

End User Guide

DIVOC

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Version Control

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Chapter 1: What is DIVOC?

1.1 Background

DIVOC stands for “Digital Infrastructure for Vaccination and Open Certification”. It is a flexible and extendable open source software that helps countries to digitally orchestrate large scale vaccination efforts – through configuration of facilities, workers, vaccines etc. – as well as generate a digitally verifiable certificate. In order to drive global participation for adoption and usage, DIVOC uses open source technologies and a scalable, data driven architecture to be able to deal with diverse vaccination country-specific scenarios.

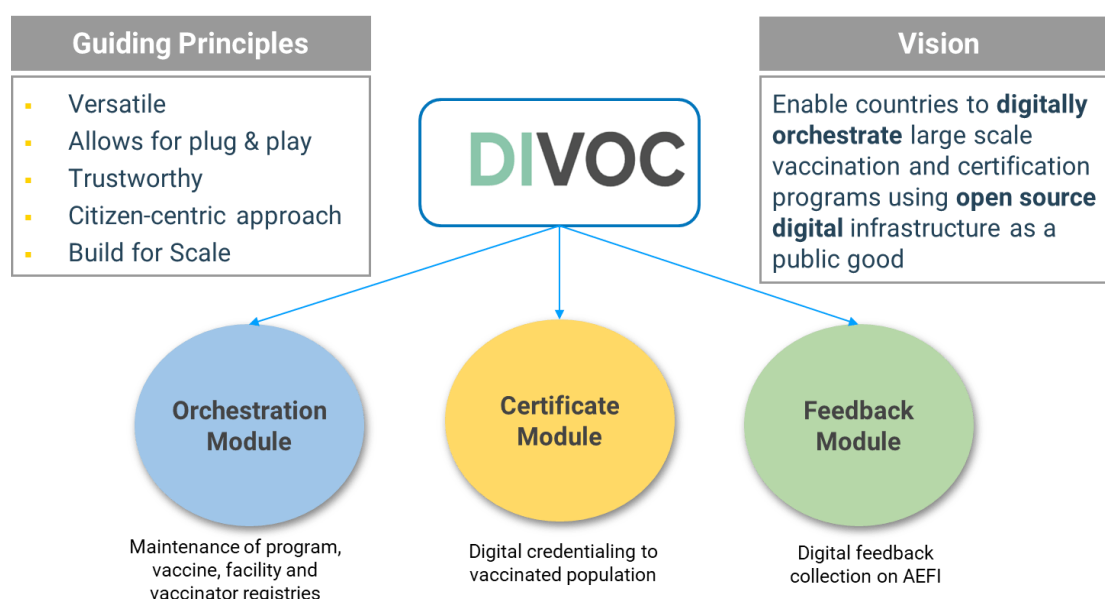
1.2 Purpose

DIVOC is a community-effort led by a team working under the guidance of Mr. Nandan Nilekani (former chairman of UIDAI) and Co-founder of Infosys, and Dr Pramod Varma (former Chief Architect of UIDAI, India).

The DIVOC initiative aims to support countries in achieving the following goals;

- i. Ability to vaccinate and certify citizens at speed and scale starting from prioritized personnel (frontline workers) to the whole country in a controlled manner.
- ii. Ability to manage the entire vaccination and certification process in a dynamic manner using near real time data.
- iii. Ability to control and manage the approved vaccine, facilities, daily rates, and vaccinators in a systematic manner across various geographies as per the availability of vaccines and other country priorities.
- iv. Issue a portable digitally verifiable certificate as per international standard to people in both digital and physical form so that they can get back to work.
- v. Ability to integrate and leverage with other systems such as vaccine supply, hospital management, ID systems, payment systems, etc.

Open Source Digital Infrastructure for Vaccination and Open Certification



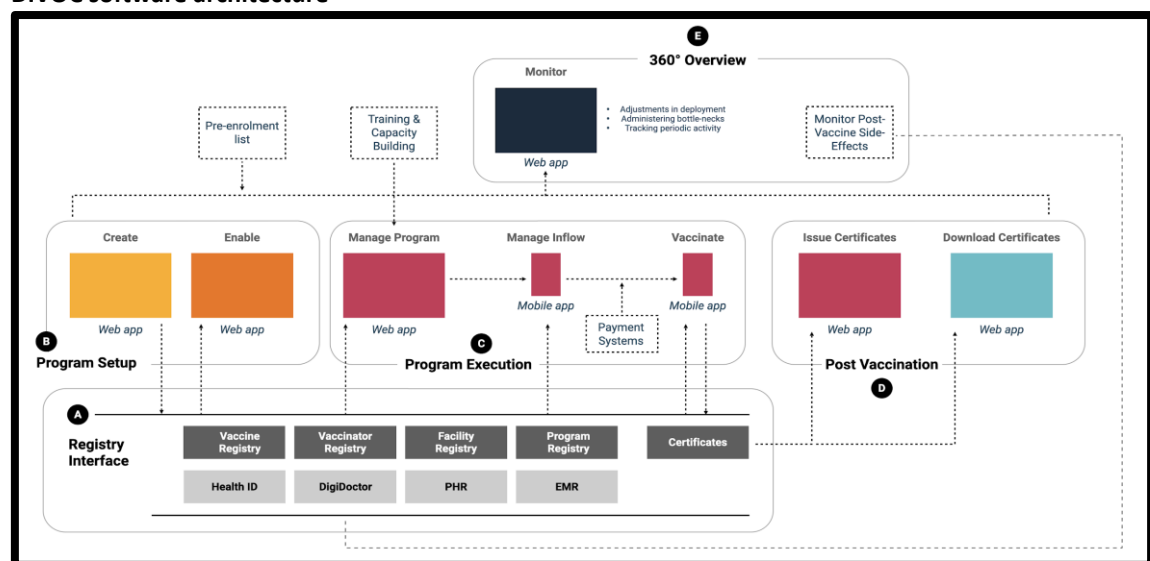
1.3 Value proposition

The key highlights of the DIVOC software are:

- i. Designed to cater to the diversity of use cases in terms of choice of facility (Government to private facilities) at various geographies within the country, choice of payment (Govt is paying, employers and other funds paying, and individuals paying), choice of IDs (digital IDs, mobile numbers, no IDs), etc.
- ii. Provides plug and play with various valid ID and payment systems and be flexible to configure the flows.
- iii. Provides individuals with a portable and verifiable digital certificate (verifiable credential based on W3C open specification and can easily be aligned to IHR standards) that they can use online and offline.
- iv. Designed to plug and play with various certificate distribution schemes (printed with QR code, digital using smartphones, sms/email attachments, digital lockers, blockchain based apps, etc).
- v. Provides high trust by design and ensure security and privacy aspects. It provides non-repudiable audits and ensures various potential frauds are eliminated by design.
- vi. Fully built as a set of microservices exposed via APIs allowing easy integration with existing systems.
- vii. Can be used fully or specific microservices (such as certificate microservice or feedback microservice) can be deployed and used independently.
- viii. Designed to work at a scale of 10 million vaccinations a day with an event driven telemetry model allowing agencies running DIVOC software to observe the entire rollout using data to make dynamic policy and operational adjustments.
- ix. Highly "configurable" (vaccines, vaccination frequency, approved facilities, trained vaccinators, certificate template, authentication mechanisms, etc.) and also "extensible" (there are many parts of software that can be extended, replaced with country specific components without having to customize (allows easy upgradability).
- x. Entire DIVOC software is made available as open source as digital public goods for any country to adopt, extend, customize, and use the way they need.

The DIVOC software has been designed to accommodate the various events occurring during the last-mile vaccine administration and certification lifecycle, as illustrated below;

DIVOC software architecture



Chapter 2: Core Modules

The plug-n-play nature of DIVOC allows countries to choose either the complete package or any specific module(s), basis their need.

DIVOC offers three key modules;

- i. An **“Orchestration” module**
- ii. A **“Certificate” module**
- iii. A **“Feedback” module**

2.1 Orchestration Module

a. Features

Orchestration module is a web-based application which covers the registration and setup of the administrative functions necessary for a country, before initiating the vaccine rollout program. This module entails the registration and setup of various administrative functions necessary for a country, before initiating the vaccine rollout program. This module is available via a web based DIVOC portal application (referred to as "Management Portal").

b. Users

The following user roles can access the orchestration module:

- i. System Admin - a person authorized by the Government who would be entrusted with the responsibility of addressing the data management needs of the system.
- ii. Controller - an authorised person responsible for setting up the facility activation/deactivation and assigning daily vaccination rate to each facility.
- iii. Facility Admin - an authorised professional responsible for the management of the vaccination facility. Their role would be to set up internal roles for operations, authorise vaccinators, review vaccination program details and manage facility details.

c. User Journey

The stepwise user journey and purpose and role for each of the users has been explained in this section.

