1-9.amzn2023.0.2.x86_64.rpm
(13/35): libX11-1.7.2-3.amzn2023.0.2.x86_64.rpm
(14/35): pixman-0.40.0-3.amzn2023.0.3.x86_64.rpm
(15/35): libjpeg-turbo-2.1.4-2.amzn2023.0.2.x86_64.rpm
(16/35): libbrotli-1.0.9-4.amzn2023.0.2.x86_64.rpm
(17/35): ha-buzz-7.0.8-2.amzn2023.0.1.x86_64.rpm
(18/35): cairo-1.17.4-3.amzn2023.0.2.x86_64.rpm
(19/35): libXxf86dri-1.1.1-1.amzn2023.0.2.x86_64.rpm
(20/35): libXxf86vm-1.6.37-17.amzn2023.0.2.x86_64.rpm
(21/35): libXi-1.7.10-6.amzn2023.0.2.x86_64.rpm
(22/35): libXt-1.2.0-4.amzn2023.0.2.x86_64.rpm
(23/35): libICE-1.0.10-6.amzn2023.0.2.x86_64.rpm
(24/35): libXau-1.0.9-6.amzn2023.0.2.x86_64.rpm
(25/35): javapackages-fs-filesystem-6.0.0-7.amzn2023.0.5.noarch.rpm
(26/35): google-noto-fonts-common-20201206.2.amzn2023.0.2.noarch.rpm
(27/35): libX11-common-1.7.2-3.amzn2023.0.2.noarch.rpm
(28/35): dejavu-sans-monospace-7.0-16.amzn2023.0.2.noarch.rpm
(29/35): dejavu-sans-serif-fonts-2.16-16.amzn2023.0.2.noarch.rpm
(30/35): langpacks-core-fonts-1.0-21.amzn2023.0.4.noarch.rpm
(31/35): dejavu-sans-fonts-2.37-16.amzn2023.0.2.noarch.rpm
(32/35): google-noto-sans-vf-fonts-20201206.2.amzn2023.0.2.noarch.rpm
(33/35): fonts-filesystem-2.0.5-5.amzn2023.0.2.noarch.rpm
(34/35): xml-common-0.6.3-56.amzn2023.0.2.noarch.rpm
(35/35): java-17-amazon-corretto-headless-17.0.7+7-1.amzn2023.1.x86_64.rpm
=====
[root@ip-172-31-43-84 ~]$
```

At the bottom of the terminal, there is a message about transaction management:

```
P/S: 100 MB/s 00:01
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing : 1/1
[root@ip-172-31-43-84 ~]$
```



The screenshot shows a web browser window with the Jenkins dashboard open. The title bar has several tabs: AWS Management Console, Instance details | EC2 Management, clusters.dev.poorna.project.com, project.in - details, and Dashboard [Jenkins]. The main content area displays the Jenkins interface with sections like 'Welcome to Jenkins!', 'Start building your software project', 'Build Queue', 'Build Executor Status', and 'Set up a distributed build'. A sidebar on the right contains links for 'New Item', 'People', 'Build History', 'Manage Jenkins', 'My Views', and 'Add description'.

```
root@ip-172-31-43-84:~#
pixman-0.40.0-3.amzn2023.0.3.x86_64
xml-common-0.6.3-56.amzn2023.0.2.noarch

[Complete]
[root@ip-172-31-43-84 ~]# wget -O /etc/yum.repos.d/jenkins.repo https://pkg.jenkins.io/redhat-stable/jenkins.repo
--2023-05-05 06:12:05-- https://pkg.jenkins.io/redhat-stable/jenkins.repo
Resolving pkg.jenkins.io (pkg.jenkins.io)... 151.101.154.133, 2a04:4e42:24::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|151.101.154.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 83
Saving to: '/etc/yum.repos.d/jenkins.repo'

