



## AWS Project Documentation

# Build a Daily News Digest Emailer Using AWS (Serverless)



# Notes

## BUILD A DAILY NEWS DIGEST EMAILER USING AWS

### AWS Secrets Manager



- It is a service to store, manage, and access sensitive information.( API keys, passwords).
- It helps avoid hardcoding secrets in code or configuration files.
- Use case: Store a database password or API key used by Lambda securely.

### AWS EventBridge



- It's a serverless event bus to schedule and route events between AWS services or custom apps.
- Often used for automated workflows, like triggering a Lambda on a schedule or event.
- Use case: Run a Lambda function every day at 9 AM to fetch news headlines.

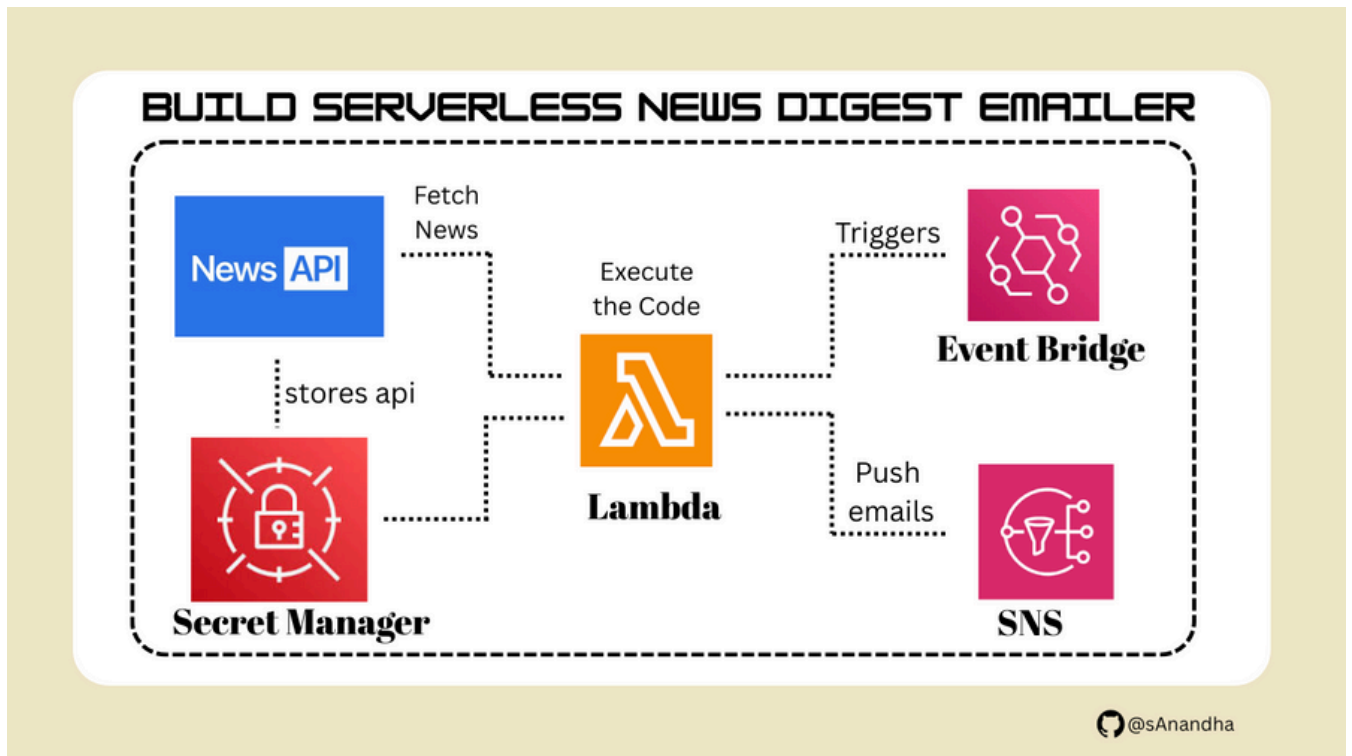
### AWS SNS (Simple Notification Service)



- A fully managed pub/sub messaging service for sending alerts or notifications.
- Supports email, SMS, mobile push, and other endpoints by publish a message to a topic, and all subscribers receive it instantly.
- Use case: Send a daily news digest email to a group of subscribers.

