Website Uptime Monitor using AWS

Project Overview

This project implements a Website Uptime Monitoring System using AWS managed services. The system continuously monitors the availability of a website and automatically sends email alerts when the website becomes unavailable.

The solution is serverless, cost-effective, and suitable for real-world production monitoring as well as interview demonstrations.

Objective

- Monitor website availability (HTTP/HTTPS)
- Detect downtime automatically
- Trigger alerts within 1 minute of failure
- Send email notifications when downtime occurs

Step-by-Step Implementation

Step 1: Create Route 53 Health Check

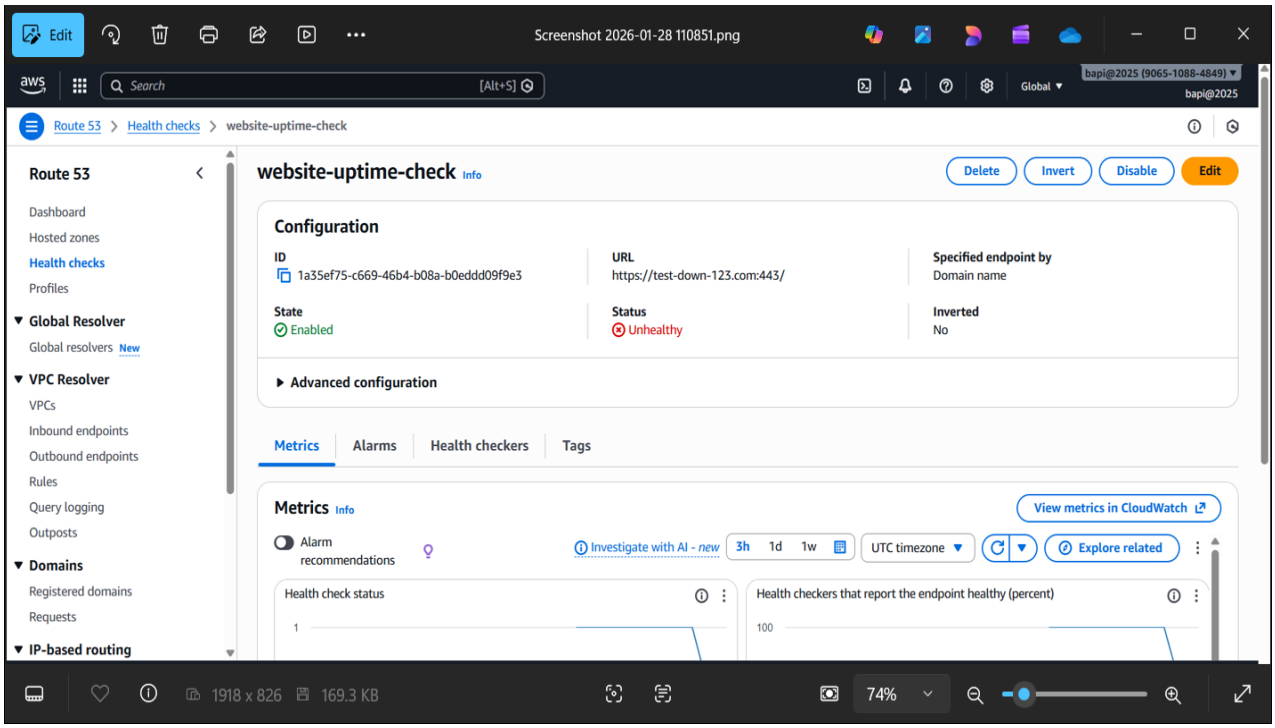
AWS Console Path: Route 53 → Health checks → Create health check

