

Amira Tarek Ibrahim (Lab 2 Terraform)

dev and prod workspaces

```
Releasing state lock. This may take a few moments...
• amira@amira-Lenovo-IdeaPad-Z510:~/iti_devops/terraform/lab2$ terraform workspace new prod
Created and switched to workspace "prod"!

You're now on a new, empty workspace. Workspaces isolate their state,
so if you run "terraform plan" Terraform will not see any existing state
for this configuration.
• amira@amira-Lenovo-IdeaPad-Z510:~/iti_devops/terraform/lab2$ terraform workspace show
prod
• amira@amira-Lenovo-IdeaPad-Z510:~/iti_devops/terraform/lab2$ terraform plan --var-file prod.tfvars
Acquiring state lock. This may take a few moments...

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the
following symbols:
+ create

Terraform will perform the following actions:

# aws_instance.application instance will be created
```

```
Connection to 172.0.3.202 closed.
lec2-user@ip-172-0-1-108 ~]$ exit
logout
Connection to 3.79.181.230 closed.
• amira@amira-Lenovo-IdeaPad-Z510:~/iti_devops/terraform/lab2$ terraform workspace new dev
Created and switched to workspace "dev"!

You're now on a new, empty workspace. Workspaces isolate their state,
so if you run "terraform plan" Terraform will not see any existing state
for this configuration.
• amira@amira-Lenovo-IdeaPad-Z510:~/iti_devops/terraform/lab2$ terraform plan --var-file dev.tfvars
Acquiring state lock. This may take a few moments...
data.aws_ami.amazon_linux ami: Reading...
data.aws_ami.amazon_linux ami: Read complete after 1s [id=ami-1d887a318369b6881]

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the
following symbols:
```

instances launched in different regions

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Frankfurt							
amiratarek99							
Instances (2) Info							
Find Instance by attribute or tag (case-sensitive)							
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	
application-Ins...	i-03f727fa6fef2dc70	Running	t2.micro	2/2 checks passed	No alarms	eu-central-1a	
bastion-aws	i-09b0030dfa0cadaad	Running	t2.micro	2/2 checks passed	No alarms	eu-central-1a	

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N. Virginia							
amiratarek99							
Instances (2) Info							
Find Instance by attribute or tag (case-sensitive)							
Instance state = running							
Clear filters							
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	
application-Ins...	i-011db325372929d18	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	
bastion-Instance	i-0d2c5ce822ba508bf	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	

hh

print public ip of bastion instance using local-exec provisioner in dev and prod workspaces

```
aws_instance.application_instance: Still creating... [31s elapsed]
aws_instance.bastion_instance: Provisioning with 'local exec'...
aws_instance.bastion_instance (local-exec): Executing: ["/bin/sh" "-c" "echo 3.79.181.230 "]
aws_instance.bastion_instance (local-exec): 3.79.181.230
aws_instance.bastion_instance: Creation complete after 33s [id=i-9b1f31d4f1cadaad]
aws_instance.application_instance: Still creating... [41s elapsed]
aws_instance.application_instance: Creation complete after 43s [id=i-3f727fa6fef2dc7f]
Releasing state lock. This may take a few moments...

Apply complete! Resources: 2 added, 0 changed, 0 destroyed.
amira@amira-Lenovo-IdeaPad-Z510:~/iti_devops/terraform/lab2$
```

```
module.mynetwork.aws_route_table_association.private_subnet_az1_association: Creation complete after 1s [id=fe713216d2bd6f7]
aws_instance.bastion_instance: Still creating... [1m41s elapsed]
aws_instance.bastion_instance: Still creating... [1m51s elapsed]
aws_instance.bastion_instance: Still creating... [2m1s elapsed]
aws_instance.bastion_instance: Provisioning with 'local exec'...
aws_instance.bastion_instance (local-exec): Executing: ["/bin/sh" "-c" "echo 54.225.58.68 "]
aws_instance.bastion_instance (local-exec): 54.225.58.68
aws_instance.bastion_instance: Creation complete after 2m9s [id=i-d2c5ce822ba5f8bf]
Releasing state lock. This may take a few moments...

Apply complete! Resources: 21 added, 0 changed, 0 destroyed.
amira@amira-Lenovo-IdeaPad-Z510:~/iti_devops/terraform/lab2$
```

