SVKM'S NMIM'S Nilkamal School of Mathematics, Applied Statistics & Analytics

Master of Science (Data Science)

Practical-6 **Implementing MFA.**

Writeup:-

- **MFA**

Multi-factor authentication (MFA) is a multi-step account login process that requires users to enter more information than just a password. For example, along with the password, users might be asked to enter a code sent to their email, answer a secret question, or scan a fingerprint. A second form of authentication can help prevent unauthorized account access if a system password has been compromised.

BENEFITS:

Reduces security risk

Multi-factor authentication minimizes risks due to human error, misplaced passwords, and lost devices.

Enables digital initiatives

Organizations can undertake digital initiatives with confidence. Businesses use multi-factor authentication to help protect organizational and user data so that they can carry out online interactions and transactions securely.

Improves security response

Companies can configure a multi-factor authentication system to actively send an alert whenever it detects suspicious login attempts. This helps both companies and individuals to respond faster to cyberattacks, which minimizes any potential damage.

- **Types of MFA**

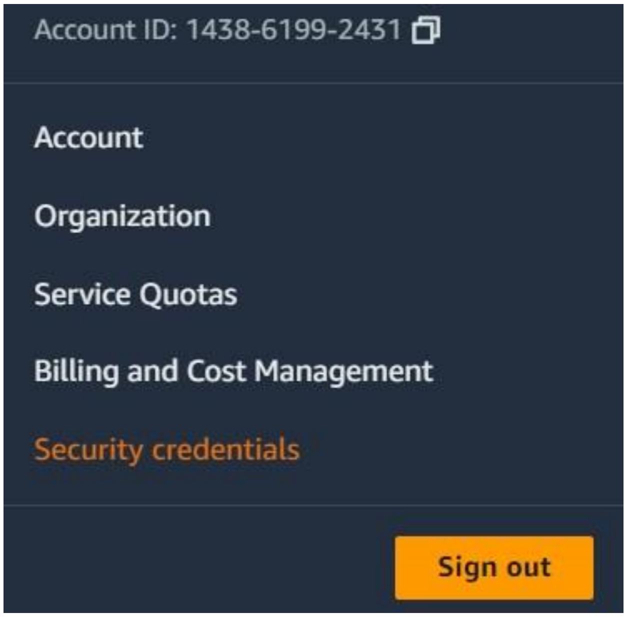
SMS-Based MFA: In this method, after entering the username and password, the user receives a one-time code via SMS (Short Message Service) on their registered mobile phone. They then enter this code to complete the authentication process.

Time-Based One-Time Password (TOTP): TOTP is a type of MFA where a temporary numeric code is generated based on the current time and a shared secret key. This code is typically generated by a smartphone app such as Google Authenticator or Authy. The user must enter this code along with their username and password to authenticate.

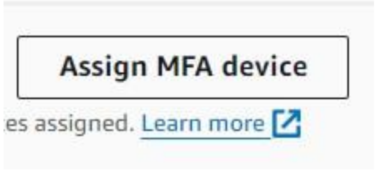
Hardware Tokens: Hardware tokens are physical devices that generate one-time passwords. These tokens can be USB tokens, smart cards, or key fobs. When a user needs to authenticate, they simply press a button on the token, and it generates a unique code that they enter along with their other credentials.

PRACTICAL IMPLEMENTATION USING GOOGLE AUTHENTICATOR.