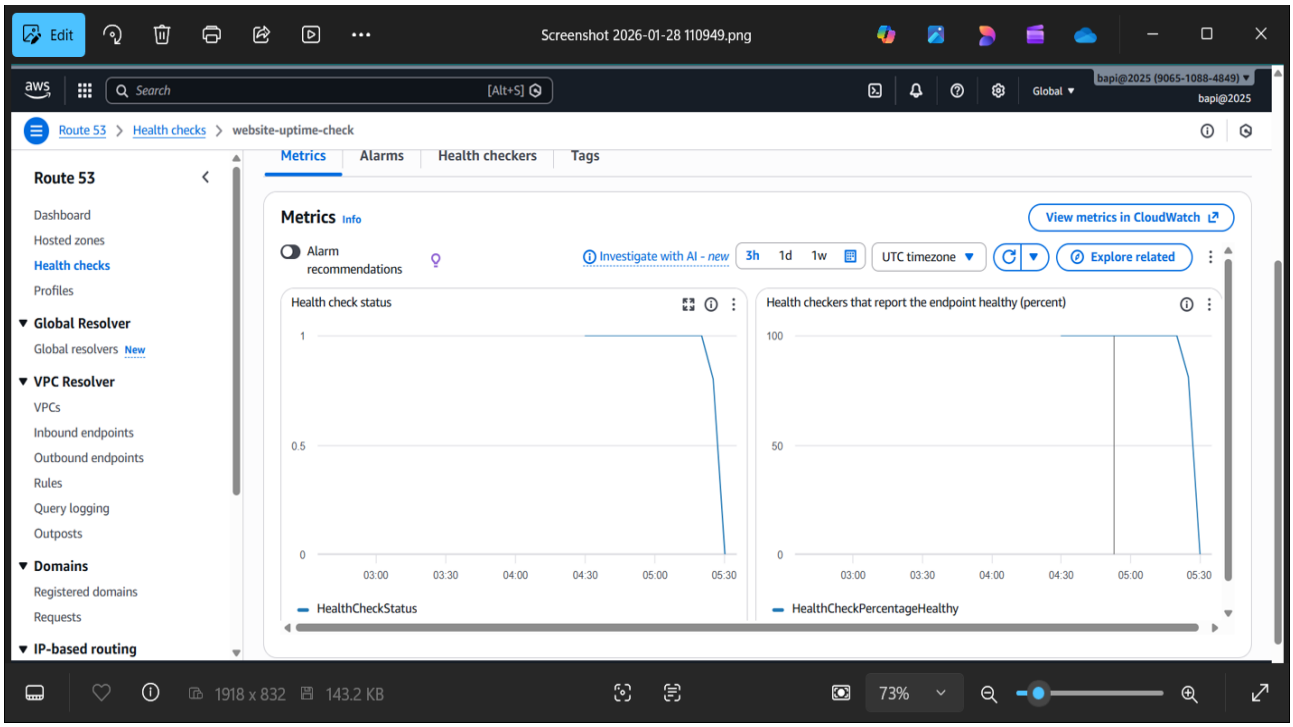
Configuration:

- Name: website-uptime-check
- Resource: Endpoint
- Endpoint type: Domain name
- Protocol: HTTPS
- Domain name: test-down-123.com
- Port: 443
- Path: /

- Request interval: 30 seconds
- Failure threshold: 3
- Health checker regions: Multiple regions selected

  This health check continuously monitors the website availability.





Step 2: Verify Health Check Status

After creation, the health check status is visible in Route 53:

- Healthy (1) → Website is UP
- Unhealthy (0) → Website is DOWN

This confirms that AWS is actively monitoring the endpoint.

Step 3: Monitor Health Metrics

Metrics Available:

- HealthCheckStatus (1 = Up, 0 = Down)
- HealthCheckPercentageHealthy

These metrics are automatically published to CloudWatch.

