

1a . BOOTSTRAPPED INSTANCE

Screenshot of the AWS EC2 Launch Instance Wizard Step 3: Configure Instance Details. The user has selected 'None' for IAM role, 'Stop' for Shutdown behavior, and 'Shared - Run a shared hardware instance' for Tenancy. In the User data section, the following script is pasted into the text area:

```
#!/bin/bash
yum -y install httpd
service httpd start
```

Screenshot of the AWS EC2 Instances page. The user has launched a new t2.micro instance named "bootstrapping" in the us-east-2a availability zone. The instance is currently running.

Name	Instance ID	Instance state	Instance type	Status check	Alarm Status	Availability zone	Public IPv4 DNS	Public IPv4 IP	Elastic IP
bootstrapping	i-00228fe9404b877be	Running	t2.micro	2/2 checks ...	No alarms	us-east-2a	ec2-3-135-183-230.us...	3.135.183.230	-

The screenshot shows the AWS EC2 Instances details page for an instance named i-00228fe9404b877be. The instance is currently bootstrapping. Key details include:

- Instance ID:** i-00228fe9404b877be (bootstrapping)
- Instance state:** Running
- Instance type:** t2.micro
- IAM Role:** -
- Public IPv4 address:** 3.135.183.230
- Private IPv4 address:** 172.31.10.100
- Public IPv4 DNS:** ec2-3-135-183-230.us-east-2.compute.amazonaws.com
- Private IPv4 DNS:** ip-172-31-10-100.us-east-2.compute.internal
- Elastic IP addresses:** -
- VPC ID:** vpc-7e4ae915
- Subnet ID:** subnet-f467acff

AWS Compute Optimizer is displayed with an opt-in button. The bottom status bar shows the instance is bootstrapping.

The screenshot shows a terminal session on the Amazon Linux 2 AMI. The session is bootstrapping and displays the following output:

```
Amazon Linux 2 AMI
https://aws.amazon.com/amazon-linux-2/
2 packages(s) needed for security, out of 13 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-10-100 ~]$
```



1b. CREATING A NEW BUCKET FROM EC2 USING IAM ROLES

The screenshot shows the AWS Identity and Access Management (IAM) service in the AWS Management Console. The left sidebar navigation includes 'Identity and Access Management (IAM)', 'Access management', 'Roles' (which is selected), 'Policies', 'Identity providers', 'Account settings', 'Access reports', 'Access analyzer', 'Archive rules', 'Analyzers', 'Settings', 'Credential report', 'Organization activity', and 'Service control policies (SCPs)'. The main content area displays a table of roles:

Role name	Trusted entities	Last activity
AWSLambdaRoleForElasticLoadBalancing	AWS service: elasticloadbalancing (Service-Linked role)	48 days
AWSLambdaRoleForSupport	AWS service: support (Service-Linked role)	None
AWSLambdaRoleForAWSConfig	AWS service: trustedadvisor (Service-Linked role)	None
s3_full_access	AWS service: s3	None

At the bottom of the page, there is a footer with links for 'Feedback', 'English (US)', 'Privacy Policy', 'Terms of Use', and copyright information: '© 2006 - 2020 Amazon Internet Services Private Ltd. or its affiliates. All rights reserved.'

Screenshot of the AWS EC2 Instances page showing two running instances:

Name	Instance ID	Instance state	Instance type	Status check	Alarm Status	Availability zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP
bootstrapping	i-00228fe9404b877be	Running	t2.micro	2/2 checks ...	No alarms	us-east-2a	ec2-5-155-183-230.us...	3.135.183.230	-
i am roles	i-05d33fac0d2616dfa	Running	t2.micro	2/2 checks ...	No alarms	us-east-2b	ec2-18-217-170-115.us...	18.217.170.115	-

The instance **i am roles** is selected. The Details tab is active, showing the following details:

- Instance ID: i-05d33fac0d2616dfa (i am roles)
- Instance state: Running
- Instance type: t2.micro
- IAM Role: s3_full_access
- Private IPv4 address: 172.31.31.195
- Private IPv4 DNS: ip-172-31-31-193.us-east-2.compute.internal
- VPC ID: vpc-7e4ae915

Other tabs include Security, Networking, Storage, Status Checks, Monitoring, and Tags.