1. LOGIN

Users can log into the DIVOC Management portal, via a simple mobile-based authentication process. The user can provide his/her mobile number, upon which a one-time password (OTP) will be generated and sent to his/her mobile. The user can enter this OTP to successfully log into the DIVOC Management portal.

DIVOC Orchestration module login page

DIVOC Digital Infrastructure for Vaccination & Disease Outbreak Control

MAP HOME ENG

Please Enter your Mobile Number and OTP

+91 XXXXXXXXXX

Get OTP →

2. Create a Facility Registry

Facilities are the centres where COVID-19 vaccine will be administered to the recipients. While setting up the facilities registry, the following details will be fed.

- Approved facilities – Centres like clinics, public hospitals, medical facilities etc. approved by the Government Authorities to conduct vaccination drive
- Location - state, district and postal code of the facility
- Active Status – Active or inactive status of the facility depending on whether it is being used for vaccination or not
- Vaccination daily rate – Daily rates of number of vaccinations in a day to be done in a facility

System Admin can perform the following actions;

a. System Admin functions

- Users can perform a bulk-upload of facility data, via CSV files. DIVOC provides predefined templates for Users to populate their facility data, which can then be uploaded (in bulk-mode).
- DIVOC can integrate with a country's existing eHealth systems or registries (if available) via APIs, to source the facility data available in the country
- Error Files in the process of Bulk Upload of data can be downloaded by the users. In case of any errors in the template, the system throws an error which can be easily identified and rectified.
- DIVOC also displays the total number of records for the facility registry.

Bulk upload screen for DIVOC facilities registry

The screenshot shows the DIVOC interface with a navigation bar at the top containing 'Facilities', 'Vaccinators', 'Vaccine Programs', 'Vaccines', and 'Pre-Enrollment'. A 'DOWNLOAD TEMPLATE' button is visible. The main content area is titled '23 Records in the DIVOC Facility Registry'. It contains two tables:

All Facilities

FACILITY ID	FACILITY NAME	STATE	UPLOADED ON
BLR12	Bengaluru Hospital	Karnataka	
DEL016	Awesome Hospital	Delhi	
BLR99	Bengaluru Hospital	Karnataka	
BLR9	Bengaluru Hospital	Karnataka	
MAA2341	Madras	TN	
BLR13	Bengaluru Hospital	Karnataka	
DEL016	Awesome Hospital	Delhi	
DEL013	Awesome Hospital	Delhi	
DEL016	Awesome Hospital	Delhi	
DEL013	Awesome Hospital	Delhi	

Uploads History

FILE NAME	DATE	TIME	SUCCESS	ERRORS
facilities_template.csv	05-Feb-2021	23:48	1	0
facilities.csv	05-Feb-2021	16:05	1	0
facilities.csv	04-Feb-2021	22:47	1	0
facilities.csv	04-Feb-2021	22:44	1	0
facilities.csv	04-Feb-2021	20:34	1	0
facilities.csv	04-Feb-2021	20:22	1	0
facilities.csv	04-Feb-2021	20:21	1	0
facilities.csv	04-Feb-2021	20:20	1	0
facilities.csv	04-Feb-2021	19:08	1	0
MyFacilities.csv	03-Feb-2021	22:46	1	0

At the bottom, there are pagination controls: 'Rows per page: 10' and '1-10 of 10' for the facilities table, and 'Rows per page: 10' and '1-10 of 30' for the uploads history table.

Controller can perform the following actions;

b. Controller functions

- Users can use the "Filter" option and extract list of facilities by region and their type (public/private).
- Users can Activate or Deactivate a Facility by choosing facilities of a particular region and making them active or inactive of the system.
- Users can Set/Edit daily Vaccination Rate for the facilities. This vaccination rate defines the number of vaccinations that will happen in the said facility in a day.
- Changes made by the users on facility registry will be intimated through Email / SMS trigger to the Facility Admin.

DIVOC facility activation screen

Facility Activation Adjusting Rate All Facilities

facilities

CODE	NAME	TYPE	PROGRAM STATUS	
BLR99	Bengaluru Hospital	GOVT	Active	<input type="checkbox"/>
BLR9	Bengaluru Hospital	GOVT	Active	<input type="checkbox"/>
BLR19	Bengaluru Hospital	GOVT	Active	<input type="checkbox"/>
BLR19	Bengaluru Hospital	GOVT	Active	<input type="checkbox"/>
BLR19	Bengaluru Hospital	GOVT	Active	<input type="checkbox"/>
BLR8	Bengaluru Hospital	GOVT	Active	<input type="checkbox"/>
BLR8	Bengaluru Hospital	GOVT	Active	<input type="checkbox"/>
BLR8	Bengaluru Hospital	GOVT	Active	<input type="checkbox"/>
BLR15	Bengaluru Hospital	GOVT	Active	<input type="checkbox"/>
BLR16	Bengaluru Hospital	GOVT	Active	<input type="checkbox"/>

Make 0 facilities inactive for the c19

MAKE INACTIVE

DIVOC rate adjustment at facilities by the Controller

Facility Activation **Adjusting Rate** All Facilities

facilities

CODE	NAME	TYPE	PROGRAM RATE	LAST ADJUSTED	
D1	D1 Hospital	GOVT	15	25-Jan-2021	<input checked="" type="checkbox"/>

Set Rate

No. Of Facilities	Current Rate	Set New Rate
1	15	15

SET RATES

3. Create a Vaccinator Registry

Vaccinators would be the trained medical professionals authorised by the Government to administer vaccination to the recipients. In the vaccinator registry, the following details will be saved.

- Trained vaccinators – The registry will have details on the trained medical professionals approved for the vaccination program by Government authorities.
- Active Status – Users can give an active/inactive status to the vaccinators. This helps identify the vaccinators active in the vaccination program.
- Training certificate – Details of the training certificate need to be added to make sure that only trained medical professionals are added to the vaccination program.
- Associated facilities – Details of vaccination facilities which the vaccinator has been assigned to needs to be added to the system by the user.

System Admin can perform the following actions;

a. System Admin functions

- System Admin can perform a bulk-upload of vaccinator data, via CSV files. DIVOC provides predefined templates for Users to populate their vaccinator data, which can then be uploaded (in bulk-mode).
- DIVOC can integrate with a country's existing eHealth systems or registries (if available) via APIs, to source the facility data available in the country.
- Users can Activate or Deactivate Vaccinator from the system.
- Error Files in the process of Bulk Upload of data can be downloaded by the users. In case of any errors in the template, the system throws an error which can be easily identified and rectified.
- DIVOC also displays the total number of records for the record count on the vaccinator registry.
- The software sends Email / SMS triggers to the vaccinator to add associated facilities / modify any personal details / add certificates etc.

DIVOC bulk upload screen for vaccinators registry

BULK UPLOAD SCREEN

1 Records in the DIVOC Vaccinator Registry

All Vaccinators

National ID	NAME	UPLOADED ON
3333333337	ram	
VAC45	Dr Vaccinator45	
87634562	sam	
7311990788	Bb4	
4365469609	BRR	
6051330355	RR	
3733879826	BRR2	
111222333	ANM-123	
234	Rashid	
87533564646	Dr Anjali Gupta P	

Rows per page: 10 1-10 of 10

Uploads History

FILE NAME	DATE	TIME	SUCCESS	ERRORS
t_vaccinator.csv	03-Feb-2021	18:45	1	0
t_vaccinator.csv	03-Feb-2021	18:44	0	1

Rows per page: 10 1-2 of 2

Facility Admin can perform the following actions;

b. Facility Admin functions

- It will be the responsibility of the user (Facility Admin) to add/remove vaccinator details. If the country has a national registry for medical professionals, details like name, gender, age, qualifications, signatures etc can be fetched using those IDs. Admin can also add new vaccinators, provide approval to them, activate/deactivate, and manually add/edit details. Manual Add / Edit Vaccinator details with certificate
- Facility Admin can provide approval to vaccinators who will be engaged in the particular facility for vaccination.
- Facility Admin can also Search & Activate / Deactivate Vaccinator from the system.
- DIVOC Vaccinator Registry can be integrated with LMS for verification of training/certificates of the vaccinators.
- Facility Admin will be responsible for setting up the roles for each staff member in the facility. There would be front office staff, clinical staff and non-clinical staff in the facility and each of those will need to be registered by the Facility Admin and assigned specific roles in the facility. Details of staff name, role type, mobile number and employee ID will be saved in the portal.