Step 4: Create CloudWatch Alarm

AWS Console Path: CloudWatch → Alarms → Create alarm

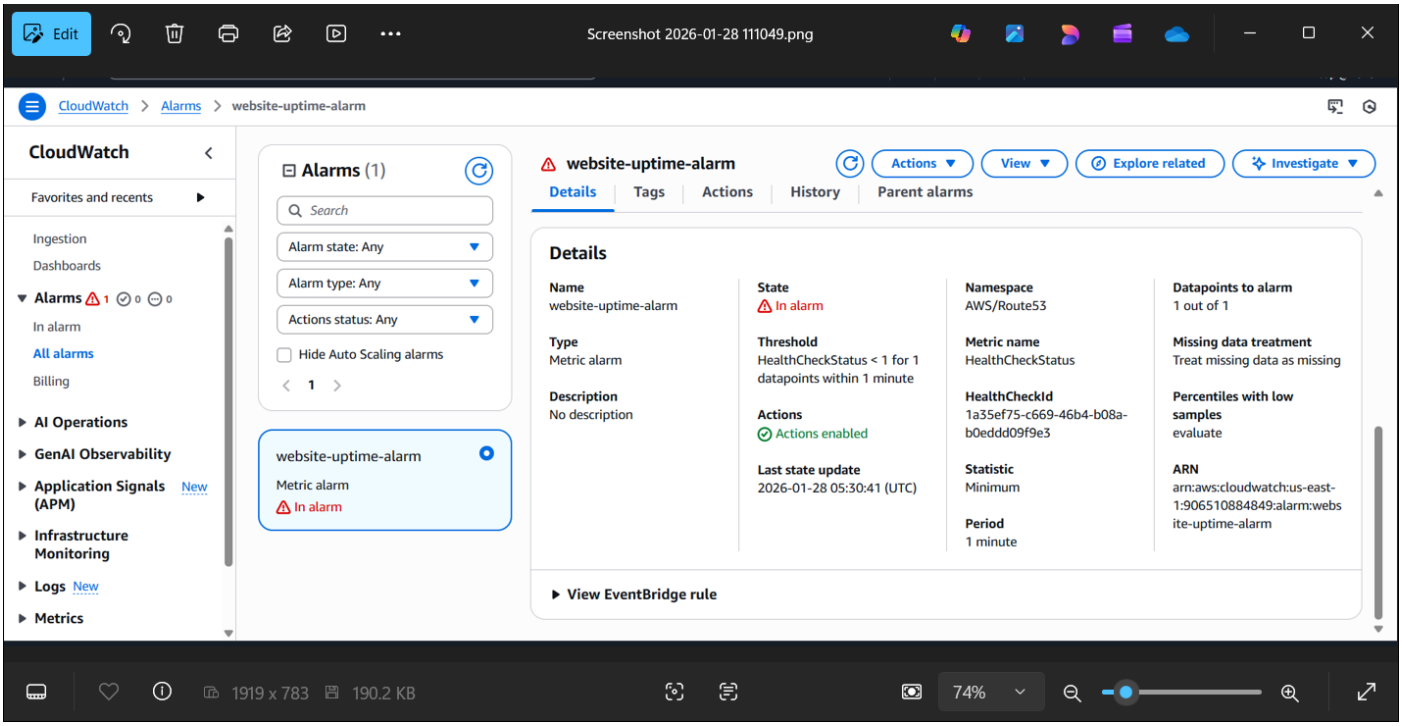
Metric Selection:

- Namespace: AWS/Route53
- Metric: HealthCheckStatus
- HealthCheckId: Select the created health check

Alarm Condition:

- Threshold type: Static
- Condition: Lower than 1
- Period: 1 minute
- Datapoints: 1 out of 1