Screenshot of the AWS EC2 Instance details page for the instance **i am roles**:

Platform	AMI ID	Monitoring
Amazon Linux (Inferred)	ami-03657b56516ab7912	disabled
Platform details	amzn2-ami-hvm-2.0.20200917.0-x86_64-gp2	Termination protection
Launch time	Mon Oct 12 2020 21:45:50 GMT+0530 (India Standard Time) (3 minutes)	Lifecycle
		normal

The AWS Compute Optimizer section is present, with a link to "Opt-in to AWS Compute Optimizer for recommendations". Other tabs include Security, Networking, Storage, Monitoring, and Tags.

```
https://aws.amazon.com/amazon-linux-2/
2 package(s) needed for security, out of 13 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-31-193 ~]$ sudo su
[root@ip-172-31-31-193 ~]$ aws s3 ls
[root@ip-172-31-31-193 ~]$ aws s3 mb s3://pruthvi18122000
make_bucket: pruthvi18122000
[root@ip-172-31-31-193 ~]$
```

i-05d33fac0d2616dfa (i am roles)
Public IPs: 16.217.170.115 Private IPs: 172.31.31.193



We've temporarily re-enabled the previous version of the S3 console while we continue to improve the new S3 console experience. [Switch to the new console.](#)

S3 buckets

Search for buckets

[+ Create bucket](#) [Edit public access settings](#) [Empty](#) [Delete](#)

Bucket name	Access	Region	Date created
pruthvi18122000	Objects can be public	US East (N. Virginia)	Oct 12, 2020 9:57:30 PM GMT+0530

Feedback English (US) ▾

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21:57 12-10-2020

1c HOSTING A WEBSITE USING THE BOOTSTRAP SCRIPT ON EC2

The screenshot shows the AWS IAM service console. On the left, the navigation pane is open with 'Identity and Access Management (IAM)' selected. Under 'Access management', 'Roles' is highlighted. In the center, a table lists existing roles. A new role, 's3_ec2_access', is being created, indicated by a 'Create role' button at the top. The table has columns for 'Role name', 'Trusted entities', and 'Last activity'. The newly created role is highlighted with a blue background.



The screenshot shows the AWS S3 service console. On the left, the navigation pane includes 'Amazon S3', 'Buckets', 'Batch operations', 'Access analyzer for S3', 'Block public access (account settings)', and 'Feature spotlight'. The main area is titled 'Access S3-backed file shares on premises and reduce local storage costs using AWS Storage Gateway. Learn more ». It displays a message about temporarily re-enabling the previous version of the S3 console. Below is a search bar and a table of S3 buckets. The table has columns for 'Bucket name', 'Access', 'Region', and 'Date created'. Two buckets are listed: 'pruthvi18122000' and 'shrawantripmp'. The 'shrawantripmp' bucket is selected, indicated by a checked checkbox.



Screenshot of the AWS Lambda Step 3: Configure Instance Details page.

IAM role: s3_ec2_acces

Shutdown behavior: Stop

Stop - Hibernate behavior: Enable hibernation as an additional stop behavior

Enable termination protection: Protect against accidental termination

Monitoring: Enable CloudWatch detailed monitoring
Additional charges apply

Tenancy: Shared - Run a shared hardware instance
Additional charges will apply for dedicated tenancy.

Elastic Inference: Add an Elastic Inference accelerator
Additional charges apply

Credit specification: Unlimited
Additional charges may apply

File systems: Add file system

Advanced Details

- Metadata accessible:** Enabled
- Metadata version:** V1 and V2 (token optional)
- Metadata token response hop limit:** 1
- User data:**

```
#!/bin/bash
yum install httpd -y
aws s3 cp S3/S3-mpushrav/index.html /var/www/html
service httpd start
shhcontrol httpd on
```

Buttons: Cancel, Previous, Review and Launch, Next: Add Storage

Screenshot of the AWS EC2 Instances page.