Activation/Approval of Vaccinators in the facility by Facility Admin

VACCINATOR LIST

OPERATOR NAME	PROGRAM TRAINED FOR	CERTIFIED	SIGNATURE	STATUS	ACTIONS
sagar	-			Inactive	Make Active Edit Profile
Test User	c19			Inactive	Make Active Edit Profile

Add/Edit feature for Vaccinator Details by Facility admin*

Vaccinator Details

Personal Details

Name * sagar

Email * sagar@gmailcom

Mobile * +91 8788622517

Aadhaar * 234243242324

Licence Number * 7867868687

Signature

Training & Certification

Certification (if any)

Please select Program

Certified ☐

SAVE BACK

ADD/EDIT VACCINATOR DETAILS

*Input screen

Setting up of roles in the facility by Facility Admin

ROLE SETUP

Role Type	Name	Mobile Number	Employee ID	Status	Actions
facility staff	rol1		r1	Enabled	SAVE SET RATE DELETE
facility printing staff	rol2		r2	Enabled	SAVE SET RATE DELETE

4. Create a Vaccine Program Registry

The DIVOC software offers the flexibility of accommodating any vaccine program like COVID-19, measles, influenza etc. The system admin just needs to register details of the vaccine program. The following details are to be fed in the system to add a vaccine program to the registry:

- Programs that are being rolled out – The software is not limited merely to COVID-19 vaccination programs and the user may add other vaccination programs on the portal.
- Active Status – Status for each of the programs can be set as active/inactive based on their running status.
- Allowed vaccines – User needs to add details of Vaccines approved for the vaccination program.
- Start and end dates – Start date and end date for each of the vaccine programs need to be mentioned by the user.

System Admin can perform the following actions;

- Create a New Vaccine/Immunisation Program by adding details like name, description of the program, adding a program logo, setting start and end date and adding approved vaccines.
- View and have the option of Editing Program Details which have already been added to the system in cases of any changes to the programs.
- Activate or Deactivate Vaccination Programs by changing their status while editing program details.

Setting up of Vaccination Programs by System Admin

The screenshot displays the DIVOC software interface for managing vaccine programs. The top navigation bar includes 'Facilities', 'Vaccinators', 'Vaccine Programs' (selected), 'Vaccines', and 'Pre-Enrollment'. A 'LOGOUT' link is visible in the top right corner. The main content area is divided into two panels. The left panel, titled 'Register New Vaccine Program', contains a form with the following fields: 'Program Name*' (text input), 'Program Description*' (text input), 'Program Logo' (image upload area), and 'Vaccine' (dropdown menu). The right panel, titled 'List of Registered Vaccine Programs', shows two existing programs: 'c19' and 'sars-1'. Each program card includes a 'C-19 PROGRAM' logo with a green checkmark and a 'More Details ->' link. A red rectangular box highlights the 'Register New Vaccine Program' form and the 'List of Registered Vaccine Programs' section. The text 'SETUP VACCINE PROGRAMS' is written in red at the bottom right of the screenshot.

5. Create a Vaccine Registry

In the vaccine registry, details of various vaccines which have been approved by the country's Government authority will be saved. The vaccine registry includes the following details:

- Approved vaccines – Details of only the approved vaccines that can be administered to the recipients will be added to the system.
- Status – User has to choose from the options of active/inactive/blocked status for each of the vaccines that they add to the system for a vaccination program.
- Vaccination Method – User has to choose from the list of vaccine administration methods. Vaccines may be administered in many ways including oral, nasal, muscular and the user should define that for each vaccine.
- Vaccination schedule – User should define the total number of doses and schedule for each subsequent dose in the system
- Max retail price – Price for each vaccine can also be defined on the system. This will help fetch data in case of on-spot registrations and payment made by the recipients in walk-in cases.

System Admin can perform the following actions;

- Add New Vaccine by adding details like name, manufacturer, administration method etc.

- View and have the option of Editing Vaccine Details which have already been added to the system.
- Activate or Deactivate vaccinates by changing their status while editing vaccine details.

Addition of approved Vaccines by System Admin

The screenshot shows the DIVOC interface with the 'Vaccines' tab selected. On the left, the 'Register New Vaccine' form includes fields for 'Name of Vaccine / Medicine*', 'Manufacturer*', 'Administration Type' (set to 'muscular injection'), and 'Schedule Details' (with a 'Repeat times' field). On the right, the 'List of Registered Medicines / Vaccines' displays two entries: 'cowin' and 'sars', each with a 'LOGO' placeholder, a green checkmark, and a 'More Details ->' link. A red box highlights the form and the list. A red text label 'ADD APPROVED VACCINES' is positioned at the bottom right of the red box.

5. Beneficiary Pre-enrolment

In order to carry out phase-wise vaccination within the country, if the Government has identified a group of priority beneficiaries for COVID 19 vaccination, such data of beneficiaries can be uploaded in the pre enrolment registry. This list will have the following details:

- Identified population group – Details of the pre-defined population group can be added by the user on the system. This helps in easy identification and enrolment of recipients for phase wise vaccination program, eg. data on front line workers, medical professionals etc.
- National ID – Users must add national identification proof of the recipients for authentication and verification at the time of vaccination.
- Secondary identifiers – Other identifiers like DOB, age, gender and phone number of the recipients are added in details for unique identification.

System Admin can perform the following actions:

- Bulk-upload of vaccinator data, via CSV files. DIVOC provides predefined templates
- Bulk-upload of citizen data, via CSV files. DIVOC provides predefined templates for Users to populate their citizen data, which can then be uploaded (in bulk-mode).
- Integrate with a country's existing eHealth systems or registries (if available) via APIs, to source the facility data available in the country.
- Add Citizens to the registry by manually entering their details on the system. The system also provides the feature of editing citizen details.
- Error Files in the process of Bulk Upload of data can be downloaded by the user. In case of any errors in the template, the system throws an error which can be easily identified and rectified.
- Email / SMS trigger to the beneficiary - Once they are registered, an SMS can be sent to those pre-enrolled beneficiaries along with pre enrolment code, facility and vaccination details.

Bulk upload of pre-enrolment list by System Admin

The screenshot shows the DIVOC Pre-Enrollment Registry interface. At the top, there are navigation tabs: Facilities, Vaccinators, Vaccine Programs, Vaccines, and Pre-Enrollment (which is selected). A 'DOWNLOAD TEMPLATE' button is visible in the top right. Below the tabs, there's a section titled '12 Records in the DIVOC Pre-Enrollment Registry' with a 'Select a Program' dropdown and an 'UPLOAD CSV' button. The main content area is divided into two panels: 'All Pre-Enrollments' and 'Uploads History'.

All Pre-Enrollments Table:

National ID	NAME	UPLOADED ON
234234234234	kiran	
234234234234	kiran	
234234234234	kiran	
234234234234	kiran	
234234234234	Rahul	
234234234234	Rahul	
121212121212	Meera K	
232323232323	Raj Dhingra	
234234234234	kiran	

Uploads History Table:

FILE NAME	DATE	TIME	SUCCESS	ERRORS
MyPreEnrollmentList.csv	03-Feb-2021	22:33	2	0
t_enrollments 2.csv	03-Feb-2021	18:49	1	0
t_enrollments.csv	03-Feb-2021	18:48	0	1
blr_enrollments.csv	03-Feb-2021	14:20	3	0
enrollments.csv	03-Feb-2021	11:57	3	0
enrollments.csv	02-Feb-2021	11:47	1	0
enrollments.csv	02-Feb-2021	11:04	1	0
enrollments.csv	02-Feb-2021	11:03	1	0

At the bottom right of the 'Uploads History' table, the text 'BULK UPLOAD' is written in red. The bottom of the interface shows pagination: 'Rows per page: 10' and '1-9 of 9'.

SMS notification sent to pre-enrolled recipients

The screenshot shows a mobile phone screen with a black background. At the top, there's a status bar with icons for signal, Wi-Fi, battery (39%), and time (10:29). Below the status bar, there's a header bar with a back arrow, the text 'DIVOCNOT', and a phone icon. The main content area shows an SMS notification from '15 Oct, 1:52 PM'. The message text is: 'Vivek Singh, you have been registered to receive the C-19 vaccine. Please proceed to the nearest vaccination centre:'. Below this, there's a blue link: 'Gwp0,7&lsg=AB86z5DQxxz'. Further down, it says: 'Please show this Pre Enrolment Code: 12345 to the centre admin.' At the bottom of the screen, there's a red box with the text 'SMS TO PRE-ENROLLED RECIPIENTS' in red. Below this box, there's a text input field with a plus icon and the placeholder text 'Type message'.