Meaning: If the website goes down even once within a 1-minute period, the alarm triggers.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Screenshot 2026-01-28 111049.png
CloudWatch > Alarms > website-uptime-alarm
CloudWatch
Favorites and recents
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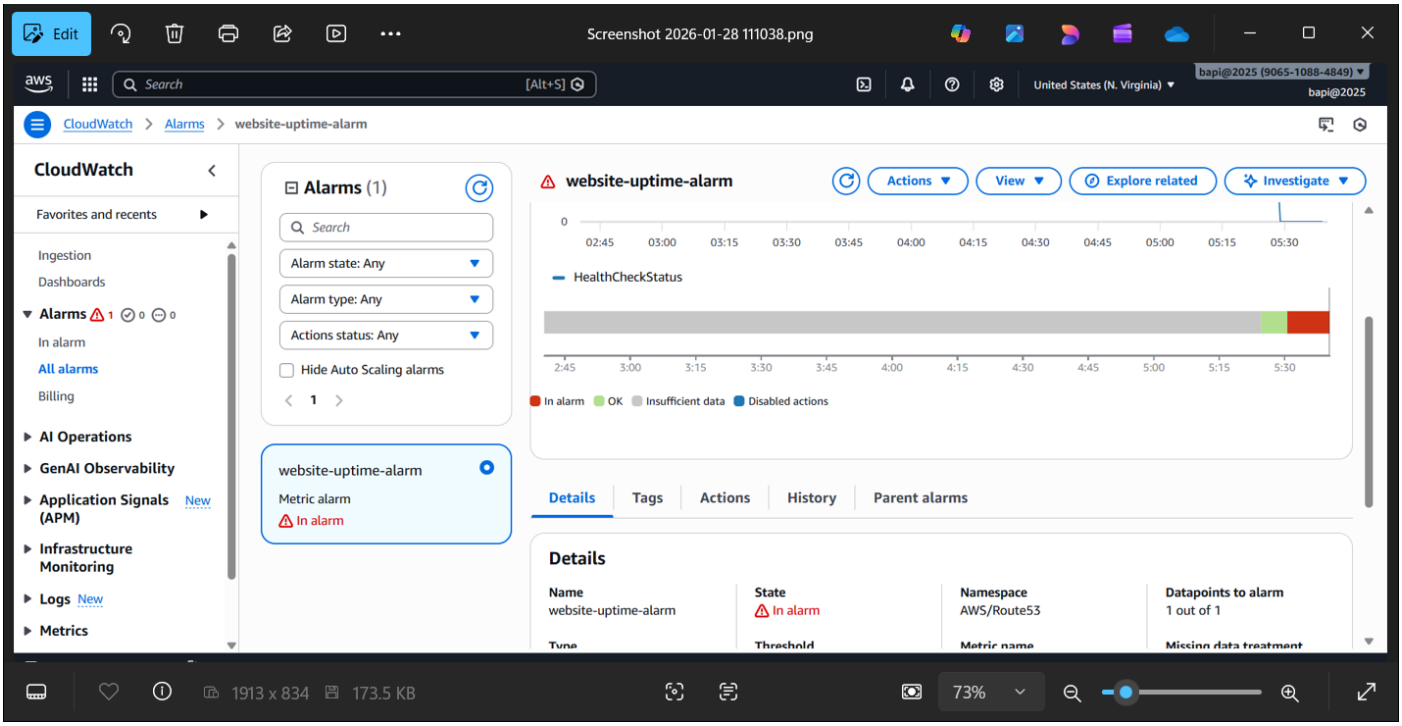
Dashboards
Alarms 1 0 0
In alarm
All alarms
Billing
AI Operations
GenAI Observability
Application Signals (APM) New
Infrastructure Monitoring
Logs New
Metrics
Alarms (1)
Search
Alarm state: Any
Alarm type: Any
Actions status: Any
Hide Auto Scaling alarms
1
website-uptime-alarm
Metric alarm
In alarm
website-uptime-alarm
Actions
View
Explore related
Investigate
Details
Tags
Actions
History
Parent alarms
Details
Name
website-uptime-alarm
State
In alarm
Namespace
AWS/Route53
Datapoints to alarm
1 out of 1
Type
Metric alarm
Threshold
HealthCheckStatus < 1 for 1 datapoints within 1 minute
Metric name
HealthCheckStatus
Missing data treatment
Treat missing data as missing
Description
No description
Actions
Actions enabled
HealthCheckId
1a35ef75-c669-46b4-b08a-b0eddd09f9e3
Percentiles with low samples
evaluate
Last state update
