😊 AWS Secrets Manager

AWS Secrets Manager is a service provided by Amazon Web Services (AWS) that helps you securely manage and rotate secrets, such as database credentials, API keys, and other sensitive information. Here's an overview of its key features:

Key Features:

1. **Secret Storage**:
    - Stores secrets securely using encryption.
    - Secrets are encrypted at rest using AWS KMS (Key Management Service) keys.
2. **Automatic Rotation**:
    - Allows you to automatically rotate secrets according to a schedule you define, reducing the risk of expired or compromised credentials.
3. **Fine-Grained Access Control**:
    - Uses AWS IAM (Identity and Access Management) to control access to secrets, ensuring only authorized users or services can retrieve them.
4. **Audit Logging**:
    - Integrates with AWS CloudTrail to log and monitor all actions taken on secrets, providing an audit trail for compliance and security purposes.
5. **Versioning**:
    - Supports multiple versions of a secret, allowing you to manage and reference different versions during secret updates or rotations.
6. **Integration with Other AWS Services**:
    - Easily integrates with AWS services like Amazon RDS, Amazon Redshift, and Amazon ECS, enabling seamless management of secrets used by these services.

Common Use Cases:

- **Database Credentials**: Securely store and automatically rotate credentials for databases like MySQL, PostgreSQL, and more.
- **API Keys**: Manage and rotate API keys for third-party services.
- **Application Secrets**: Store sensitive application configuration data, such as tokens or credentials, securely.

Benefits:

- **Enhanced Security**: Secrets are encrypted, rotated, and access is tightly controlled.
- **Reduced Risk**: Automated rotation and versioning help reduce the risks associated with stale or compromised secrets.

- **Compliance Support**: Logging and monitoring through CloudTrail support compliance with security and regulatory requirements.

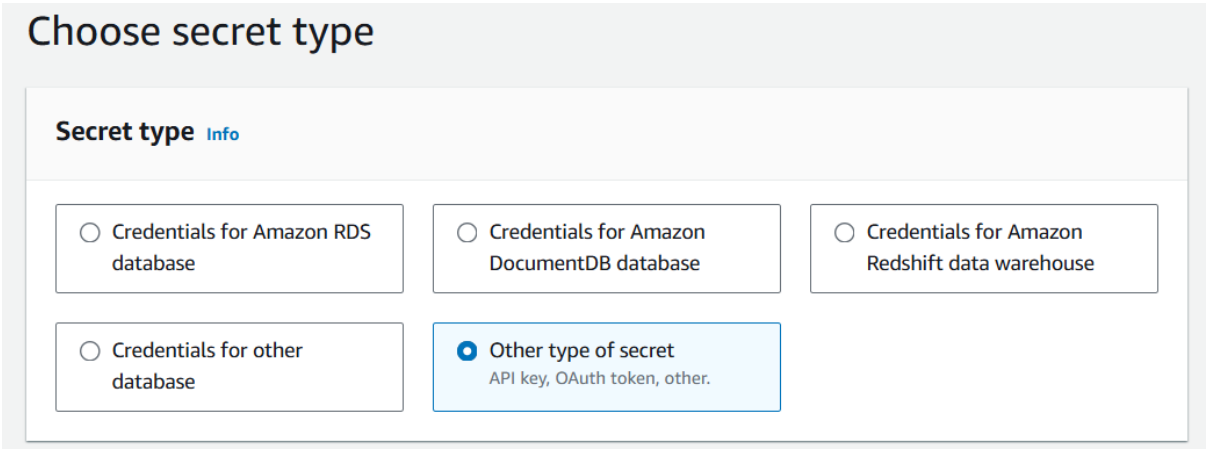
AWS Secrets Manager is particularly useful in DevOps environments, where secure and automated management of sensitive information is critical for maintaining security and operational efficiency.

You're securely saving important information like a username and password in AWS Secrets Manager. You create a new secret by entering your details, giving it a name, and then storing it. Once saved, you can easily view the secret whenever needed if you have the appropriate permission, and you'll also get some code to help use it in your application. The main purpose is to keep your sensitive information safe and easily accessible when needed.