2.2 Vaccination Module

a. Features

Vaccination module is an application-based module to be used by facility staff to carry out day-to-day tasks in the facility. This is a multilingual application and the staff can choose the language as per their comfort and convenience. The vaccination module has the following features:

- Verification of beneficiaries which were pre enrolled in the system at the time of registry set up by System Admin.
- Enrolment of beneficiaries who walk into the facilities for on the spot registration and vaccination.
- Recipient queue to view and manage the list of beneficiaries enrolled into the system.
- Multilingual application to choose the language by the user.

b. Users

Vaccination module will be used by Facility Staff. Facility Staff can be authorized professionals responsible for managing the vaccination process in the facilities. The role of Facility Staff would be to manage inflow of recipients and issuance of digital certificates post vaccine administration.

c. User Journey

1. Login

Facility Staff can log into the DIVOC vaccination module, via a simple mobile-based authentication process. The user can provide his/her mobile number, upon which a one-time password (OTP) will be generated and sent to his/her mobile. The user can enter this OTP to successfully log into the DIVOC Facility application.

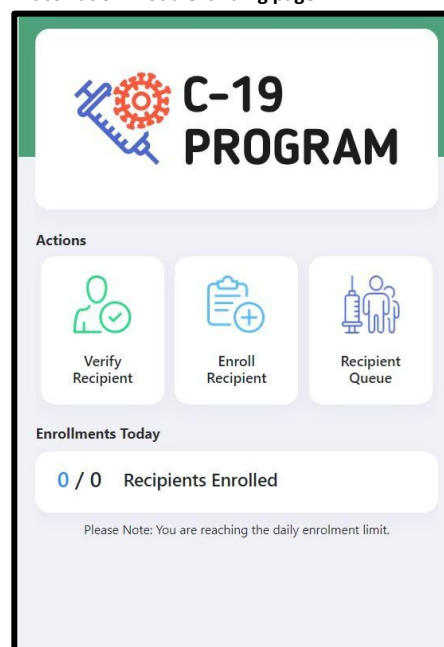
Facility Staff can perform the following actions on the Facility app:

2. Verify recipient

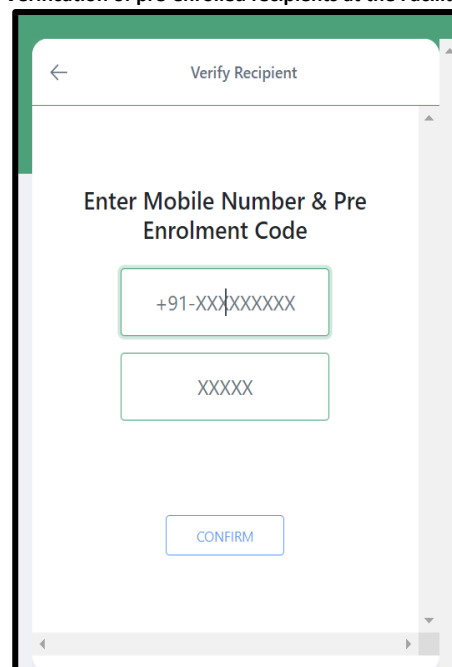
The authorised Facility Staff, which was assigned roles in the facility admin module, will have to verify each of those entries in the pre enrolment list as uploaded earlier by system admins. The verification process includes the following steps in the vaccination application:

- For verification of pre-enrolled recipients that come to facilities for vaccination, Facility Staff can use their pre-enrolment code. This code will help fetch matching recipient records (name, dob, gender etc) from the database.
- Next step is to register the recipient using recipient's National ID:
 - The staff has two options to verify the national id—scanning QR code on the ID card or manually input the ID number.
 - Once the number has been input/scanned, only in case mobile number is seeded with the national ID, an additional step of verifying the OTP received on the mobile number would be done.
 - If the country does not have a national ID database seeded with mobile number, other provisions should be enabled. Some examples could include:

Vaccination Module landing page



Verification of pre-enrolled recipients at the Facility



- i. Use of any secondary identifier mechanism which has been approved by the govt as proof of id document and can be electronically verified.
- ii. Physical copy of valid identity proof (national or secondary identifier) attested by a local government official can also be used. E.g. DL card, Voter's ID etc.
- If necessary, an additional approver workflow for higher authorities to provide consent may be considered.
- Once the recipient is successfully verified and registered, they are visible in the recipient queue.

3. Enrol recipient

Besides the pre-enrolled recipients, other recipients can walk-in to facilities and get manually registered. Facility Staff can use the enrol recipient tab and enter recipient details like name, gender, DOB, National ID, contact details and register them for vaccination. Software will provide features to integrate with payment gateway for walk-in recipients to make on the spot payment. It can be configured based on country specific requirements.

- Here also, for identity verification, the same flow as pre enrolment verification will be followed.
- Recipients are then directed to the vaccinator assigned to them based on their turn in the recipient queue.

Enrolment of walk-in recipients by Facility Staff*

The image displays two side-by-side screenshots of a mobile application interface for enrolling recipients.

Left Screenshot (Input screen): The screen is titled "Enroll Recipient". It contains several input fields:

- Name***: A text field containing "Anima".
- Select Gender***: A dropdown menu with "Female" selected.
- Nationality***: A dropdown menu with "Indian" selected.
- Date of Birth***: A date picker showing "12-01-1995".
- Email***: A text field containing "anima.rawat@in.ey.com".
- Mobile No.***: A text field containing "9643583821".

Right Screenshot: The screen is also titled "Enroll Recipient". It displays the message "Please select mode of payment". Below this, there are three selectable options, each with an icon:

- Government**: Represented by a government building icon.
- Voucher**: Represented by a coupon icon, and this option is highlighted with a green border.
- Direct**: Represented by a cash icon.

 At the bottom of the screen, there is a button labeled "Send for vaccination".

*Input screen

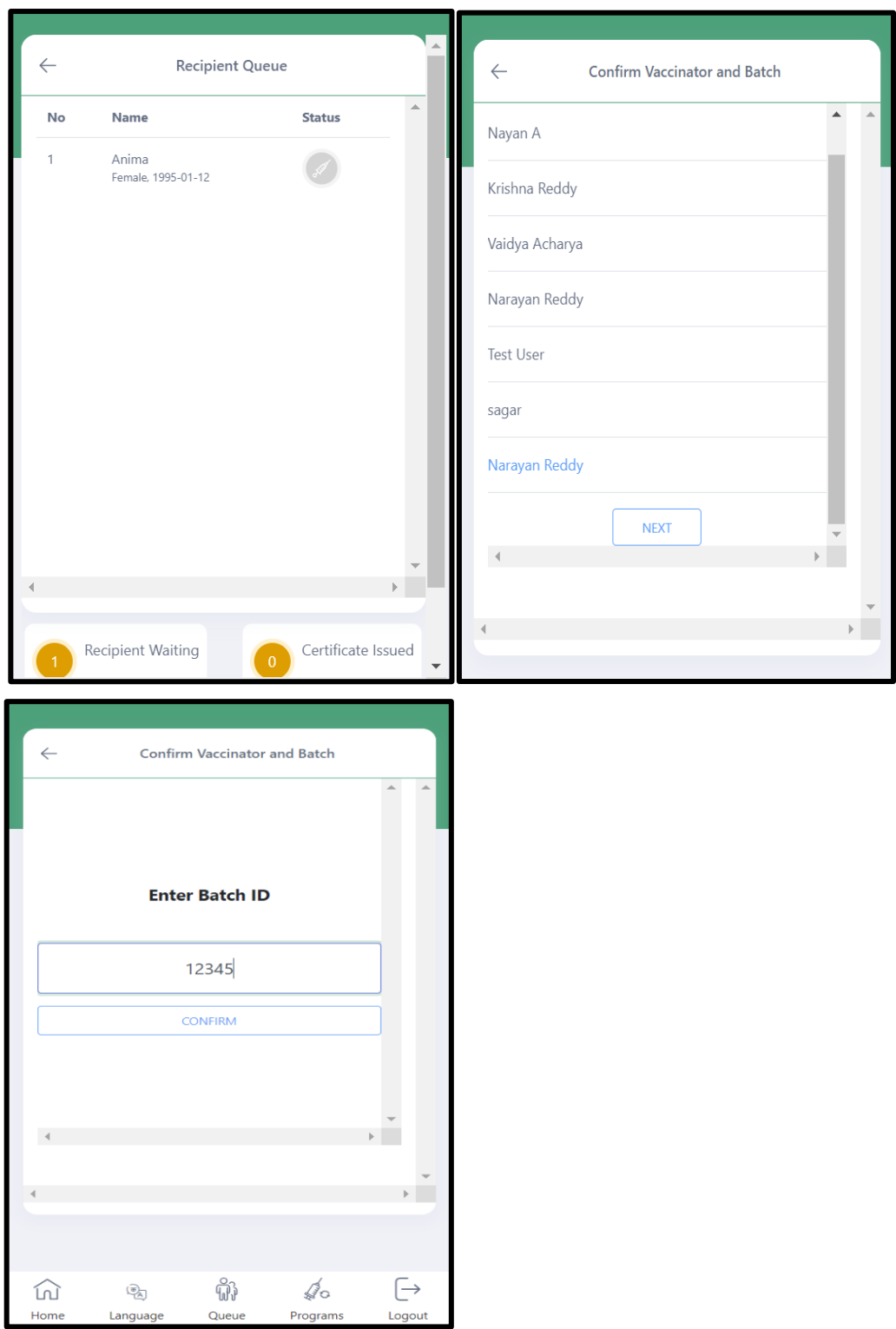
4. Manage Recipient Queue

Once the recipients have been verified and enrolled, they get added to the Vaccination Queue. Facility Staff can access this queue and select amongst the list of recipients to send them for vaccination.