Instances (1/3) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm Status	Availability zone	Public IPv4 DNS	Public IPv4 IP	Elastic IP
bootstrapping	i-00228fe9404b877be	Running	t2.micro	2/2 checks ...	No alarms +	us-east-2a	ec2-3-153-183-230.us...	3.135.183.230	-
i am roles	i-05d33fac0d2616dfa	Running	t2.micro	2/2 checks ...	No alarms +	us-east-2b	ec2-18-217-170-115.us...	18.217.170.115	-
i am s3 boots...	i-05265bb4c24113129	Running	t2.micro	2/2 checks ...	No alarms +	us-east-2a	ec2-3-156-17-67.us.e...	3.136.17.67	-

Instance: i-05265bb4c24113129 (i am s3 bootstrap)

Details Security Networking Storage Status Checks Monitoring Tags

Feedback English (US) Type here to search © 2008 - 2020, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Use 22:22 ENG 12-10-2020

Instance summary for i-03265bb4c24113129 (iam s3 bootstrap)

Instance ID	Public IPv4 address	Private IPv4 addresses
i-03265bb4c24113129 (iam s3 bootstrap)	3.136.17.67 open address	172.31.14.112
Instance state	Public IPv4 DNS	Private IPv4 DNS
Running	ec2-3-136-17-67.us-east-2.compute.amazonaws.com open address	ip-172-31-14-112.us-east-2.compute.internal
Instance type	Elastic IP addresses	VPC ID
t2.micro	-	vpc-7e4ae915
IAM Role	Subnet ID	
s3_ec2_acces	subnet-f467ac9f	

AWS Compute Optimizer
Opt-in to AWS Compute Optimizer for recommendations. [Learn more](#)

Details Security Networking Storage Monitoring Tags

Instance details

Platform	AMI ID	Monitoring
Amazon Linux (Inferred)	ami-03657b56516a67912	disabled
Platform details	AMI name	Termination protection
Linux/UNIX	amzn2-ami-hvm-2.0.20200917.0-x86_64-gp2	Disabled
Launch time	AMI location	Lifecycle
Mon Oct 12 2020 22:20:54 GMT+0530 (India Standard Time) (1 minute)	amazon/amzn2-ami-hvm-2.0.20200917.0-x86_64-gp2	normal

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Test Page

This page is used to test the proper operation of the Apache HTTP server after it has been installed. If you can read this page, it means that the Apache HTTP server installed at this site is working properly.

If you are a member of the general public:
The fact that you are seeing this page indicates that the website you just visited is either experiencing problems, or is undergoing routine maintenance.

If you would like to let the administrators of this website know that you've seen this page instead of the page you expected, you should send them e-mail. In general, mail sent to the name "webmaster" and directed to the website's domain should reach the appropriate person.

For example, if you experienced problems while visiting www.example.com, you should send e-mail to webmaster@example.com.

If you are the website administrator:
You may now add content to the directory /var/www/html/. Note that until you do so, people visiting your website will see this page, and not your content. To prevent this page from ever being used, follow the instructions in the file /etc/httpd/conf.d/welcome.conf.

You are free to use the image below on web sites powered by the Apache HTTP Server.