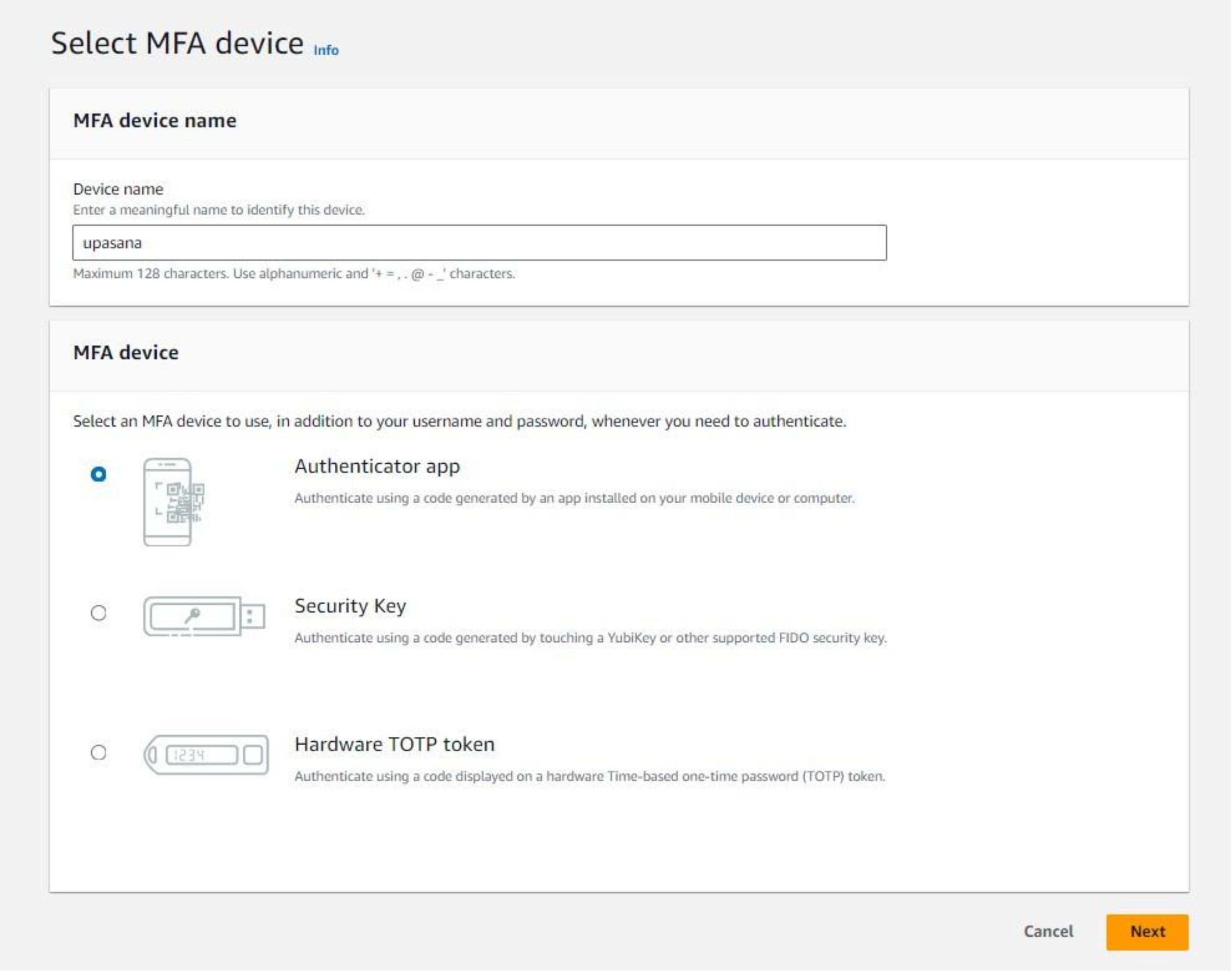
Study and implement MFA in the environment of popular Cloud Service Provider



Account ID: 1438-6199-2431



es assigned. Learn more



Select MFA device Info

MFA device name

Device name

Enter a meaningful name to identify this device.

upasana

Maximum 128 characters. Use alphanumeric and '+ = , . @ - _' characters.

MFA device

Select an MFA device to use, in addition to your username and password, whenever you need to authenticate.