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## ARCHITECTURE DIAGRAM:



## Architecture Overview :

The diagram shows:

- EventBridge triggers the Lambda function on a schedule (e.g., daily).
- Lambda fetches news from News API using the key stored in Secrets Manager.
- Lambda processes the news and sends it via SNS.
- SNS pushes the news digest to subscribed email recipients.

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 Steps to building your Serverless News Digest Emailer using AWS

## 1. Create a NewsAPI Account

- Go to <https://newsapi.org/>
- Sign up using your email ID.
- After verification, go to your dashboard.
- Copy the API key from the dashboard.

## 2. Store the API Key in AWS Secrets Manager

- Open the AWS Console and go to Secrets Manager.
- Click "Store a new secret".
- Choose Other type of secret, then add a key-value pair (e.g., newsapi\_key: YOUR\_KEY).
- Give it a name like newsapi/secret and leave other settings default.
- Save the ARN of the secret (you'll need it later).

## 3. Create an AWS Lambda Function

- Go to AWS Lambda service.
- Click Create function, choose Author from scratch.
- Name it (e.g., NewsDigestFunction).
- Choose Python 3.10 or any runtime you prefer.
- Create or choose an execution role with basic Lambda permissions.
- After creation, go to the function's Configuration > Permissions tab.

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## 4. Attach Permissions to Lambda

Ensure the Lambda role has the following:

- SecretsManagerReadWrite – to access the secret key.
- SNSFullAccess – to publish messages.
- CloudWatchLogs – for debugging and logs.

(Add these via IAM Policies under the Lambda role.)



## 5. Add Lambda Layer (Optional & Recommended)

- If you need external Python libraries (e.g., requests), create a Lambda Layer:
  - Package the required libraries.
  - Upload as a layer.
  - Attach the layer to your function under Configuration > Layers.



## 6. Create an SNS Topic

- Go to Amazon SNS in the AWS Console.
- Click Create Topic, choose Standard.
- Name it (e.g., DailyNewsTopic).
- Once created, go to the topic's Subscriptions tab.
- Click Create Subscription:
  - Protocol: Email
  - Endpoint: Enter your email address.
- Confirm the subscription by clicking the link received in your email.

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## 7. Create a Rule in Amazon EventBridge

- Open Amazon EventBridge.
- Go to Rules > Create rule.
- Name it (e.g., DailyTriggerRule).
- Choose Schedule pattern (e.g., every day at 9 AM).
- As target, choose the Lambda function you created.
- Enable the rule and save.



## 8. Test the Entire Flow

- Go to your Lambda function.
- Trigger it manually to check if:
  - News is fetched using the API key from Secrets Manager.
  - The email is received.



## 9. Monitor and Debug

- Use CloudWatch Logs to monitor Lambda execution and debug if needed.
- Check EventBridge and SNS dashboards for events and delivery status.



## 10. (Optional) Set Region Consistency

- Make sure all services (Lambda, EventBridge, SNS, Secrets Manager) are created in the same AWS Region

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## SAMPLE OUTPUT :

The screenshot displays three screenshots from the AWS console:

- Top Screenshot:** An email titled "Daily News Update" from "Sample Event with Sns notification". It contains news links and unsubscribe instructions.
- Middle Screenshot:** The AWS Lambda console for the "newsNotifierLambda" function. It shows the function overview with an EventBridge trigger and the code source in "lambda\_function.py".
- Bottom Screenshot:** The Amazon EventBridge console showing the "InvokeLambdaEvery5Minutes" rule. It details the rule configuration, event schedule (fixed rate of 5 minutes), and the target "newsNotifierLambda".

```
1 import boto3
2 import json
3 import requests
4
5 def lambda_handler(event, context):
6     print("Lambda triggered!")
7     print("Event:", event)
8     secret_name = "NewsAPISecret"
```