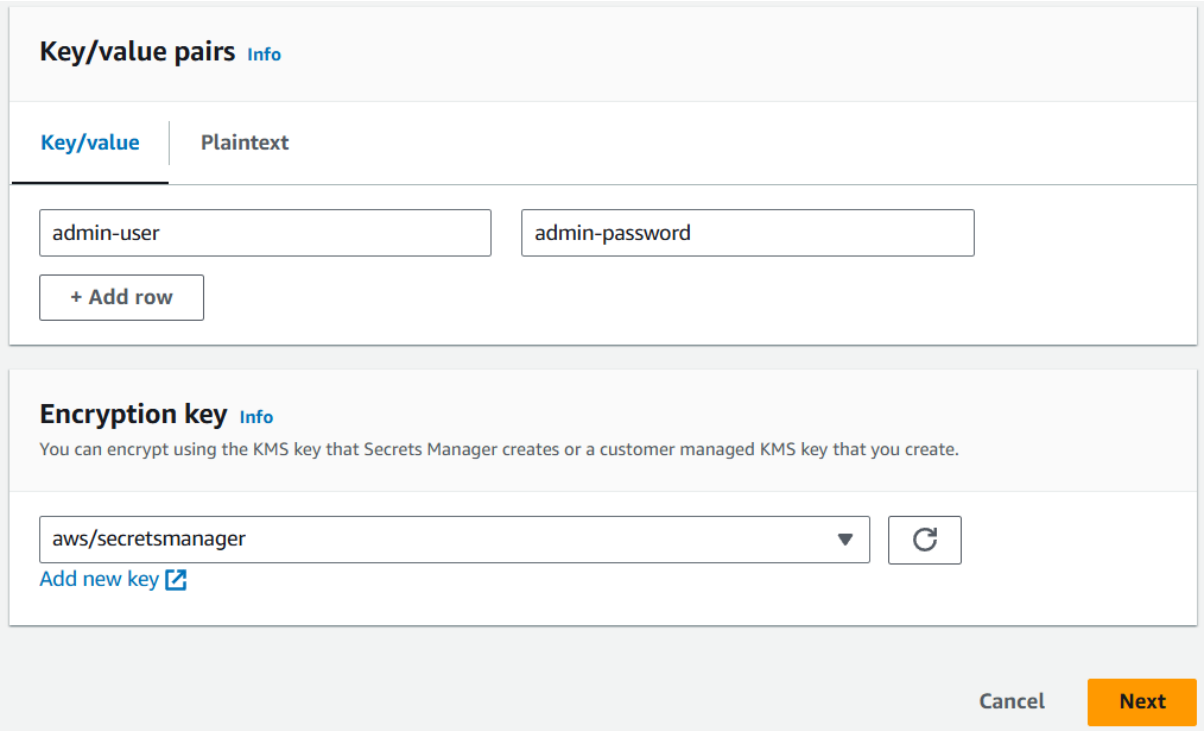
😄 To begin with the Lab:

1. In your Amazon console search and navigate to Secrets Manager. Below is the dashboard for Secrets Manager. Click on store a new secret.

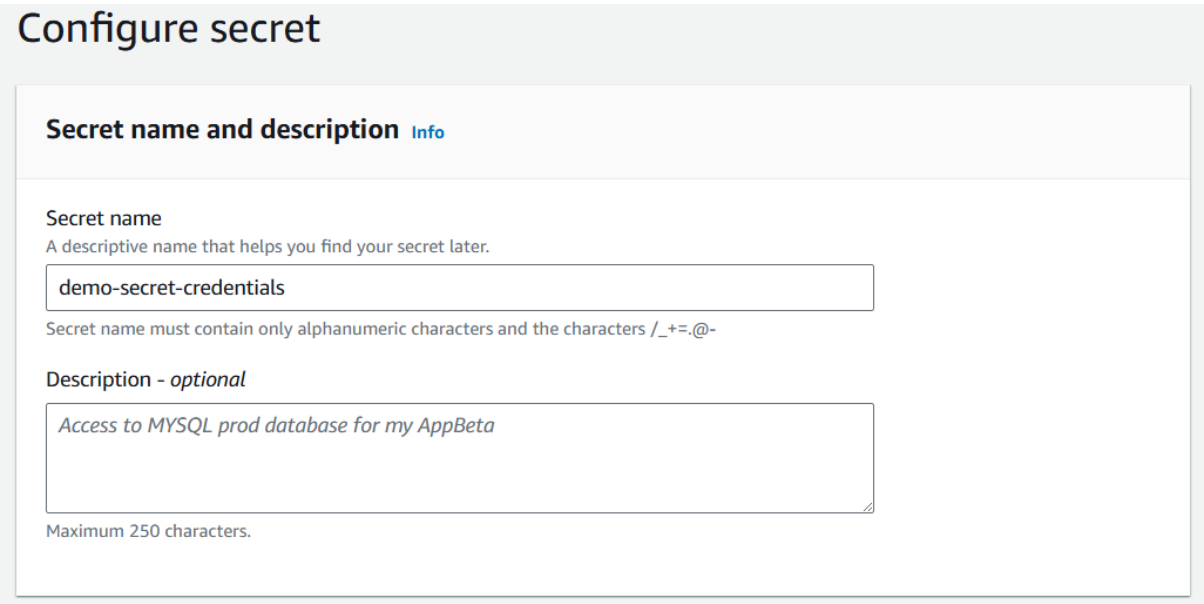
2. In the secret type you can see multiple options but for the simplicity choose other type of secrets.