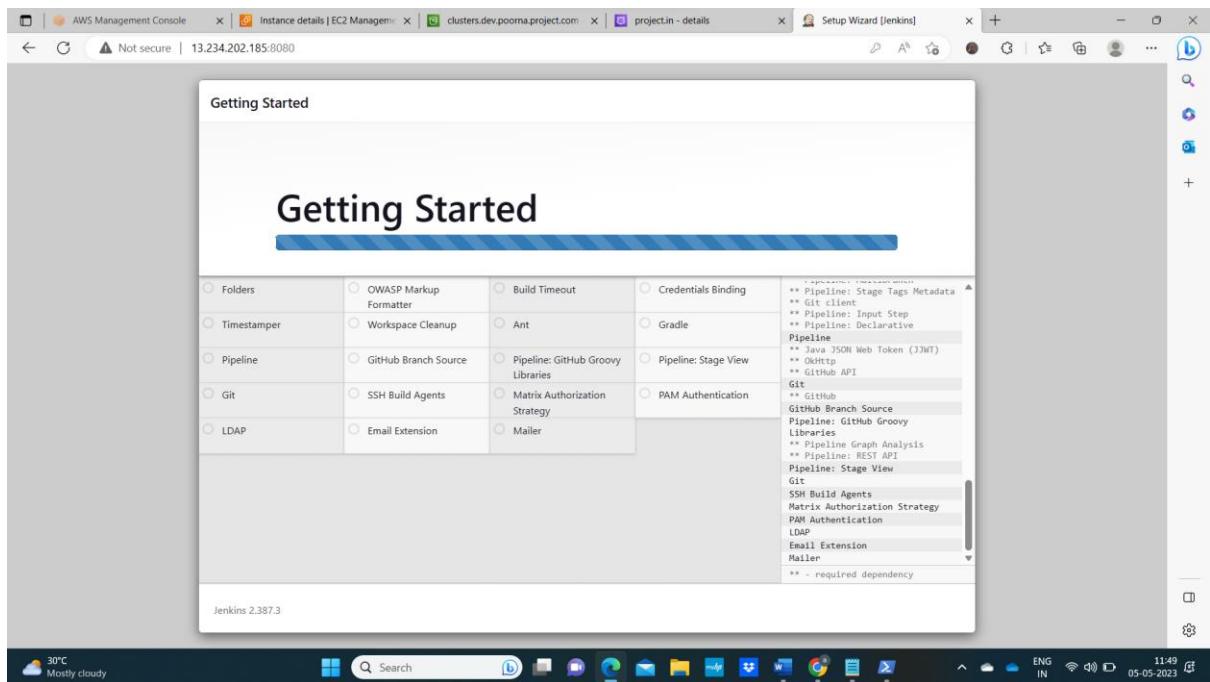
[etc/yum.repos.d/jenkins.repo 100%[=====]>] 85  --.-KB/s   in 0s

2023-05-05 06:12:06 (4.65 MB/s) - '/etc/yum.repos.d/jenkins.repo' saved [85/85]

[root@ip-172-31-43-84 ~]# rpm -Uvh /etc/yum.repos.d/jenkins.repo
[root@ip-172-31-43-84 ~]# yum install jenkins
jenkins-stable
231 kB/s | 26 kB     00:00
Dependencies resolved.
=====
Transaction Summary
=====
Install  1 Package