● **Authenticator app**

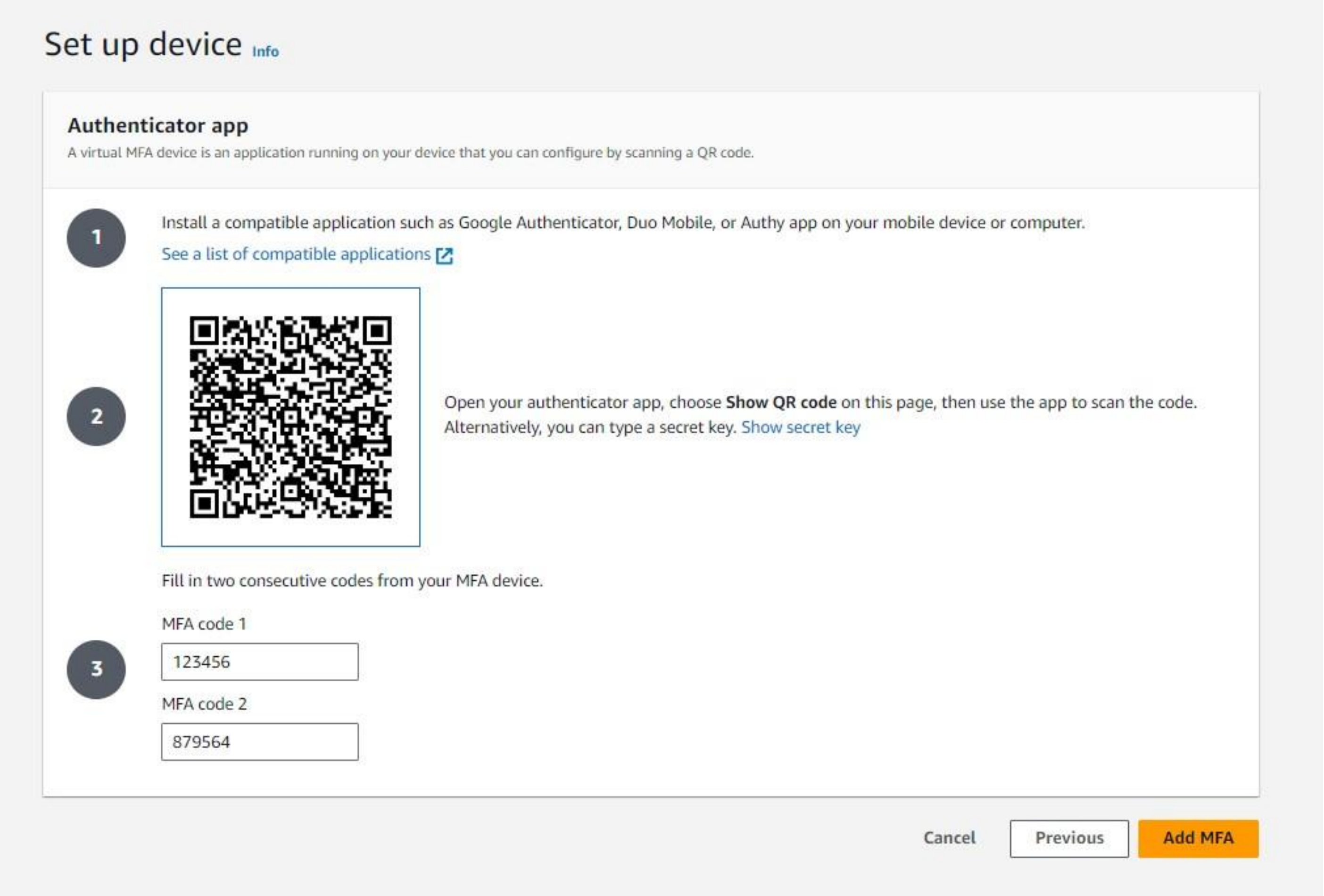
Authenticate using a code generated by an app installed on your mobile device or computer.

○ **Security Key**

Authenticate using a code generated by touching a YubiKey or other supported FIDO security key.

○ **Hardware TOTP token**

Authenticate using a code displayed on a hardware Time-based one-time password (TOTP) token.



Set up device

Authenticator app

A virtual MFA device is an application running on your device that you can configure by scanning a QR code.

1. Install a compatible application such as Google Authenticator, Duo Mobile, or Authy app on your mobile device or computer.