2026-01-28 05:30:41 (UTC)
Statistic
Minimum
ARN
arn:aws:cloudwatch:us-east-1:906510884849:alarm:website-uptime-alarm
Period
1 minute
View EventBridge rule
1919 x 783
190.2 KB
74%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aws
Search
[Alt+S]
United States (N. Virginia)
bapi@2025 (9065-1088-4849)
bapi@2025
CloudWatch > Alarms > website-uptime-alarm
CloudWatch
Favorites and recents
Ingestion
Dashboards
Alarms 1 0 0
In alarm
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Application Signals (APM) New
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Search
Alarm state: Any
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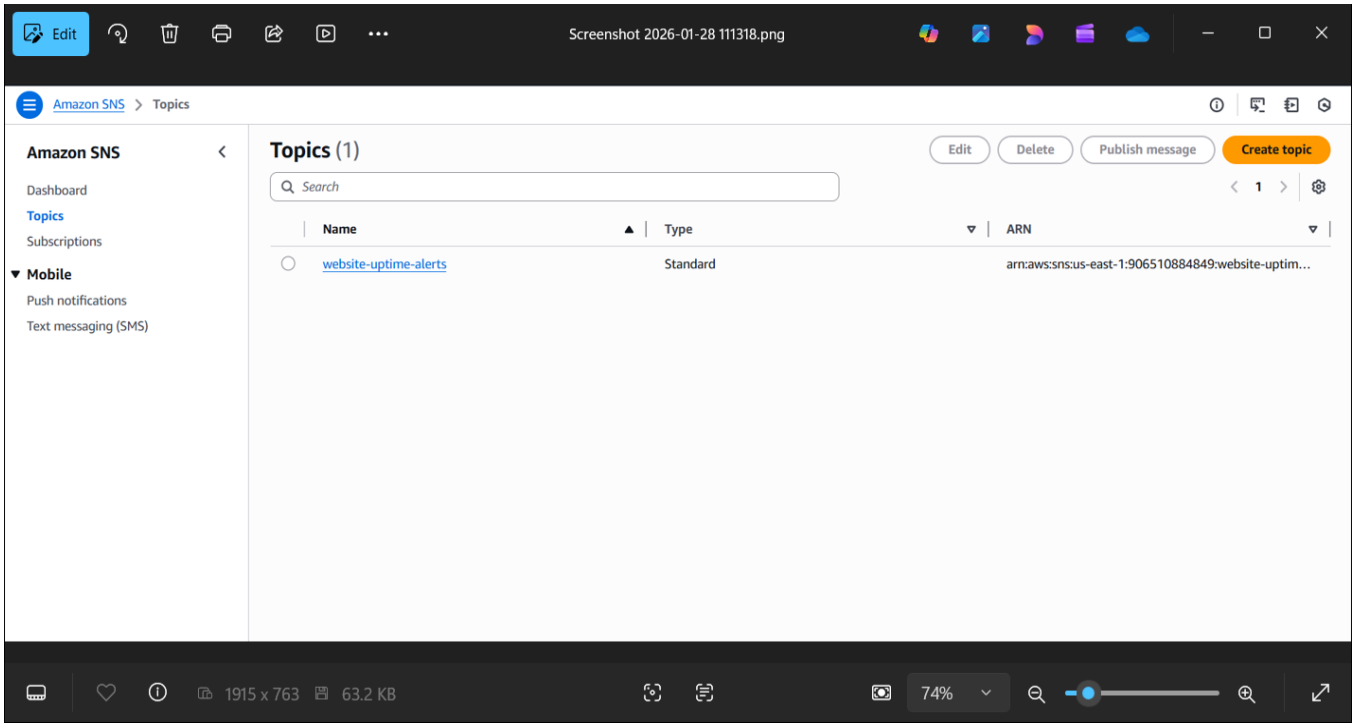
Actions status: Any
Hide Auto Scaling alarms
1
website-uptime-alarm
Metric alarm
In alarm
website-uptime-alarm
Actions
View
Explore related
Investigate
0
02:45
03:00
03:15
03:30
03:45
04:00
04:15
04:30
04:45
05:00
05:15
05:30
HealthCheckStatus
In alarm
OK
Insufficient data
Disabled actions
Details
Tags
Actions
History
Parent alarms
Details
Name
website-uptime-alarm
State
In alarm
Namespace
AWS/Route53
Datapoints to alarm
1 out of 1
Type
Threshold
Metric name
Missing data treatment
1913 x 834
173.5 KB
73%