Facility Staff performs the following actions for vaccination of recipients:

- Facility staff access the recipient queue and chooses the recipient from the list
- Facility Staff assigns a vaccinator to the recipient
- Facility Staff enters batch ID and confirms
- Recipient is then sent for vaccination and removed from the queue

Assigning Vaccinator and Batch to recipients in the Recipient Queue



2.3 Certificate Module

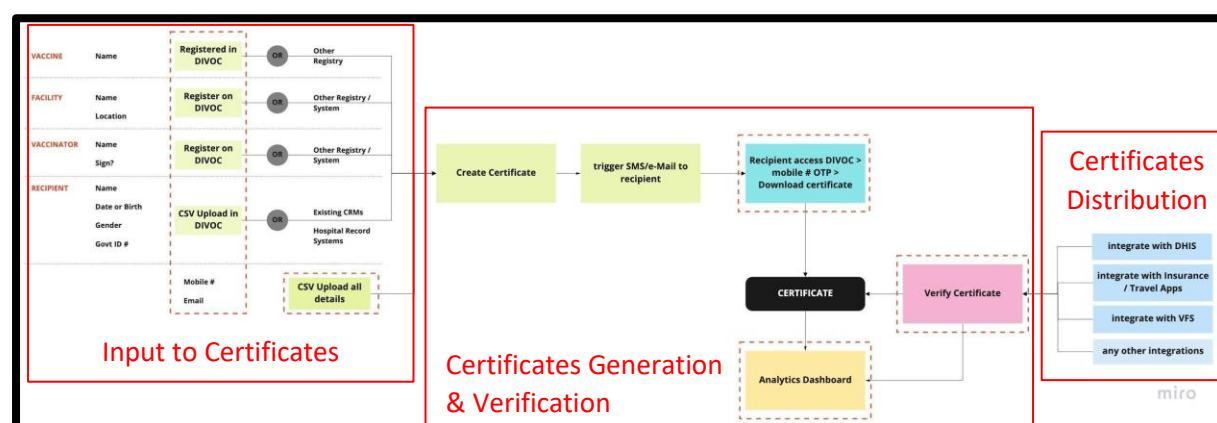
a. Features

DIVOC certificate module has the ability to generate WHO and W3C verifiable credentials compliant digital vaccination certificates, for every resident after successful inoculation. This certificate will be a simple QR code that can be easily accessed/scanned from an individual's mobile phone, and which can be used by country authorities to independently verify the individual's current COVID-vaccination status.

Features of the digital vaccination certificate are:

- Conforming to WHO/IHR guidelines based on W3C verifiable credential specifications
- Accommodates syntax and semantic codifications
- Authenticity verifiable via digitally signed QR code
- Available digitally on smartphone with QR code
- Printable for non-smartphone users
- Multilingual templates (for data and layout)
- Ability for users to download/print after vaccination either at facility or from home in self/assisted modes
- Integrable to health Lockers and certificate lockers
- Easy integration with immunization e-registry

Credential Module Overview



b. Users

Following users can access the DIVOC certificate module:

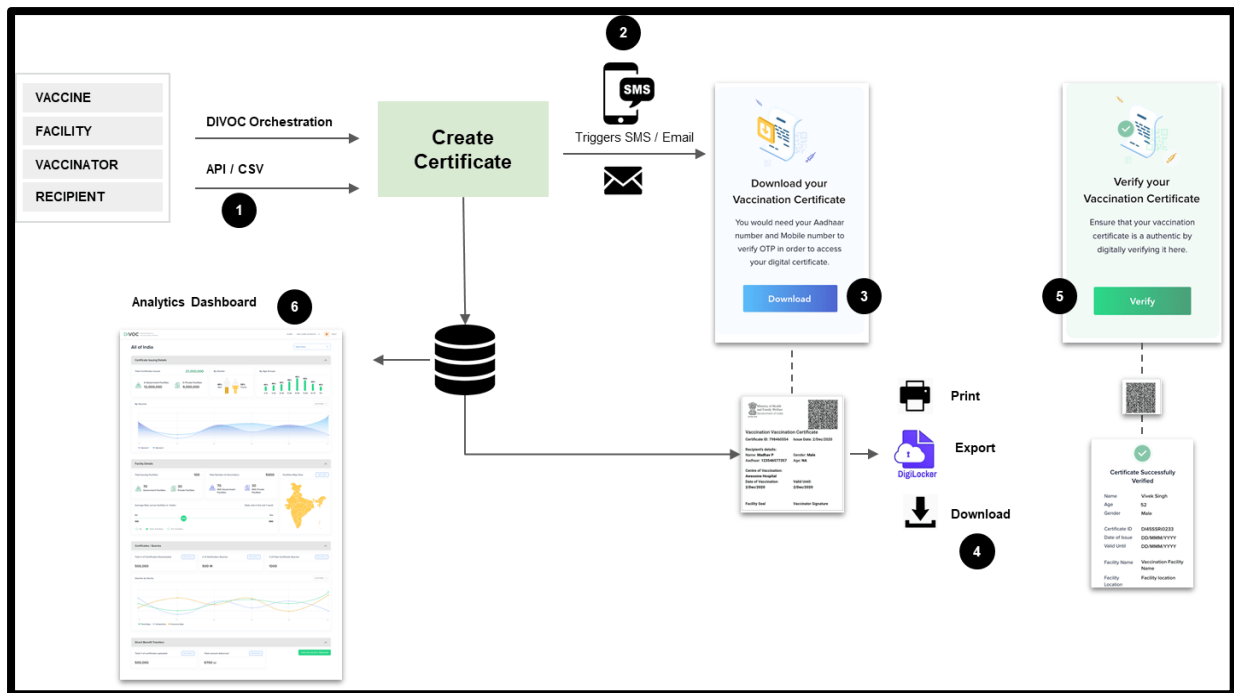
- Facility Print Staff can access the Certificate module to generate certificate post vaccination.
- Vaccinated recipients can access the certificate module through DIVOC public portal for download and verification of digital certificate issued post vaccination.

c. User Journey

System Flow

This section covers following user flow of Credential module:

Certificate Input and Generation by Facility Staff



Facility Print Staff can perform the following actions:

1. Login

Users can log into the DIVOC certificate module, via a simple mobile-based authentication process. The user can provide his/her mobile number, upon which a one-time password (OTP) will be generated and sent to his/her mobile. The user can enter this OTP to successfully log into the DIVOC Facility application.