   See a list of compatible applications

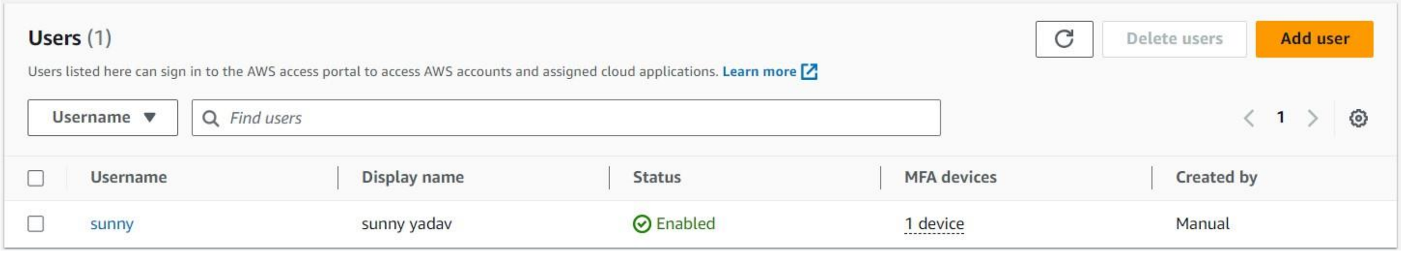
2. Open your authenticator app, choose **Show QR code** on this page, then use the app to scan the code. Alternatively, you can type a secret key. Show secret key

3. Fill in two consecutive codes from your MFA device.

   MFA code 1: 123456

   MFA code 2: 879564

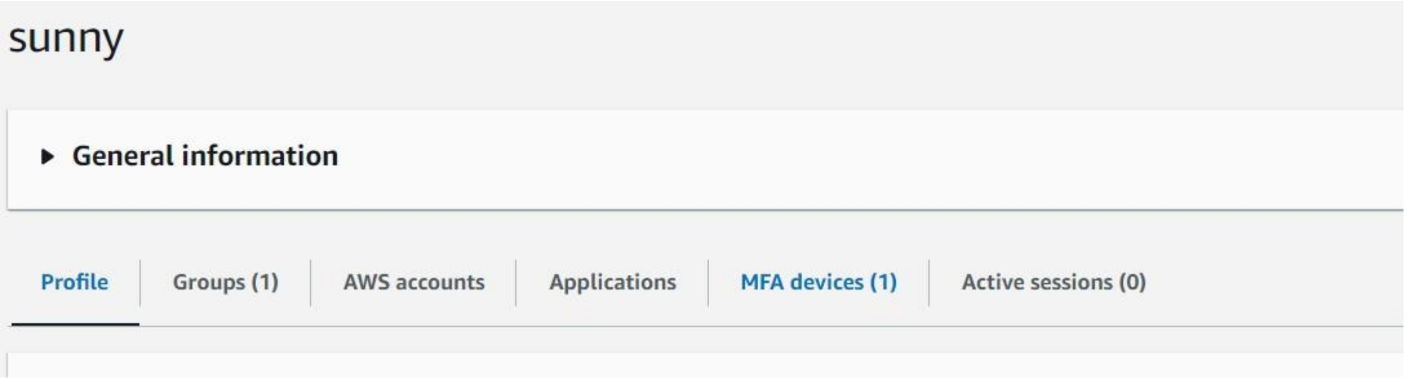
CREATE USER AND ASSIGN MFA



Users (1)

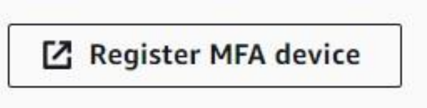
Users listed here can sign in to the AWS access portal to access AWS accounts and assigned cloud applications. Learn more