  Repository           Size
  jenkins              noarch        2.387.3-1.1          jenkins             94 M
  Transaction Summary
  Total download size: 94 M
  Installed size: 94 M
  Is this ok [y/N]: y
  Downloading Packages:
  jenkins-2.387.3-1.1.noarch.rpm
  -----
  15 MB/s | 94 MB     00:06
  Total
  15 MB/s | 94 MB     00:06
  Running transaction check
  Transaction check succeeded.
  Running transaction test
  Transaction test succeeded.
  Running transaction
  Preparing : 1/1
  Running scriptlet: jenkins-2.387.3-1.1.noarch 1/1
  Installing  : jenkins-2.387.3-1.1.noarch 1/1
  Running scriptlet: jenkins-2.387.3-1.1.noarch 1/1
  Verifying   : jenkins-2.387.3-1.1.noarch 1/1
  Installed:
  jenkins-2.387.3-1.1.noarch
```

Pass : 70c585d8eb7f46caa83cf66291ef78e5

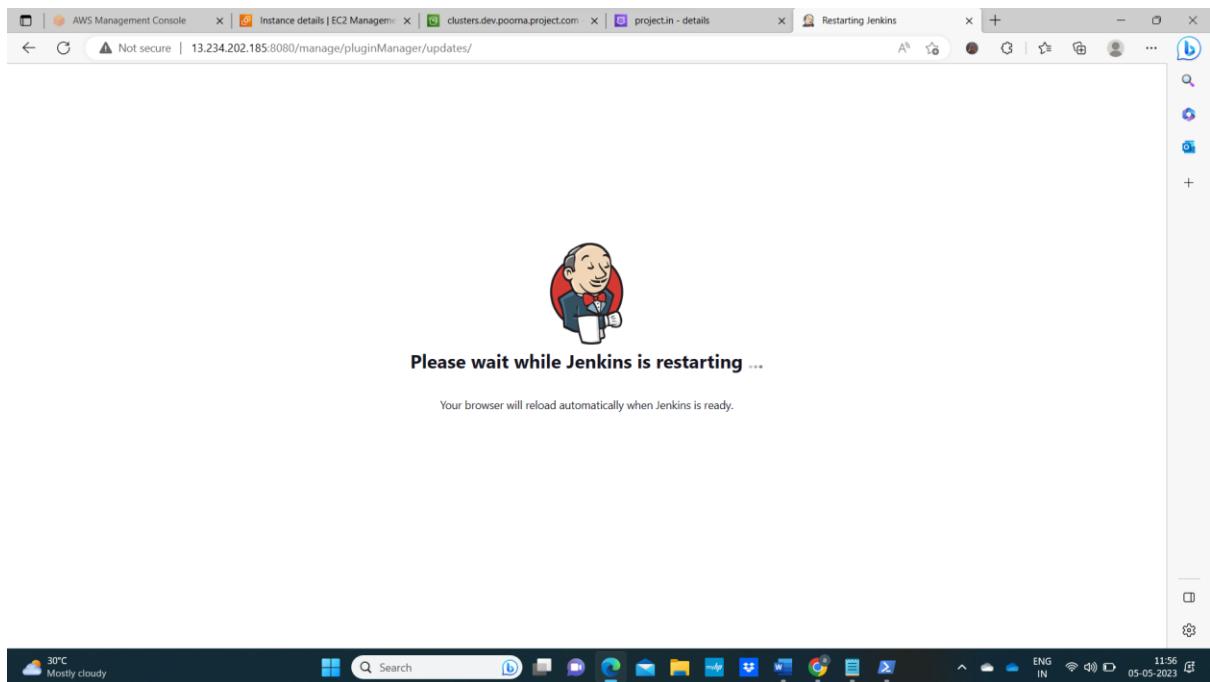


The screenshot shows the Jenkins Plugin Manager. The 'Available plugins' tab is selected. A search bar at the top contains the text 'publish over ssh'. A single plugin, 'Publish Over SSH', is listed in the results.

Install	Name ↴	Released
<input checked="" type="checkbox"/>	Publish Over SSH 1.24	1 yr 2 mo ago
	Artifact Uploaders	
	Build Tools	
	Send build artifacts over SSH	

Below the table are two buttons: 'Install without restart' and 'Download now and install after restart'. A status message indicates 'Update information obtained: 11 min ago' and a 'Check now' link.

REST API Jenkins 2.387.3



A screenshot of a web browser showing the Jenkins Plugin Manager. The title bar reads "Jenkins". The left sidebar has links for "Updates", "Available plugins", "Installed plugins", "Advanced settings", and "Download progress" (which is selected). The main content area is titled "Download progress" and shows a table of plugin names and their download status:

Plugin	Status
Ionicons API	Success
Folders	Success
JavaBeans Activation Framework (JAF) API	Success
JavaMail API	Success
bouncycastle API	Success
Instance Identity	Success
Mina SSHD API :: Common	Success
Mina SSHD API :: Core	Success
SSH server	Success
OWASP Markup Formatter	Success
Struts	Success
Token Macro	Success
Build Timeout	Success
Pipeline: Step API	Success
Credentials	Success
Plain Credentials	Success

The status column uses green checkmarks for "Success". The status bar at the bottom shows the date and time as 05-05-2023.

The screenshot shows the Jenkins 'Configure System' page under the 'Manage Jenkins' section. In the 'SSH Servers' section, there is a form for adding a new SSH server named 'Jenkins'. The fields filled are:

- Name: Jenkins
- Hostname: 172.31.43.84
- Username: root
- Remote Directory: (empty)

At the bottom of the form, there are 'Save' and 'Apply' buttons.

This screenshot is identical to the one above, showing the 'Configure System' page with the 'SSH Servers' section. However, there is a red 'X' icon in the top right corner of the configuration form, indicating an error or validation failure.

```
root@ip-172-31-37-178:~#
$OpenBSD: sshd_config,v 1.104 2021/07/02 05:11:21 dtucker Exp $
# This is the sshd server system-wide configuration file. See
# sshd_config(5) for more information.

# This sshd was compiled with PATH=/usr/local/bin:/usr/bin:/usr/local/sbin:/usr/sbin

# The strategy used for options in the default sshd config shipped with
# OpenSSH is to specify options with their default value where
# possible, but leave them commented. Uncommented options override the
# default value.