Certificate module login page

2. Certificate Input

i. Input for the certificate can be provided in four separate methods:

- Fetching data from DIVOC Orchestration Module once the vaccination has been completed
- Using API Call from any other parallel application
- Manual CSV upload of beneficiary data who have been administered the vaccine
- Manual Form Entry of each beneficiary who have received vaccination

ii. The Certificates templates are configurable (logo, language etc.)

iii. Following are the Sample Inputs for Certificate generation

- Recipient Details (Name, Gender, Age, Aadhaar (or any National ID))
- Centre of Vaccination with Facility Seal
- Vaccinator Details with Signature
- Date of Vaccination
- Validity of Certificate

3. Generate certificate

On generation of Certificate based on provided inputs, facility staff can access the list of vaccinated recipients and print certificate

List of vaccinated recipients and certificates issued

Enrolment ID	Name	Gender	Print receipt	Print certificate
1-4370f6c9-350a-4287-afed-9a1c57479d8c	Aditi Musunur	Female	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1-e41597a4-43bb-4de3-b1d0-55faf4c65849	Savitri Morar	Female	<input type="checkbox"/>	<input type="checkbox"/>
1-06380349-819b-468e-816a-e7994c6dad98	Sonam Sankaran	Female	<input type="checkbox"/>	<input type="checkbox"/>
1-5d012f81-122a-4271-ba32-f23b7edd204b	Bdya Mitra	Male	<input type="checkbox"/>	<input type="checkbox"/>
1-b8cd331d-239d-4fbc-bba0-6595cbda7c33	Chaya Mitra	Female	<input type="checkbox"/>	<input type="checkbox"/>
1-9381e683-45bb-424c-a5d9-26cb2bbbc0cc	Ravi Murthy	Male	<input type="checkbox"/>	<input type="checkbox"/>
1-463abb24-1c63-4cc3-b18e-f23c7b9efd13	Jaya P	Female	<input type="checkbox"/>	<input type="checkbox"/>

Certificate Count
Certificates Issued: 8
[Print Certificate](#)

CERTIFICATE PRINTING

Recipient can perform the following actions:

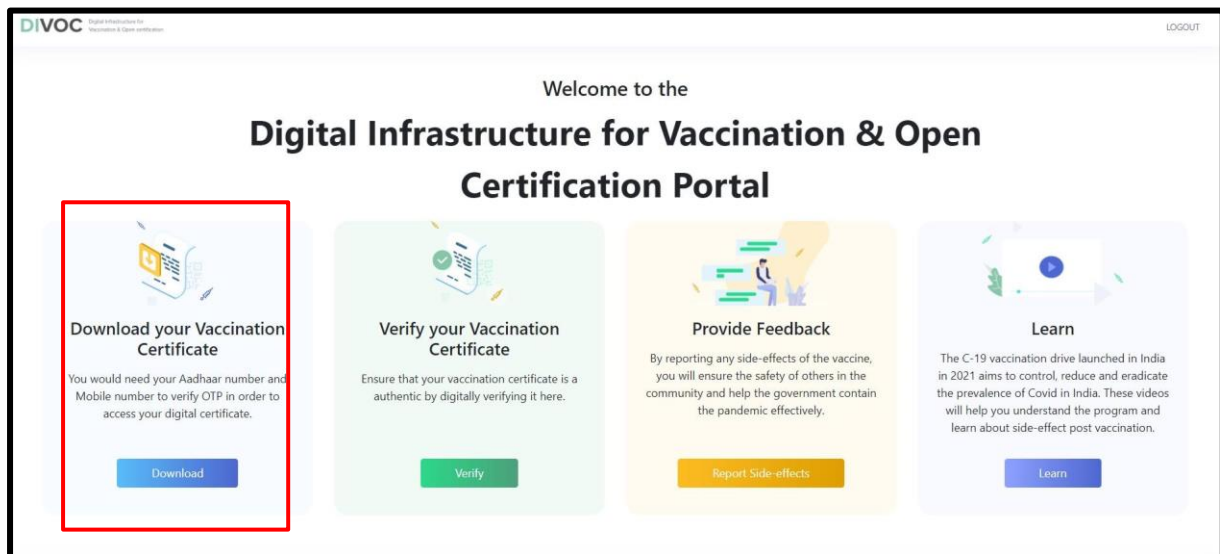
i. Download Vaccination Certificate

DIVOC provides a public portal that allows vaccination recipients to view and download their certificate. Recipients can access the DIVOC public portal and download vaccination certificates in image, SVG and verifiable certificate formats. The certificate can also be exported to platforms like national document repositories or personal health records for hassle free travelling. The recipients also have an option of printing the certificate.

Following is the user flow for recipients to access their digital vaccination certificate:

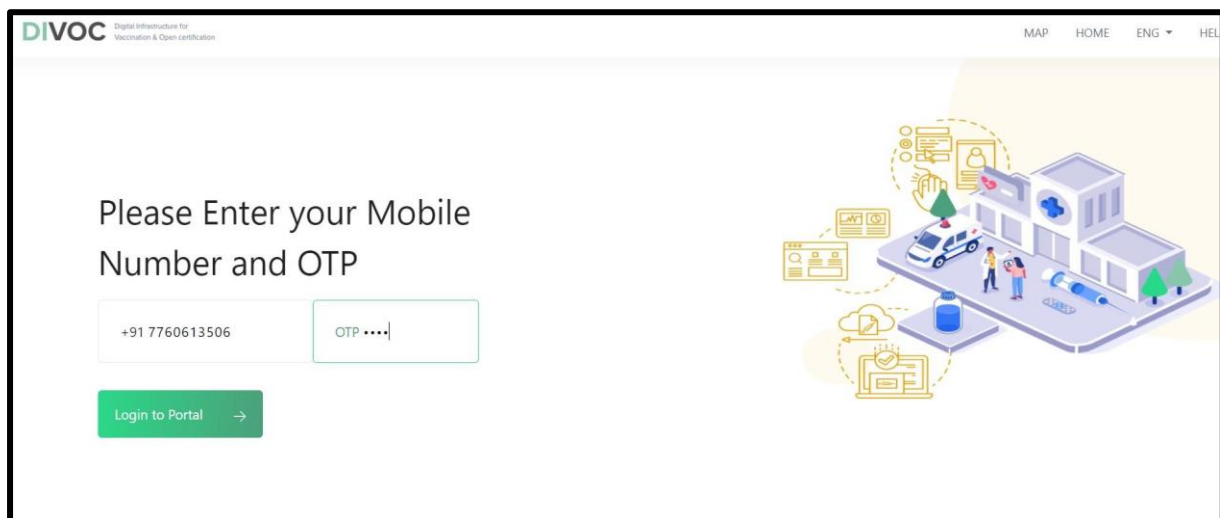
- On generation of Certificate based on provided inputs, system will trigger and send Email/SMS to recipient for users to Print / Export / Download it
- The Generated certificate will have QR code for its verification and confirmation
 1. Users can access DIVOC public portal
 2. Click on Download Certificate

Public portal landing page for certificate download



3. Enter Mobile Number and OTP

Mobile number login page for vaccinated recipients accessing vaccination certificate



4. Click on Print or Download Certificate
5. On Click, Certificate will be available to Download/ Upload to Document repository/Print

Sample Covid-19 vaccination certificate

Vaccination certificate

*Provisional Certificate
for COVID-19 Vaccination
(1st Dose)*

Beneficiary Details

Beneficiary Name / लाभार्थी का नाम
rajeev

Age / उम्र
21

Gender / लिंग
Male

ID Verified / लाभार्थी का सत्यापित
Address XXXXXXXXXX, XXXXX, India

Beneficiary Reference ID
1011505612806

Residing at / रहे
1, bangalore
Karnataka

Vaccination Details

Vaccine Name / वैक्सीन का नाम
COVID-19

Date of Dose / खुराक की तारीख
02 Dec 2020 (Batch no. 123)

Next Due Date / अगली रिफिल तिथि
after 28 days

Vaccinated by / टीका कराये जाने वाला
Rajesh

Vaccination at / टीकाकरण का स्थान
Pune Hospital, bangalore
Karnataka

यह प्रमाणिकृत डिजिटल प्रमाणिका है। इसके माध्यम से स्वास्थ्य सेवाओं के उपयोग में सुविधा होगी।
Call Centre Number: 02000

यह प्रमाणिकृत डिजिटल प्रमाणिका है, इसका उपयोग करके आप अपने डॉक्टर को सूचित कर सकते हैं कि आपको टीका लगाया गया है।
Registration Number: 02000

Download ▾

Export ▾

Print

As Image

As SVG

As Verifiable Certificate

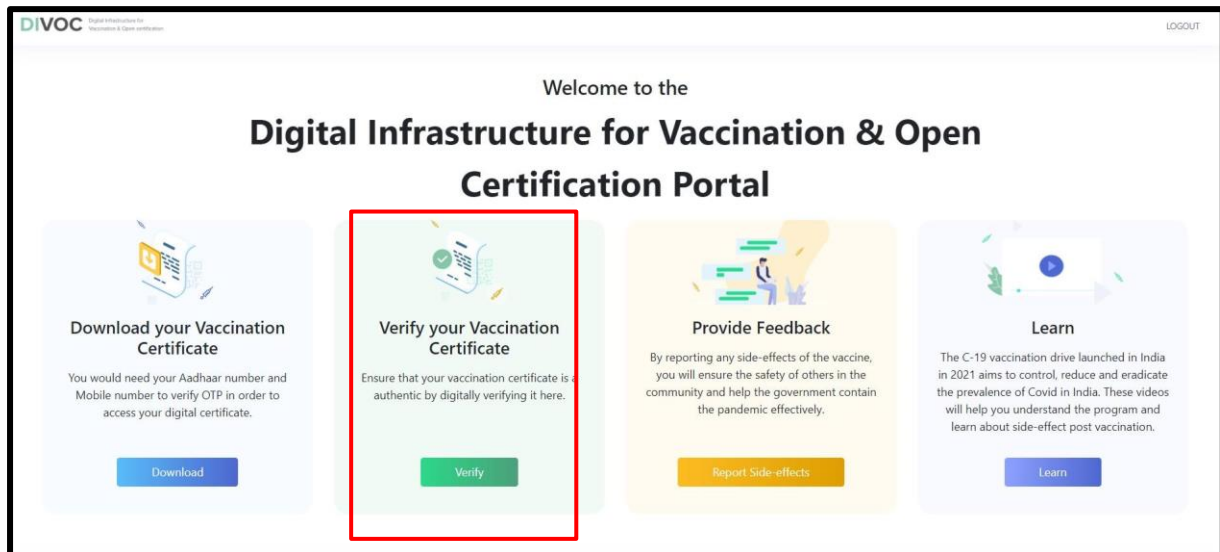
ii. Verification of Vaccination Certificate