Step 5: Create SNS Topic

AWS Console Path: Amazon SNS → Topics → Create topic

Configuration:

- Topic name: website-uptime-alerts
- Type: Standard



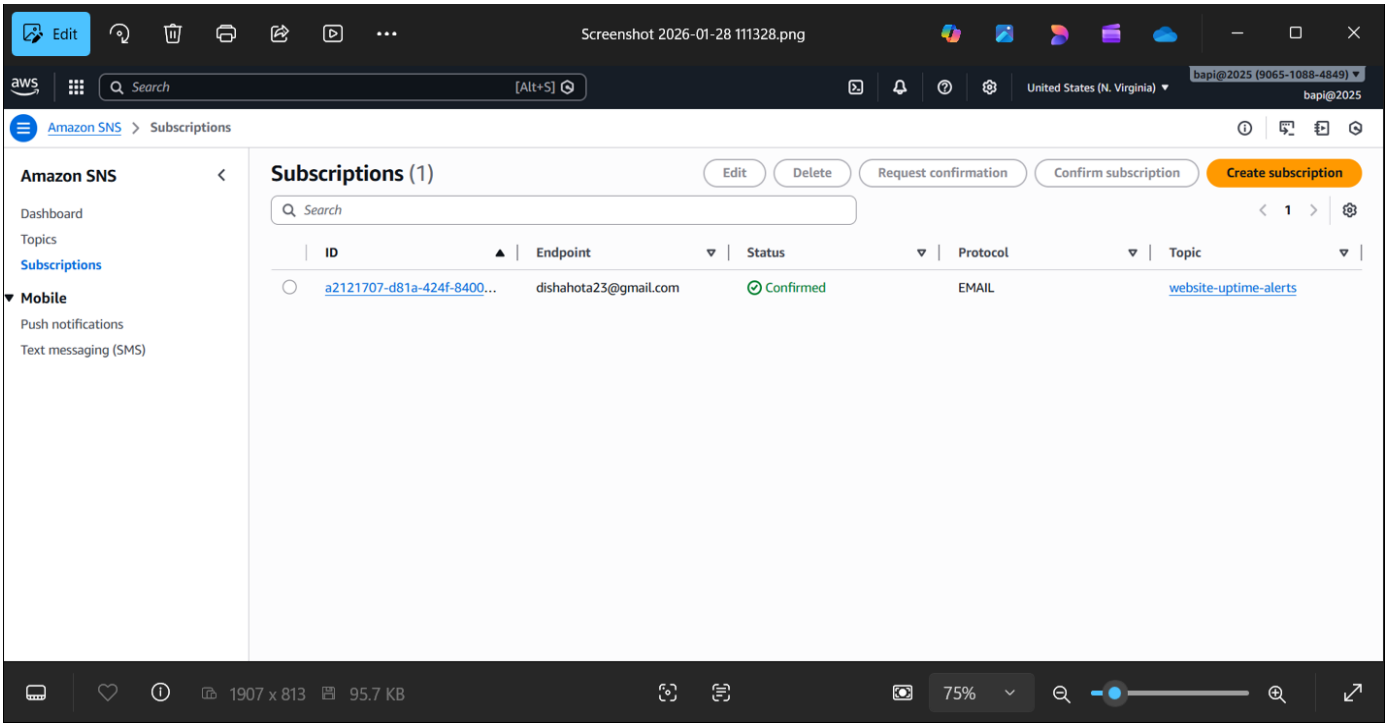
Step 6: Create SNS Email Subscription

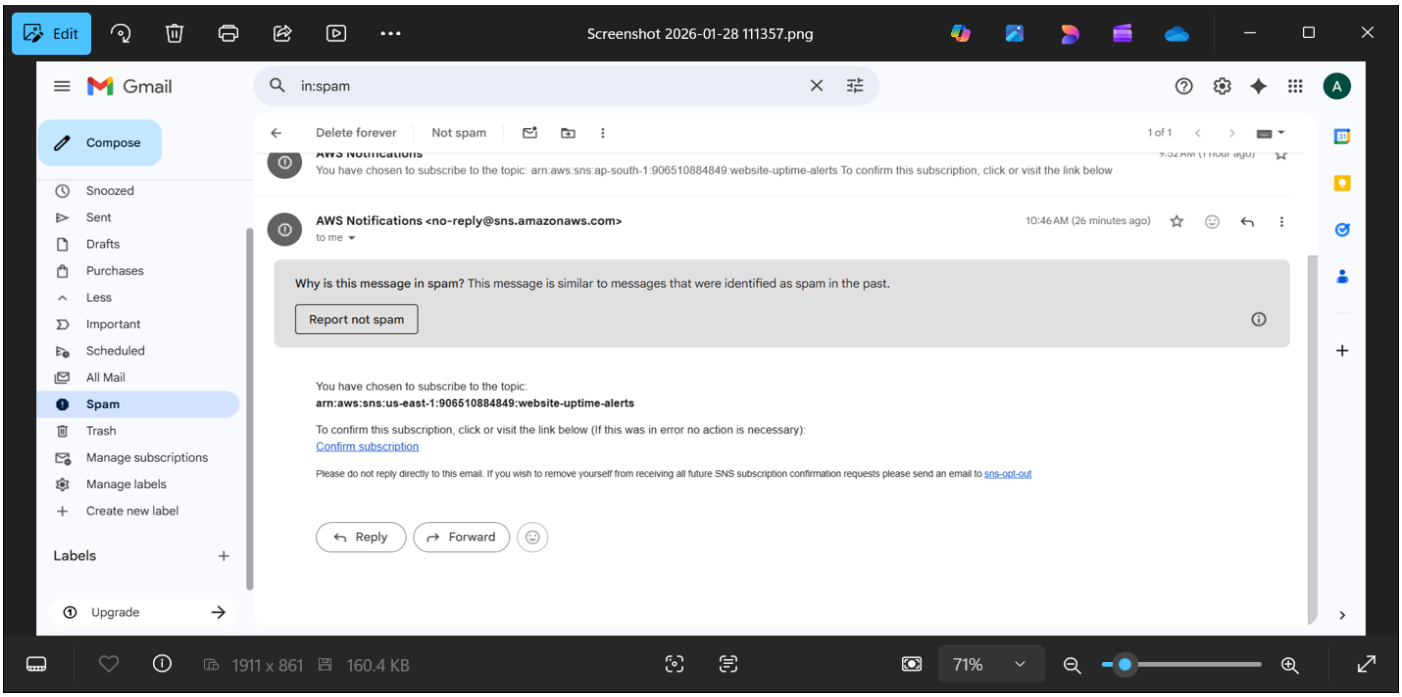
AWS Console Path: SNS → Subscriptions → Create subscription