create pipeline that takes environment parameters to apply terraform code in certain environment

```
1 pipeline {
2   agent any
3
4   parameters {
5     choice choices: ['dev', 'prod'], name: 'workspace'
6     choice choices: ['apply', 'destroy'], name: 'action'
7   }
8
9   environment {
10    workspace = "${params.workspace}"
11    action = "${params.action}"
12    AWS_ACCESS_KEY_ID= credentials('aws-access-key-id')
13    AWS_SECRET_ACCESS_KEY= credentials('aws-secret-access-key')
14  }
15  stages {
16    stage('Git') {
17      steps {
18        git branch: 'main', url: 'https://github.com/AmiraTarek99/terraform.git'
19      }
20    }
21    stage('init') {
22      steps {
23        sh 'terraform init'
24      }
25    }
26    stage('workspace') {
27      steps {
28        sh "terraform workspace new $workspace"
29        sh "terraform workspace list"
30      }
31    }
32    stage('plan') {
33      steps {
34        sh "terraform workspace select $workspace"
35        sh "terraform plan --var-file ${workspace}.tfvars"
36      }
37    }
38    stage('action') {
39      steps {
40        sh "terraform ${action} -auto-approve --var-file ${workspace}.tfvars"
41      }
42    }
43  }
44 }
```

hhh

- Status
- Changes
- Build with Parameters
- Configure
- Delete Pipeline
- Full Stage View
- Rename
- Pipeline Syntax

Pipeline terraform-pipeline

This build requires parameters:

workspace

dev

dev

prod

apply

Build

Cancel

- Status
- Changes
- Build with Parameters
- Configure
- Delete Pipeline
- Full Stage View
- Rename
- Pipeline Syntax

Pipeline terraform-pipeline

Add description

Disable Project

Stage View

Average stage times:
(Average full run time: ~2min
13s)

	Git	init	workspace	plan	action
	1s	6s	1s	11s	48s
#14 Oct 01 20:14 1 commit	1s	8s	2s	21s	1min 37s

hh

```
[0m[1maws_instance.application_instance: Still creating... [30s elapsed][0m[0m
[0m[1maws_instance.application_instance: Creation complete after 34s [id=i-0abfe0e4f9f9c4ed1][0m
[0m[1maws_instance.bastion_instance: Provisioning with 'local-exec'...[0m[0m
[0m[1maws_instance.bastion_instance (local-exec):[0m [0mExecuting: ["/bin/sh" "-c" "echo 54.80.153.192 "]
[0m[1maws_instance.bastion_instance (local-exec):[0m [0m54.80.153.192
[0m[1maws_instance.bastion_instance: Creation complete after 34s [id=i-05be40081d0d57e3b][0m
[0m[1module.mynetwork.aws_nat_gateway.natgw: Still creating... [40s elapsed][0m[0m
[0m[1module.mynetwork.aws_nat_gateway.natgw: Still creating... [50s elapsed][0m[0m
[0m[1module.mynetwork.aws_nat_gateway.natgw: Still creating... [1m0s elapsed][0m[0m
[0m[1module.mynetwork.aws_nat_gateway.natgw: Still creating... [1m10s elapsed][0m[0m
[0m[1module.mynetwork.aws_nat_gateway.natgw: Still creating... [1m20s elapsed][0m[0m
[0m[1module.mynetwork.aws_nat_gateway.natgw: Still creating... [1m30s elapsed][0m[0m
[0m[1module.mynetwork.aws_nat_gateway.natgw: Still creating... [1m40s elapsed][0m[0m
[0m[1module.mynetwork.aws_nat_gateway.natgw: Still creating... [1m50s elapsed][0m[0m
[0m[1module.mynetwork.aws_nat_gateway.natgw: Creation complete after 1m58s [id=nat-0326223de7c7c51f][0m
[0m[1module.mynetwork.aws_route_table.private-rt: Creating...[0m[0m
[0m[1module.mynetwork.aws_route_table.private-rt: Creation complete after 2s [id=rtb-012a7b4baa80ccac8][0m
[0m[1module.mynetwork.aws_route_table_association.private_subnet_az1_association[0]: Creating...[0m[0m
[0m[1module.mynetwork.aws_route_table_association.private_subnet_az1_association[1]: Creating...[0m[0m
[0m[1module.mynetwork.aws_route_table_association.private_subnet_az1_association[1]: Creation complete
after 1s [id=rtbassoc-01b6ec500de29e75b][0m
[0m[1module.mynetwork.aws_route_table_association.private_subnet_az1_association[0]: Creation complete
after 1s [id=rtbassoc-0fcefbfd3b3c532aa][0m
[0m[1m[32m
Apply complete! Resources: 21 added, 0 changed, 0 destroyed.
[0m
```

[Alt+S]