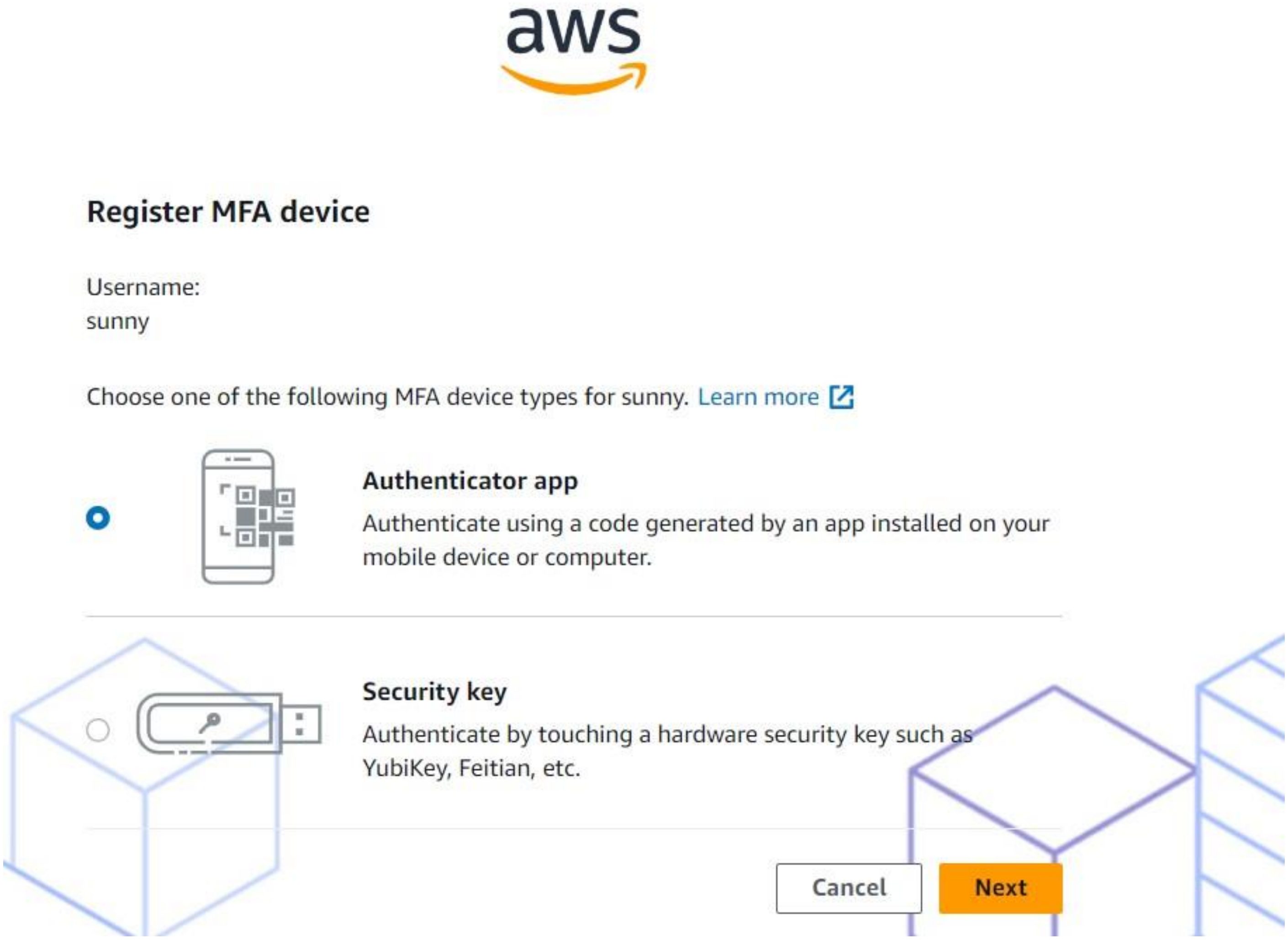
□	Username	Display name	Status	MFA devices	Created by
□	sunny	sunny yadav	✓ Enabled	1 device	Manual



