

## Project Title: Multi-Factor Authentication add-on for OpenVPN

### Application – “DefAuth”

Team Name	Ministry	Team Leader Name	Team Leader Contact Detail	College Name	Collage Location
DEFENDERS	ISRO	Sriram M	<b>Email:</b> sriramm1997@gmail.com <b>Cell:</b> 9655077056	Thiagarajar college of Engineering	Madurai, TamilNadu, India

- **Open Source Technology used**
  - LAMP stack
  - Android SDK
  - OpenVPN server and Client
  - Shell Script
  - Node.js and JSON Web Tokens
  - Web Application
- **Approach/Procedure**
- **New User Registration procedure**
  - Employee ID
  - Password (only numeric)
  - IMEI – Fetched secretly from the mobile device for possession factor (Restricted to one mobile device only, else raise ticket to admin to release lock)
  - Now open “DEFAuth” mobile application and select “New User” and enter Employee ID to initiate session in mobile for first time registration
  - The IMEI + User ID is fetched and updated in Database
  - After successful registration of mobile device the user is automatically logged out.
- **Existing User Login Procedure**
  - The existing user shall open the web application and enter Employee id and password
  - Now a QR code is displayed on the web screen
  - Open the “DEFAuth” app - This app is inbuilt with app lock
    - Finger Print verification for Bio metric enabled device
    - PIN lock for other devices
  - The QR code can be scanned only using the previously registered and verified mobile device.

- Once the IMEI of the mobile device is verified with the database TOTP auto verification from server side takes place in the backend.
- The TOTP and IMEI is verified using the JWT token against the userID.
- The JWT token once generated can only be used for 10 minutes and the validity expires thereafter.

Finally the JWT validity is verified and VPN access is provided using a customized shell script containing the OVPN file credentials to the client.

- **Dynamic User Status details in DB**

(Format: status number -> current status)

- 0 -> user has registered in website page
- 1 -> user updated his/her IMEI
- 2 -> user is logged in
- 3 -> user is logged out
- 4 -> TOTP is verified for user

- **Web Application Images**

Multi-Factor Authentication add-on for VPN

# DEFENDERS

Developed for ISRO by Thiagarajar college of Engineering

## Developers

- Sriram M
- Ragul R
- Jegan Babu T K
- Promod S
- Preetham S

[Register](#) ----- [Login](#)

## DefAuth

### CREATE YOUR ACCOUNT

Web Registration

*Provide your Passkey as Numeric*

Next

## DefAuth

1 2 3  
WHAT U HAVE WHAT U POSSES VPN CONNECTION

### QR CODE


Scan QRCode with your Registered Mobile



• **Mobile App Images**

2:41 PM ... 0.08K/s Jio 4G 4G IN. 78%

< DefAuth



**DefAuth**

Admin rights are required to lock your device


Activating this administrator will allow the app DEFAUTH VPN to perform the following operations:

- **Change the screen-unlock password**  
Change the screen-unlock password.
- **Set password rules**  
Control the length and the characters allowed in screen-unlock passwords.
- **Lock the screen**  
Control how and when the screen locks.
- **Set lock-screen password expiry**  
Control how frequently the lock-screen password must be changed.
- **Set storage encryption**  
Require that stored app data be encrypted.
- **Disable cameras**  
Prevent use of all device cameras.

Cancel      Activate

2:41 PM ... 0.03K/s Jio 4G 4G IN. 78%

DEFAUTH VPN



**Lock and Unlock**


Please click lock now to authenticate the identity of user.

NOTE:  
This action requires admin rights, you may lock and unlock your device manually if you are not willing provide admin rights.

LOCK NOW

2:41 PM ... 0.00K/s Jio 4G 4G IN. 78%

DEFAUTH VPN



SCAN QR

REGISTER YOUR DEVICE

2:42 PM ... 0.00K/s Jio 4G 4G IN. 78%

DEFAUTH VPN

Userid


Password

REGISTER THIS DEVICE

NOTE  
By registering this device , you are agreed to always use this device for authentication and would not share your device password with others.

2:41 PM ... 0.00K/s Jio 4G 4G IN. 78%

DEFAUTH VPN



**PERMISSION DENIED**  
App cannot lock your device without Admin permission.  
Please read the notes given at Lock and Unlock