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Instances (3) Info

Connect Instance state ▼ Actions ▼ Launch instances ▼

< 1 >

Name ▼	Instance ID	Instance state ▼	Instance type ▼	Status check	Alarm status	Availability Zo
bastion-instance	i-0000be0f5ed608d1a	⊖ Terminated ⓘ🔍	t2.micro	-	No alarms +	us-east-1a
bastion-instance	i-063c874bfd004b106	✅ Running ⓘ🔍	t2.micro	✅ 2/2 checks passed	No alarms +	us-east-1a
application-ins...	i-0bd2023e829cd3489	✅ Running ⓘ🔍	t2.micro	✅ 2/2 checks passed	No alarms +	us-east-1a



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Congratulations!

You have successfully verified an email address. You can now start sending email from this address.

For new Amazon SES users — If you have not yet applied for a sending limit increase, then you are still in the [sandbox environment](#), and you can only send email to addresses that have been verified. To verify a new email address or domain, see the **Identity Management** section of the [Amazon SES console](#).

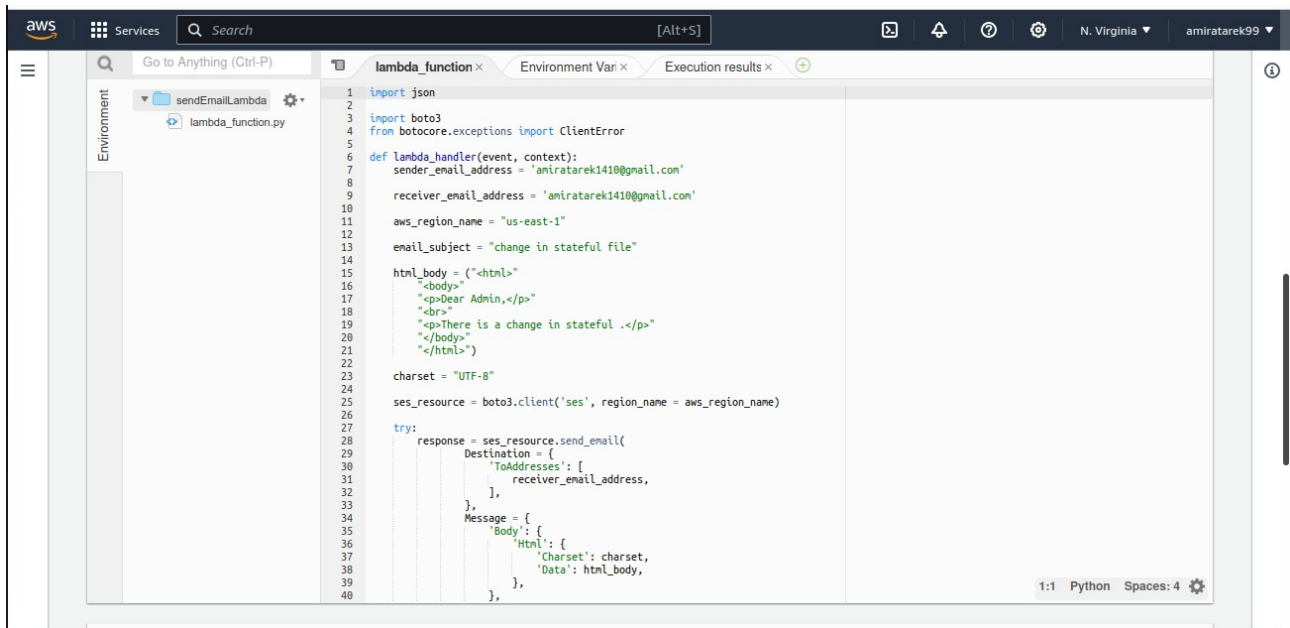
For new Amazon Pinpoint users — If you have not yet applied for a sending limit increase, then you are still in the [sandbox environment](#), and you can only send email to addresses that have been verified. To verify a new email address or domain, see the **Settings > Channels** page on the [Amazon Pinpoint console](#).

If you have already been approved for a sending limit increase, then you can start sending email to non-verified addresses.

Thank you for using Amazon Web Services!