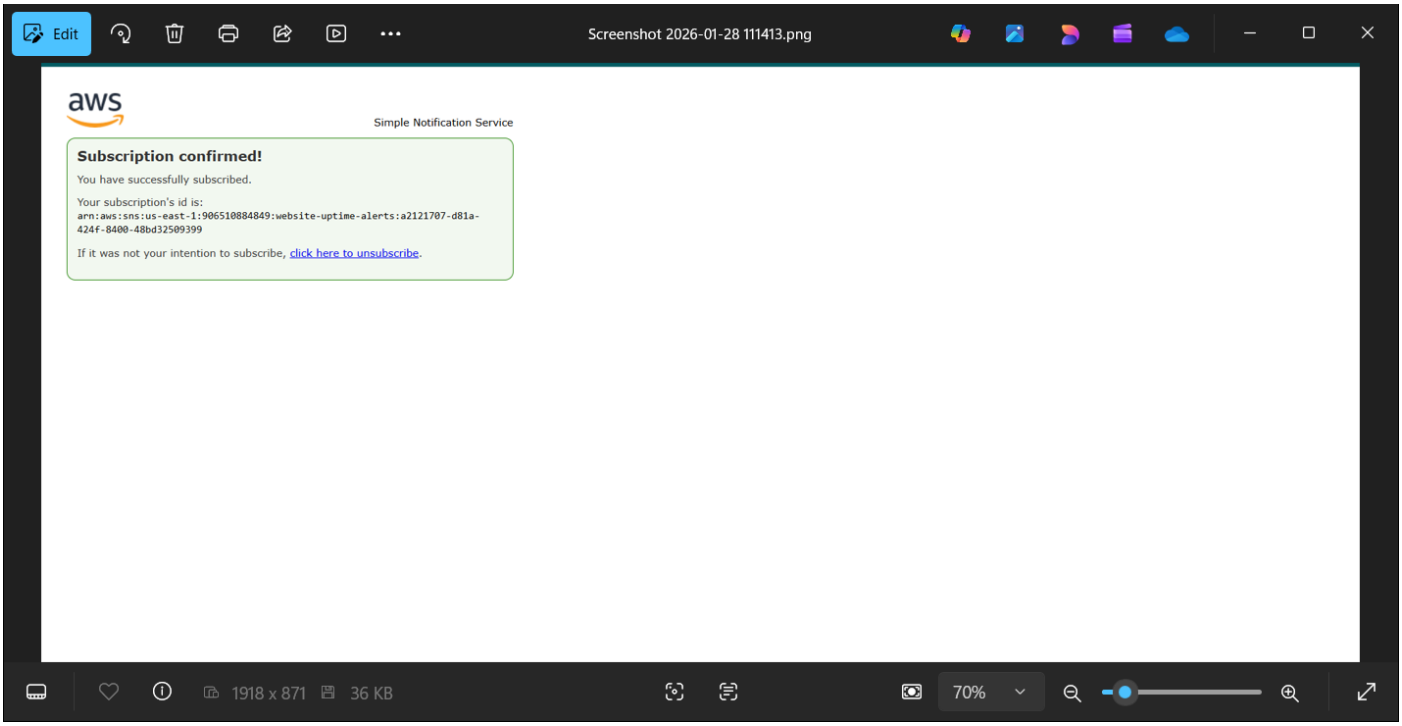
Configuration:

- Topic: website-uptime-alerts
- Protocol: Email
- Endpoint: your-dishahota23@gmail.com

The subscription is confirmed via email.