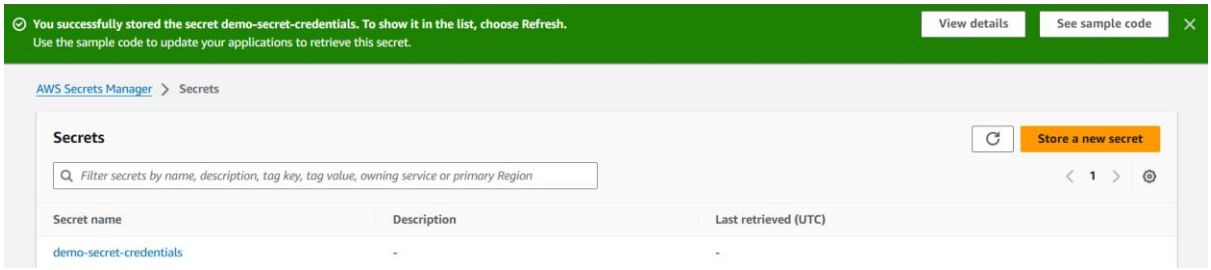
3. Then in the Key Value give your user and password as you can see below and click on next.



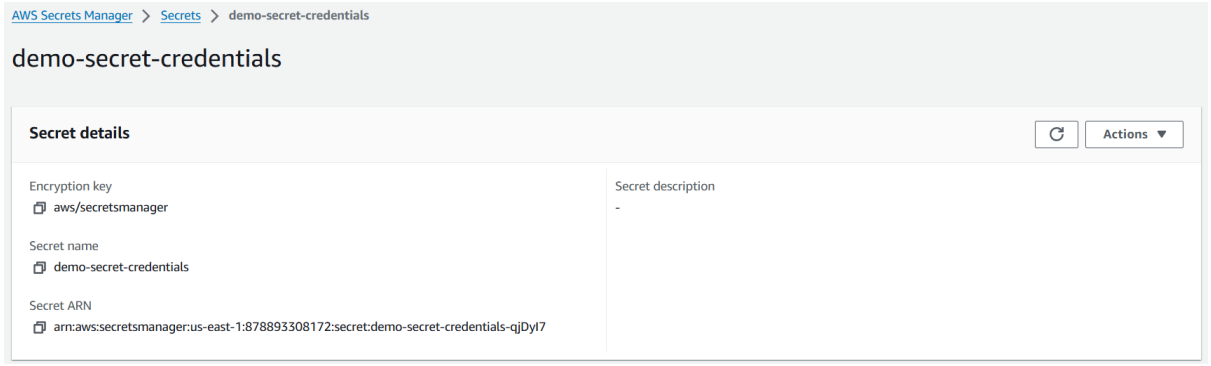
4. Now you need give your secret a name and click on next. After that skip step 3 and move to review page to store your secret.



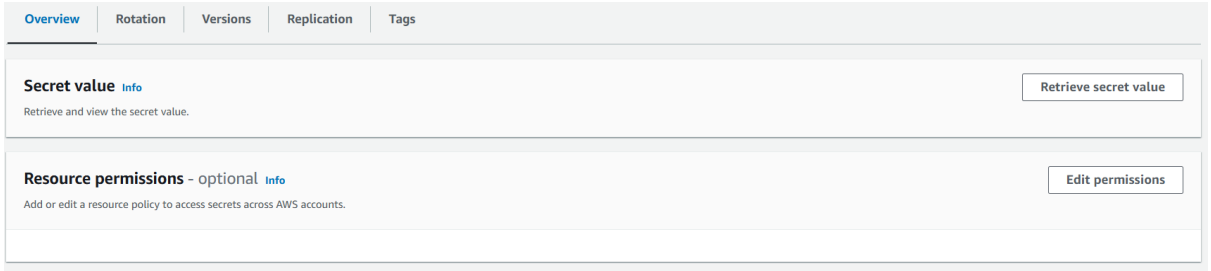
5. Below you can see that our Secret has been created.