sunny

▶ General information





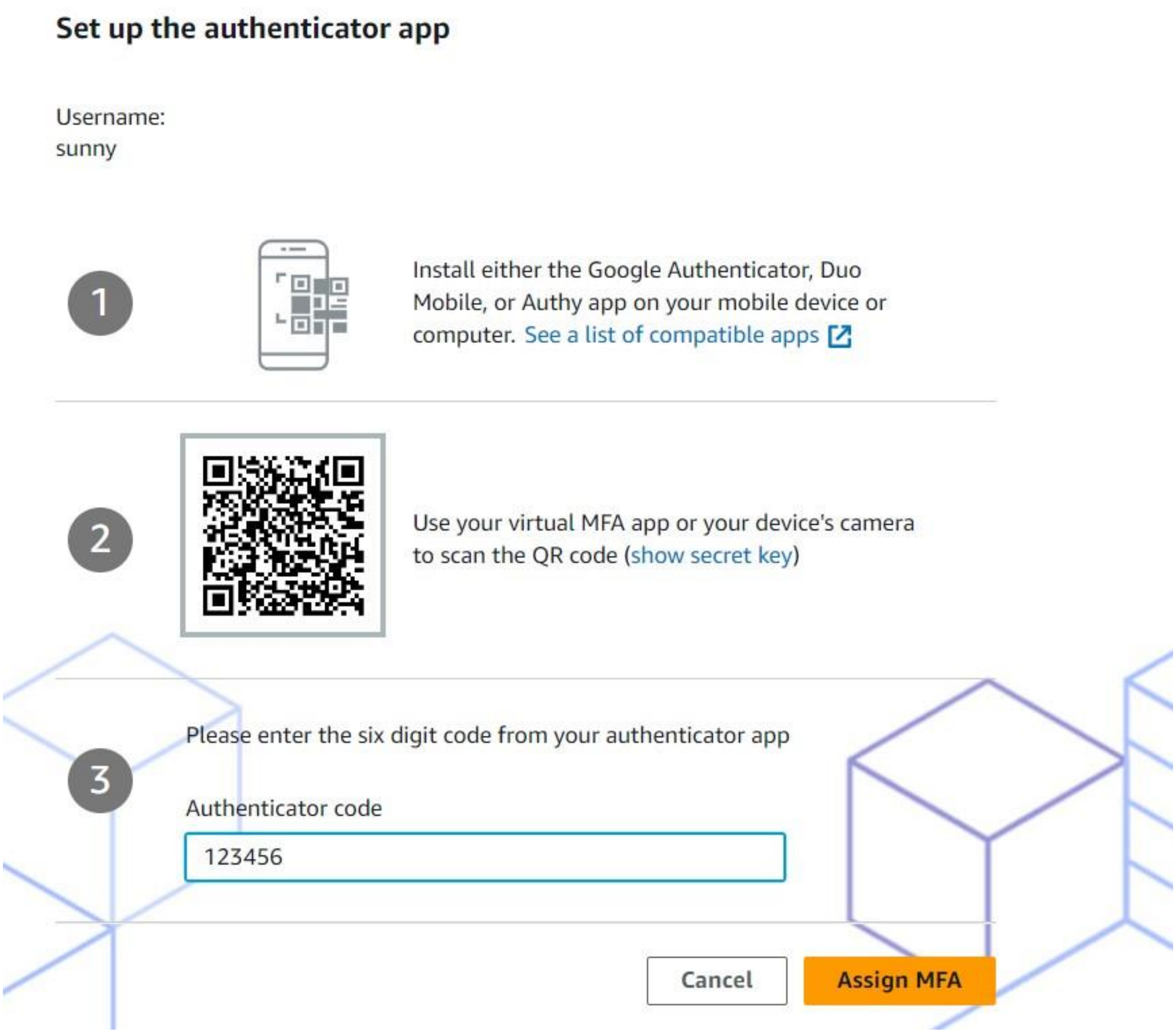
Register MFA device

Username:
sunny

Choose one of the following MFA device types for sunny. Learn more

● **Authenticator app**
Authenticate using a code generated by an app installed on your mobile device or computer.

○ **Security key**
Authenticate by touching a hardware security key such as YubiKey, Feitian, etc.



Username:
sunny

1 Install either the Google Authenticator, Duo Mobile, or Authy app on your mobile device or computer. See a list of compatible apps

2 Use your virtual MFA app or your device's camera to scan the QR code (show secret key)

3 Please enter the six digit code from your authenticator app

Authenticator code

123456