Recipients with no mobile number can provide feedback to the nearest facility where the staff would verify the recipient's identity using the verify feature and scanning the QR code provided on the certificate. On successful verification, recipient details will be displayed on the screen and in case of unsuccessful verification, a message will be shown as "Certificate invalid".

Users can verify downloaded/Printed certificate using QR code on the certificate by performing the following actions:

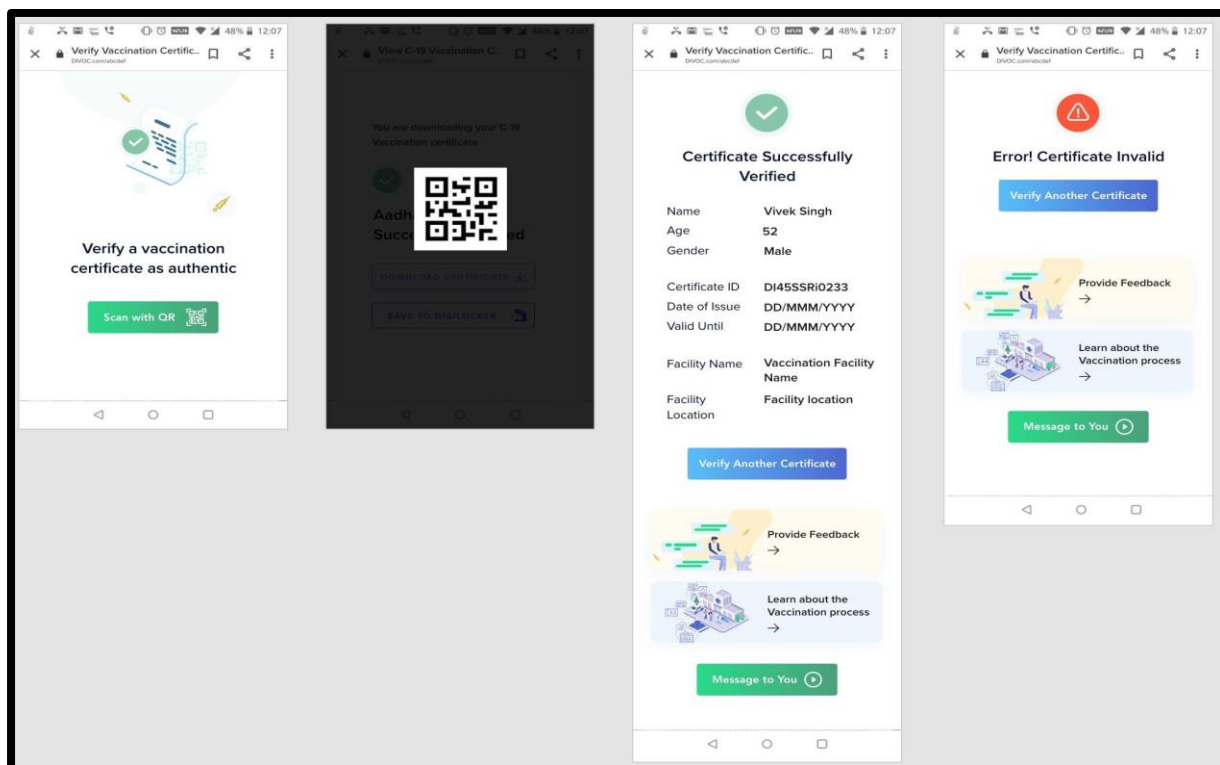
- User can access DIVOC public portal
- Click on Verify Certificate

Public portal landing page for certificate verification



- Scan the QR Code
- On Successful verification, Certificate details will be shown on screen
- On Un successful verification, message will be shown as “Certificate Invalid”

Certificate Verification process followed by vaccinated recipients



- Verification of the Certificate can be done by other 3rd party systems, by consuming the Verification API.

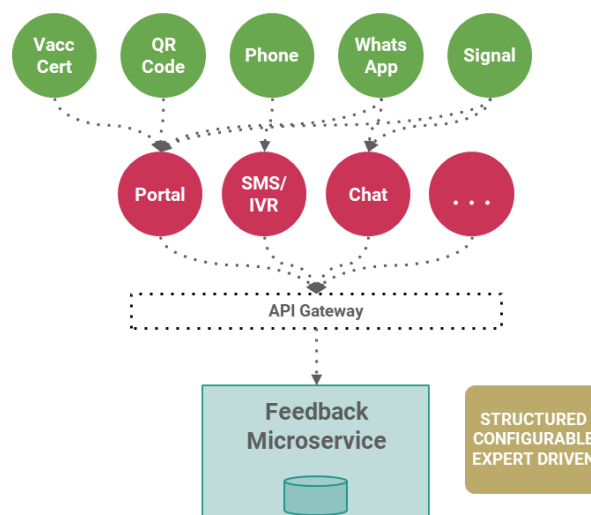
2.4 Feedback Module

a. Features

Feedback module offers a resident-reporting portal for a country's population to self-report feedback on the vaccination episode. This will entail choices for a resident to report feedback on the vaccinator who performed the inoculation, the facility where the inoculation was performed, whether there are any side effects from the vaccination, and so forth. In future, this module is also planned to be upgraded, to accommodate in-facility reporting of feedback by the vaccinator (i.e. whether there are any side effects on the resident when he/she is still in the facility). This module will also have open interfaces to integrate with a country's existing AEFI reporting systems.

Key features of the feedback module are:

- Structured feedback
 - Configurable and expert driven
- Feedback Types
 - Vaccination response feedback
 - Facility/Vaccinator rating & feedback
- Multi-channel and multi-lingual
 - Public portal, inbound SMS, IVR, WhatsApp, other apps via API
 - Multiple languages
- Self-service and assisted modes
- Integrable with AEFI systems and processes



b. Users

Feedback module can be accessed by recipients who have received vaccination. This will help health authorities in tracking the adverse reactions of the vaccine based on the feedback provided by vaccine recipients.

c. User Journey

The module works independently and can integrate with other modules of DIVOC or any external application/portal/system.

Post vaccine administration, recipients might experience unforeseeable side effects from the vaccines. In order to monitor such cases, the feedback module can be used to track symptoms faced by recipients. They can choose amongst a list of commonly known symptoms configured in the system or add any additional ones and confirm the symptoms. Recipients can log in to the portal using mobile number and OTP and submit their details so that the nearest healthcare facility can be notified of the recipient's details for further steps. In case the recipient needs to contact the facility, such contact details can also be provided to the recipient on the same portal.