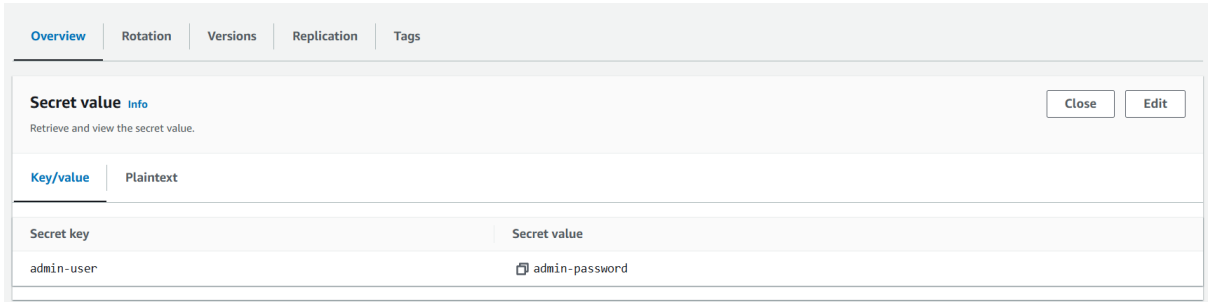


6. Now if you go inside of your secret then you can have the overview of your Secret.

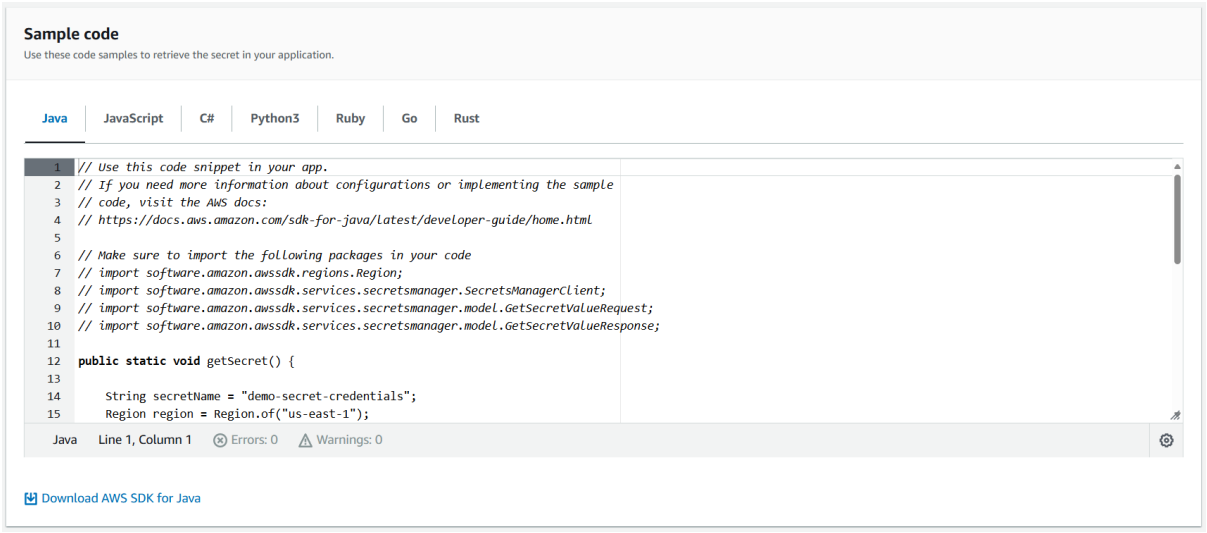


7. If you click on retrieve secret value, you can view your secret.





8. Also, you can see that you have the sample code which you can use for your application.



9. You can also view your Secret in CLI. You have to configure CLI in your laptop then run the below commands.
10. The first command will describe your secret and the second command will show you're the value of your secrete such as your username and password.

    aws secretsmanager describe-secret --secret-id demo-secret-credentials

    aws secretsmanager get-secret-value --secret-id demo-secret-credentials --version-stage AWSCURRENT

```
C:\>aws secretsmanager describe-secret --secret-id demo-secret-credentials
{
    "ARN": "arn:aws:secretsmanager:us-east-1:878893308172:secret:demo-secret-credentials-qjDyI7",
    "Name": "demo-secret-credentials",
    "LastChangedDate": "2024-09-03T16:40:01.220000+05:30",
    "LastAccessedDate": "2024-09-03T05:30:00+05:30",
    "Tags": [],
    "VersionIdsToStages": {
        "93771147d-e135-421e-99af-36ceb6878e1e": [
            "AWSCURRENT"
        ]
    },
    "CreatedDate": "2024-09-03T16:40:01.183000+05:30"
}


C:\>
```

```
C:\>aws secretsmanager get-secret-value --secret-id demo-secret-credentials --version-stage AWSCURRENT
{
    "ARN": "arn:aws:secretsmanager:us-east-1:878893308172:secret:demo-secret-credentials-qjDyI7",
    "Name": "demo-secret-credentials",
    "VersionId": "93771147d-e135-421e-99af-36ceb6878e1e",
    "SecretString": "{\"admin-user\":\"admin-password\"}",
    "VersionStages": [
        "AWSCURRENT"
    ],
    "CreatedDate": "2024-09-03T16:40:01.215000+05:30"
}


C:\>
```