Powered by **APACHE** 2.4



2. VPC

2a. CREATING VPC

The screenshot shows the AWS VPC console. On the left, a navigation pane includes options like 'Virtual Private Cloud', 'Your VPCs', 'Subnets', 'Route Tables', 'Internet Gateways', 'Egress Only Internet Gateways', 'DHCP Options Sets', 'Elastic IPs', 'Managed Prefix Lists', 'Endpoints', 'Endpoint Services', 'NAT Gateways', 'Peering Connections', 'Security', 'Customer Gateways', 'Virtual Private Gateways', 'Site-to-Site VPN Connections', and 'Feedback'. The main area displays a table titled 'Your VPCs (1/2) Info' with two entries:

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	IPv6 pool	DHCP options
vpc-7e4ae915	vpc-0d93b7e5b8737ae76	Available	172.31.0.0/16	-	-	dopt-70a7231b
demoVPC	vpc-0d93b7e5b8737ae76	Available	172.16.0.0/16	-	-	dopt-70a7231b

A detailed view of the selected 'demoVPC' is shown below, with tabs for 'Details', 'CIDRs', 'Flow logs', and 'Tags'. The 'Details' tab displays the following information:

Attribute	Value
VPC ID	vpc-0d93b7e5b8737ae76
State	Available
Tenancy	Default
DHCP options set	dopt-70a7231b
Default VPC	No
IPv4 CIDR	172.16.0.0/16
Owner ID	581731927073
DNS hostnames	Disabled
Route table	rtb-0ef5ed178419260aa / demoROUTE
IPv6 pool	-
DNS resolution	Enabled
Network ACL	an-0b1263a9b1a4af289
IPv6 CIDR	-

2b. CREATING INTERNET GATEWAY

The screenshot shows the AWS VPC console. The left navigation pane is identical to the previous screenshot. The main area displays a table titled 'Internet gateways (1/2) Info' with two entries:

Name	Internet gateway ID	State	VPC ID	Owner
demoIGW	igw-0a7ce8693fb54c095	Attached	vpc-0d93b7e5b8737ae76 demoVPC	581731927073
-	igw-4d296525	Attached	vpc-7e4ae915	581731927073

A detailed view of the selected 'demoIGW' is shown below, with tabs for 'Details' and 'Tags'. The 'Details' tab displays the following information:

Attribute	Value
Internet gateway ID	igw-0a7ce8693fb54c095
State	Attached
VPC ID	vpc-0d93b7e5b8737ae76 demoVPC
Owner	581731927073

2c. CREATING ROUTE TABLE

The screenshot shows the AWS VPC Route Tables page. On the left, there's a navigation sidebar with various VPC-related options like Subnets, Route Tables, Internet Gateways, etc. The main area has a table titled "Create route table". A new route table named "demoROUTE" is being created, highlighted with a blue selection bar. The table includes columns for Name, Route Table ID, Explicit subnet association, Edge associations, Main, VPC ID, and Owner. Below the table, a detailed view of the "demoROUTE" table shows one route entry: Destination 172.16.0.0/16 points to Target "local" with Status "active" and Propagated "No". At the bottom right, there are links for Privacy Policy and Terms of Use.

2.d CREATING SUBNET

The screenshot shows the AWS VPC Subnets page. The left sidebar has options for Subnets, Route Tables, Internet Gateways, etc. The main area displays a table titled "Create subnet". A new subnet named "demoSUBN." is being created, highlighted with a blue selection bar. The table includes columns for Name, Subnet ID, State, VPC, IPv4 CIDR, Available IPv4, IPv6 CIDR, Availability Zone, Availability Zone ID, Route table, and Network ACL. Below the table, a detailed view of the "demoSUBN." subnet shows its configuration: Subnet ID "subnet-0f1537701b37c0aa0", VPC "vpc-0d93b7e5b8737ae76 | demoVPC", IPv4 CIDR "172.16.0.0/24", Available IPv4 "250", Availability Zone "us-east-2a", Availability Zone ID "use2-az1", Route table "rtb-0ef5ed178419260aa | demoROUTE", and Network ACL "acl-7d". At the bottom right, there are links for Privacy Policy and Terms of Use.