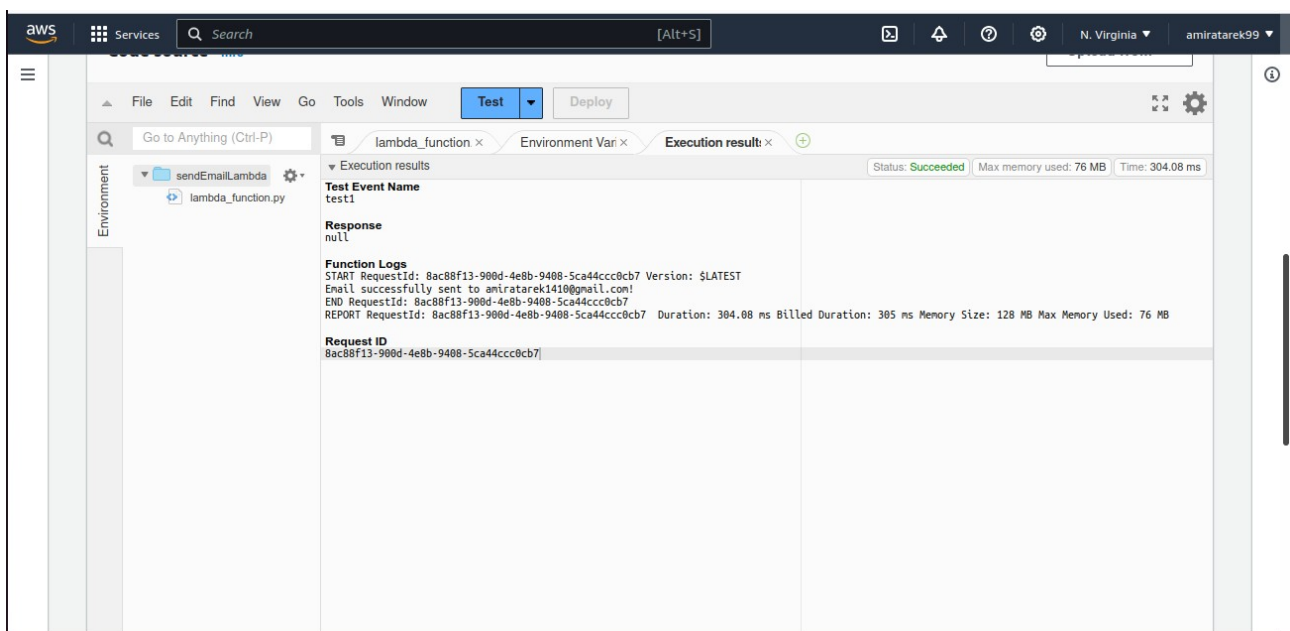
[Go to the Amazon SES detail page.](#)

create lambda function and triggered it by s3 bucket if any change has occurred in the state to send an email by changes



The screenshot shows the AWS Lambda console with the 'lambda_function' tab selected. The code is written in Python and defines a lambda handler that sends an email when triggered. The code is as follows:

```
1 import json
2
3 import boto3
4 from botocore.exceptions import ClientError
5
6 def lambda_handler(event, context):
7     sender_email_address = 'amiratarek1410@gmail.com'
8
9     receiver_email_address = 'amiratarek1410@gmail.com'
10
11     aws_region_name = "us-east-1"
12
13     email_subject = "change in stateful file"
14
15     html_body = ("<html>"
16                 "<body>"
17                 "<p>Dear Admin,</p>"
18                 "<br>"
19                 "<p>There is a change in stateful .</p>"
20                 "</body>"
21                 "</html>")
22
23     charset = "UTF-8"
24
25     ses_resource = boto3.client('ses', region_name = aws_region_name)
26
27     try:
28         response = ses_resource.send_email(
29             Destination = {
30                 'ToAddresses': [
31                     receiver_email_address,
32                 ],
33             },
34             Message = {
35                 'Body': {
36                     'Html': {
37                         'Charset': charset,
38                         'Data': html_body,
39                     },
40                 },
41             },
42         )
```



The screenshot shows the AWS Lambda console with the 'Execution results' tab selected. The status is 'Succeeded'. The function logs show the email being sent successfully. The request ID is 8ac88f13-900d-4e8b-9408-5ca44ccc0cb7.

Test Event Name: test1

Response: null

Function Logs:

```
START RequestId: 8ac88f13-900d-4e8b-9408-5ca44ccc0cb7 Version: $LATEST
Email successfully sent to amiratarek1410@gmail.com!
END RequestId: 8ac88f13-900d-4e8b-9408-5ca44ccc0cb7
REPORT RequestId: 8ac88f13-900d-4e8b-9408-5ca44ccc0cb7 Duration: 304.08 ms Billed Duration: 305 ms Memory Size: 128 MB Max Memory Used: 76 MB
```

Request ID: 8ac88f13-900d-4e8b-9408-5ca44ccc0cb7