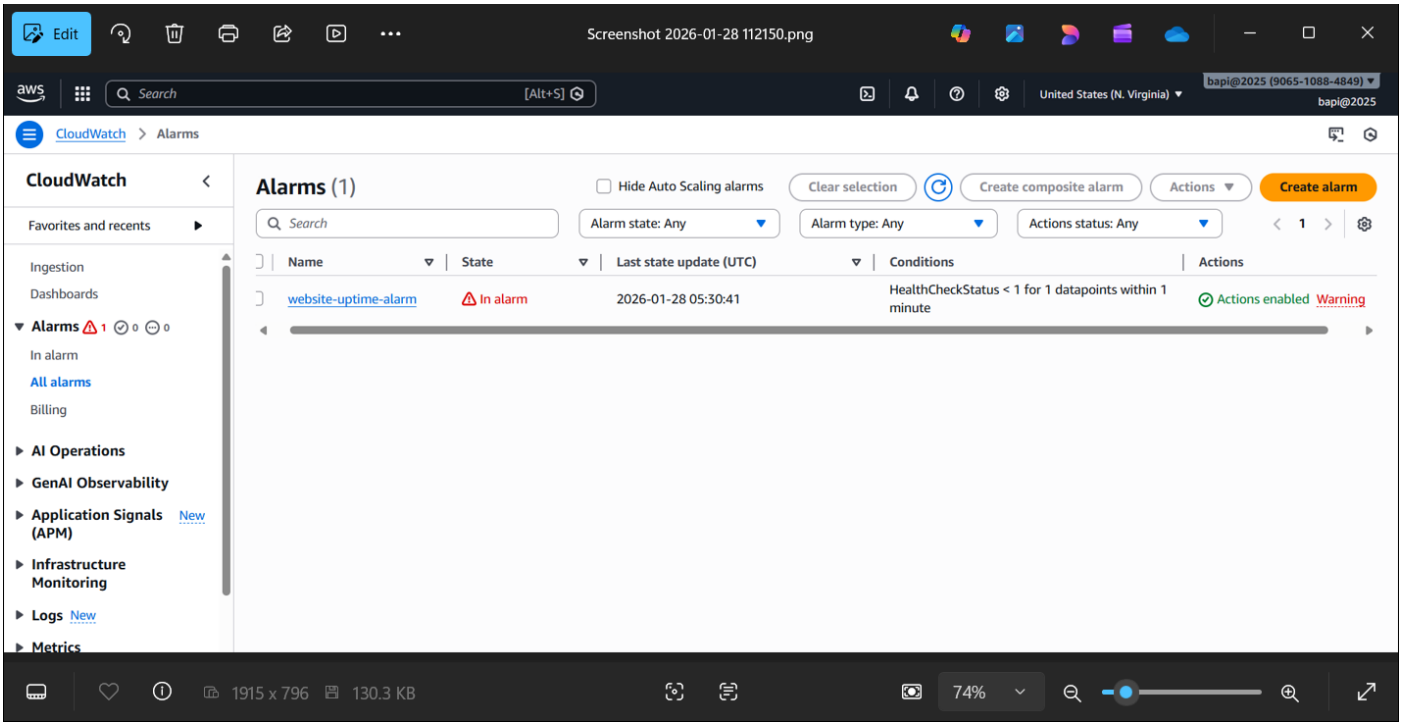


Step 7: Attach SNS to CloudWatch Alarm

In the CloudWatch Alarm configuration:

- Alarm state trigger: In alarm
- Notification target: website-uptime-alerts

This connects downtime detection to email alerts.



Step 8: Simulate Website Failure

A test domain (test-down-123.com) is used to simulate downtime. When the endpoint becomes unreachable:

- Route 53 marks it as Unhealthy
- CloudWatch Alarm enters ALARM state
- SNS sends an email notification