# To modify the system-wide sshd configuration, create a *.conf file under
# /etc/ssh/sshd_config.d/, which will be automatically included below
# include /etc/ssh/sshd_config.d/*.conf

# If you want to change the port on a SELinux system, you have to tell
# SELinux about this change.
# semanage port -a -t ssh_port_t -p tcp #PORTNUMBER
#Port 22

#AddressFamily any
#ListenAddress 0.0.0.0
#ListenAddress ::

#HostKey /etc/ssh/ssh_host_rsa.key
#HostKey /etc/ssh/ssh_host_ecdsa.key
#HostKey /etc/ssh/ssh_host_ed25519.key

# Ciphers and keying
#RekeyLimit default none

# Logging
#SyslogFacility AUTH
#LogLevel INFO

# Authentication:

#LoginGraceTime 2m
#PermitRootLogin prohibit-password
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10

#PubkeyAuthentication yes

# The default is to check both .ssh/authorized_keys and .ssh/authorized_keys2
# but this is overridden so installations will only check .ssh/authorized_keys

1,1           Top
```

```
root@ip-172-31-37-178:~/.ssh
$ls -la id_rsa
-rw-r--r-- 1 root root 6038 Jul  1 05:11 id_rsa
$cat id_rsa
-----BEGIN RSA PRIVATE KEY-----
MIIEowIBAAKCAQEAQABAAA...[REDACTED]...=EgB7RzdzDfY05ZsRi73n54pQH
-----END RSA PRIVATE KEY-----
```

```
1,1           All
```

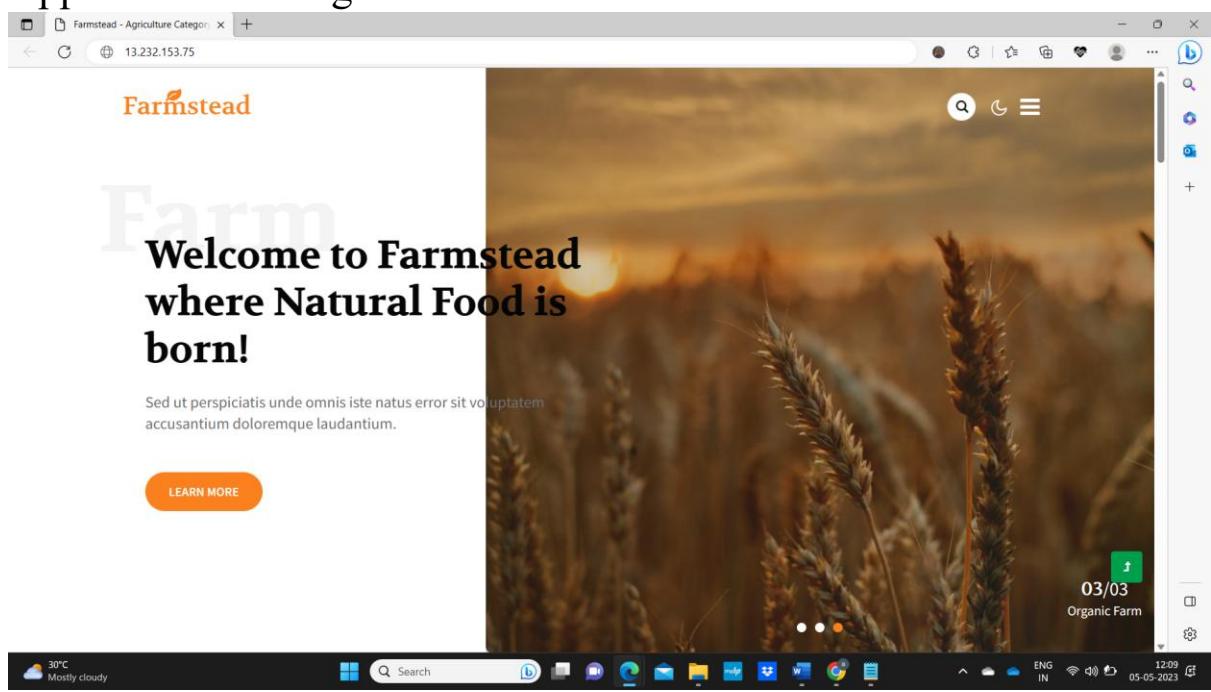
```

Administrator: Windows PowerShell
-hosts: all
tasks:
    name: create deployment
    shell: kubernetes apply -f /opt/deployment.yml

    name: create service
client_loop: send disconnect: Connection reset
PS C:\WINDOWS\system32> ~
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~  
-- INSERT --          7,8           All

```

Application running on Master Node :



Application running on Slave Node :