The steps to be followed by the vaccinated recipients while accessing the feedback module are as follow:

1. Log in

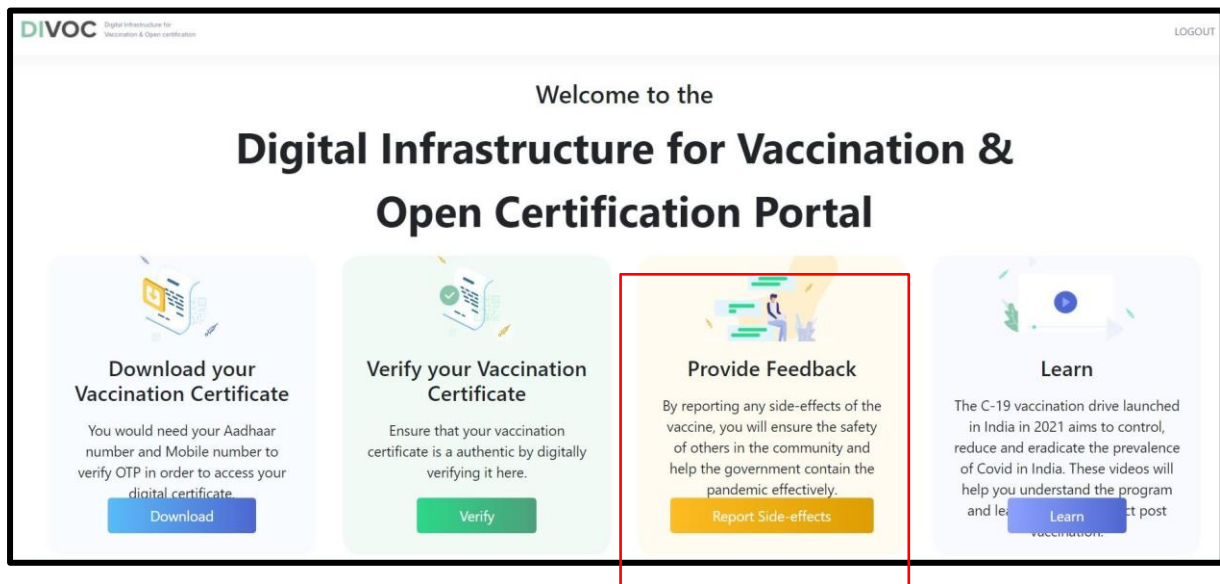
Recipients can log into the DIVOC feedback module, via a simple mobile-based authentication process. The user can provide their mobile number, upon which a one-time password (OTP) will be generated and sent to the mobile. The user can enter this OTP to successfully log into the DIVOC Facility application.

2. Provide feedback

In order to provide feedback on the vaccination experience, the Recipients can perform the following actions:

- Choose Provide feedback on DIVOC homepage
- Click on Report side effects
- A page will be displayed with a list of symptoms like fever, cough, fatigue etc. that users can choose from. Once the symptoms have been selected, press "confirm"

Public portal landing page for feedback on vaccination



Reporting of side-effects post vaccination by vaccinated recipients

Provide Feedback

By reporting any side-effects of the vaccine, you will ensure the safety of others in the community and help the government contain the pandemic effectively.

Report Side-effects

Select Symptoms

Temperature 90

90°F 100°F

Arm Soreness No

Chills No

Cough No

Fatigue No

Flu-like symptoms No

Headache No

Migraine No

- On confirmation of symptoms, a login page will be displayed where users can login using their mobile number and OTP.
- On successful login, a patient verification page will be displayed, and users can choose amongst list of patients and confirm submission after verifying details
- Once the patient has submitted the feedback, a notification to the healthcare facility where the patient was vaccinated will be sent. The screen displays details of the nearest health facility that the patient can visit in cases of emergency and extreme symptoms.

Patient identification on feedback module

Can you help us identify the patient with these symptoms

Please choose the patient

- ☐ Sagar
Male, 32
- ☐ Anjali
Female, 33

Submit

Can you help us identify the patient with these symptoms

Name	Anjali
Age	33
Gender	Female
Certificate ID	723903368
Date of Issue	2021-02-08
Valid Until	2021-03-08
Dose	1
Total Doses	2
Vaccination Facility	Delhi Hospital 1

☒ I confirm that this patient is having the identified symptoms

Confirm Patient

2.5 Dashboard

a. Features

DIVOC Dashboard is a performance monitoring dashboard giving details on day to day vaccination. The dashboard gives details at National level, State level and Facility level. The dashboard has the following features:

- Heat Map showing the number of vaccinations happening across the country with state and district-wise drill down features.
- Number of certificates generated on a daily basis
- Performance Monitoring through various reports on vaccination by state, gender and vaccine type
- Highlights Vaccination Rate based on each hour each day
- Feedback tracker with feedback received from the recipients

b. Users

Dashboard can be accessed by the Management users and Government authorities at various levels (National level, State level and Facility level) who can make decisions based on dashboard analysis.

Dashboard is also available to be viewed by citizens for information on vaccination numbers in the country.

c. User Journey

This module gives a dashboard on vaccination details which can be drilled down and based on user level dashboard will be visible to the users.

Users can log into the DIVOC dashboard using the management portal, via a simple mobile-based authentication process. The user can provide his/her mobile number, upon which a one-time password (OTP) will be generated and sent to his/her mobile. The user can enter this OTP to successfully log into the DIVOC Facility application.

Login page for DIVOC dashboard

DIVOC

Digital Infrastructure for
Development & Open contribution

MAP

HOME

ENG ▾

Please Enter your Mobile Number
and OTP

+91 3000XXXXXXX

Get OTP →

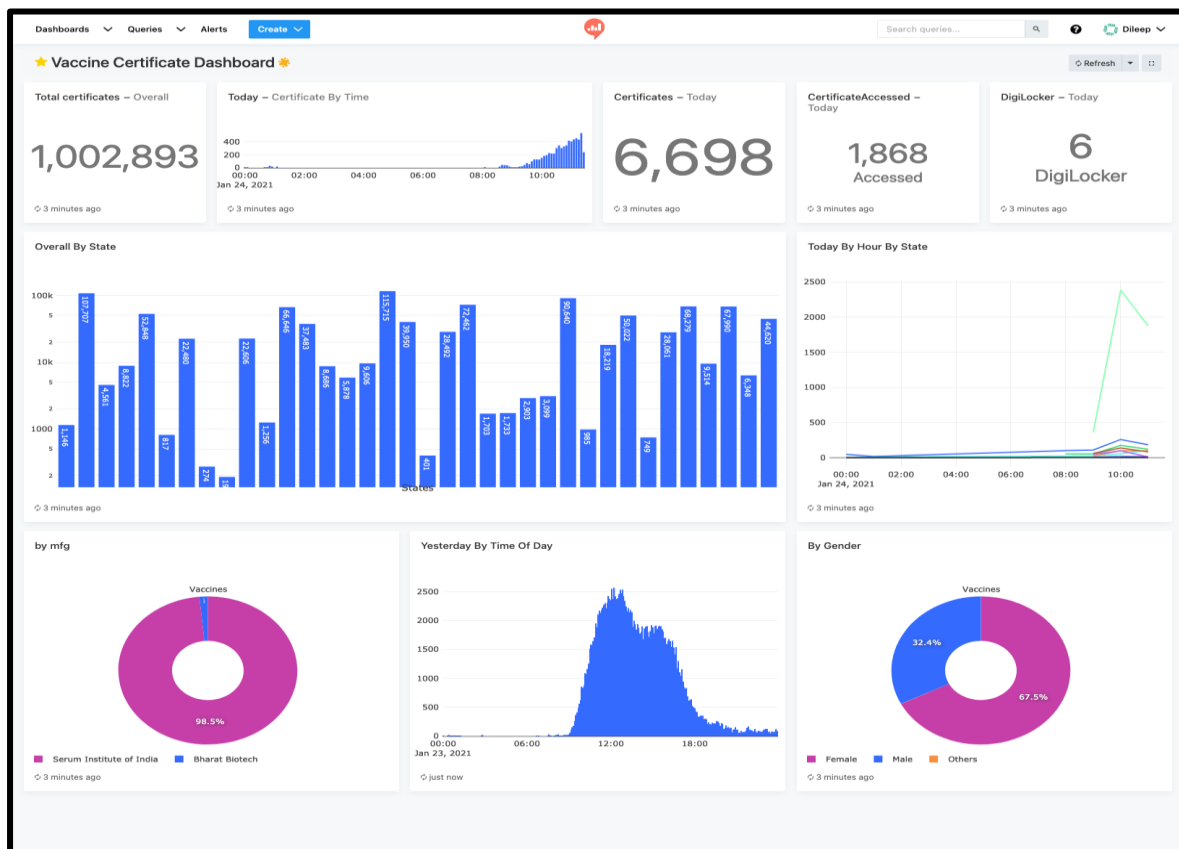


The dashboard gives reports on the following:

1. Certificate issuing details – gender, age group, date, region
2. Certificate download details – date-wise download, verification and invalid verification
3. Facility details – total issuing facilities, total number of vaccinators and average rate across facilities

It helps the authorities in Planning Immunisation Drive, determining fund utilisation and carrying out real time monitoring of Vaccines efficacy.

DIVOC dashboard



Analytical Dashboards on Generated Certificates:

- DIVOC provides details on Certificate generation and its distribution for further analysis on following indicators
 - a. Region (Geographical)
 - b. Gender / Age
 - c. Type of Facility
 - d. Fund Type
 - e. Other
- Users can Drill Down and based on User level dashboard will be visible for detailed analysis of certification generation across the country. An illustrated use case for India has been depicted below.

Illustrative geographic drill down feature on DIVOC dashboard