2e. CREATING AN EC2 IN CUSTOM VPC

The screenshot shows the AWS EC2 Instances page. A green banner at the top indicates "Password Decryption Successful" for instance i-01f0001e05e20ec0f. The main table lists two instances:

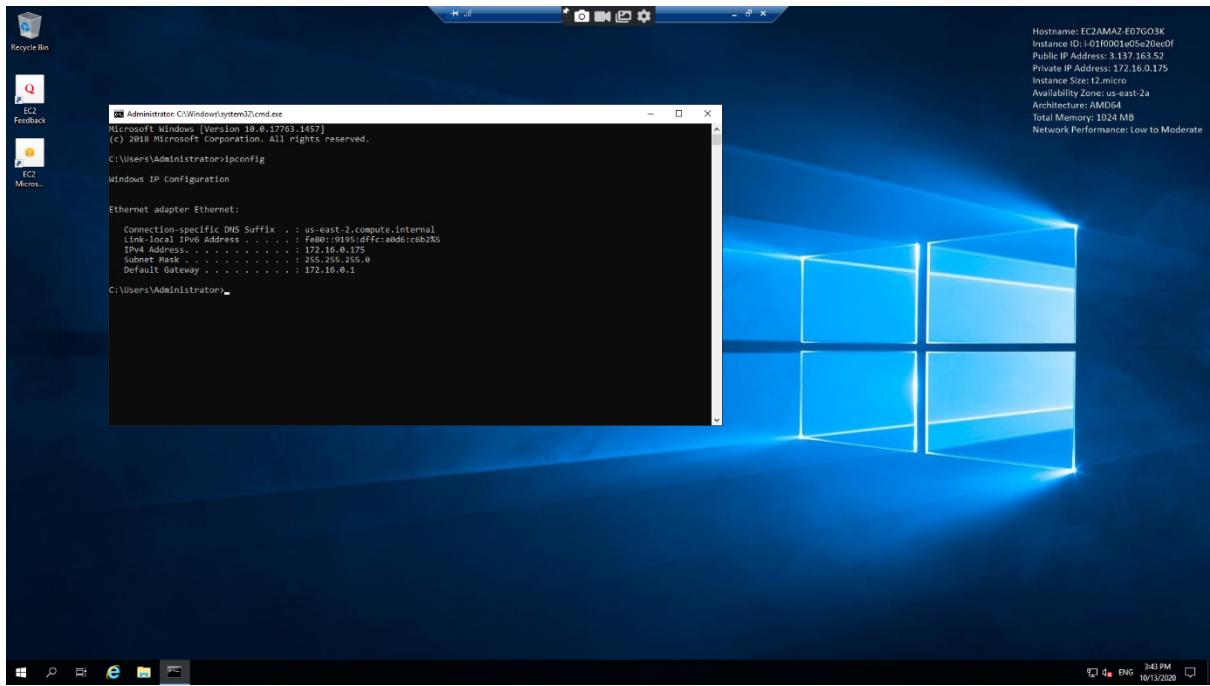
Name	Instance ID	Instance state	Instance type	Status check	Alarm Status	Availability zone	Public IPv4 DNS	Public IPv4 ...	Elastic Ip
VPCdemo	i-01f0001e05e20ec0f	Running	t2.micro	2/2 checks ...	No alarms	us-east-2a	3.137.163.52	-	-
I am s3 boots...	i-0b0049ecd507ed58e	Terminated	t2.micro	-	No alarms	us-east-2b	-	-	-

The details for the VPCdemo instance are expanded, showing:

- Instance ID: i-01f0001e05e20ec0f (VPCdemo)
- Instance state: Running
- Instance type: t2.micro
- IAM Role: -
- Platform: windows
- Public IPv4 address: 3.137.163.52
- Private IPv4 addresses: 172.16.0.175
- Public IPv4 DNS: ip-172-16-0-175.us-east-2.compute.internal
- VPC ID: vpc-0d93b7e5b8737ae76 (demoVPC)
- Subnet ID: subnet-0f1537701b57c0aa0 (demoSUBNET)
- AMI ID: ami-0ca69a9d0fd37835d
- Monitoring: disabled

2f. CHECKING IPCONFIG IN VM COMMAND PROMPT





END