

DIVOC Wiki

Introduction to DIVOC

Digital Infrastructure for Vaccination Open Credentialing



What is DIVOC?

The **Digital Infrastructure** for Vaccination Open Credentialing or **DIVOC** is an **open-source platform** that enables countries to digitally orchestrate large-scale health campaigns such as vaccination and certification programs.

Learn more about the platform on the [DIVOC](#) website or [Contact us](#) for more details.

Facilitates last-mile delivery of health programs at scale

- Built in India for the world as a **digital public good**, DIVOC is a flexible and extendable software that

can be used across multiple health programs.

- Its scalable and data-driven architecture allows it to deal with diverse country-specific scenarios. In a vaccination program, for example, it gives countries the ability to manage and control vaccines, facilities, and vaccinators systematically across geographies, as well as generate digitally variable certificates that are compliant with international standards.

Our Key Modules

- The platform is modular, enabling countries to use the components together or as an individual standalone solution, according to their need, for end-to-end vaccination and certification.
- **DIVOC Demo:** Click [here](#) to play around with the modules.



Orchestration

Create, maintain program, vaccine, facility, vaccinator registries



Facility App

Add new beneficiary, verify beneficiaries



Issue and Verify Certificates

Issue digitally verifiable certificates, distribute them online and offline



Citizen Portal

Self-register, schedule appointments, download and verify certificates



Feedback

Collect feedback on facilities, and side-effects post immunisation



Analytics

Performance monitoring dashboard with live updates

DIVOC's journey so far: Country stories

Being deployed across multiple countries, the platform has enabled India to issue over 1 billion COVID-19 vaccination certificates to its citizens.

Launched at Scale: India	Now live in...
1.1 billion digitally signed vaccinated certificates	DIVOC's certificate component went live with digital vaccination certificates in Sri Lanka in July 2021, in the Philippines in

via Cowin.	September 2021, and in Jamaica and Indonesia in December 2021.
DIVOC has enabled the Indian Council of Medical Research (ICMR) to issue digitally-signed COVID-19 test reports .	Plans are underway to issue COVID-19 test result certificates in both Sri Lanka and Philippines .

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DIVOC Architecture

Coming soon.....

DIVOC Demo

Introduction to DIVOC Modules

Each module or component of DIVOC can be **used independently or together** and integrated with existing systems. This makes it easy for countries to choose, customise and pick up components as per their needs.

How this demo works

The tutorials will guide you on how to use DIVOC:

- There are **6 sections** and you can play around with each to understand how they work as per your specific needs.

Or,

- You can go step-by-step as shown below: Orchestration - Facility app - Issue and Distribute Certificates - Citizen portal - Feedback module - Analytics.
-

Getting Started

1. Orchestration:

Before you start any public health program in your country, the orchestration module helps you establish multiple registries for the program, set up appointment schedules, and add vaccinators, among others.

2. Facility app:

Enables walk-in registrations, verification, queue management, and vaccination. The app lets you:

- Enrol/register beneficiaries who walk into the facility for on-the-spot registration. The process to register is the same as shown for the [citizen portal](#). Pre-enrolled recipients can also walk into a facility.
- Verification of beneficiaries via offline or online mode.
- Recipient queue to view and manage the list of beneficiaries enrolled into the system.
- Vaccination event recording and generation of an “immutable vaccination record.”

3. Issue & Verify Certificates

The certificate/credentialing module is an integral part of DIVOC, which can be used to issue certificates after a vaccination event. The module can also be integrated with the vaccination system of the country.

4. Citizen portal

DIVOC provides a public portal that can be used for citizen-specific activities such as self-registration and appointment booking for one or multiple programs. It can also be used to download and verify certificates.

5. Feedback

Enables digital administrative feedback and reporting of side-effects by beneficiaries or their caretakers. The feedback module can be integrated with a country's analytics system or even with an AEFI (adverse event following immunisation) system for research and analysis of the reported side-effects.

6. Analytics

The performance monitoring dashboard gives day-to-day details about an ongoing public health event such as vaccination.

Disclaimers:

- *Each section presents a demonstration of various modules and features of DIVOC.*
- *It is an illustration of a sample use case and not a part of any vaccination certification program.*
- *The system resets itself periodically. If it is temporarily unavailable, please try again in a few minutes.*

Orchestration

Using this module you can create and maintain program, facility, vaccine, and vaccinator registries. Countries that do not have digital health registries can use this module to create digital infrastructure/resources for any kind of public health program. Countries can also create appointment schedules and daily rates of vaccination for different facilities.

Program Registry	Vaccine Registry	Facility Registry	Vaccinator Registry
Vaccination programs	Approved vaccines	Approved facilities	Trained vaccinators
Active status	Active status	Location	Active status
Allowed vaccines	Vaccination schedule	Active status	Training certificate
Start and end dates	Batch deny list	Vaccination daily rate	Associated facilities
Certificate templates	Max retail price	Total supply	Rating and feedback
	Vaccination method	Rating and feedback	

Who would typically use this module?

DIVOC comes with **three default roles**:

- **System admin**
- **Controller**
- **Facility admin**

Each has specific functions and logins assigned to them -

Steps to follow:

1. System Admin

A system admin can be a user from the IT department of the country responsible for setting up initial rules, configuration, and master data upload for the specific program/programs in question.

Use the following URL: <https://demo-divoc.egov.org.in/portal>. Log in using 2111111111 and OTP 1234

Please Enter your Mobile Number and OTP

+91 2111111111	OTP
----------------	----------

Login to Portal →



A. Program setup

1. Click on **Vaccine Programs**. Register a new vaccine/immunisation program by clicking on **REGISTER NEW VACCINE PROGRAM**.

Facilities Vaccinators Vaccines **Vaccine Programs** Pre-Enrollment

Active Vaccine Programs + REGISTER NEW VACCINE PROGRAM

Child Immunization xyz Start Date: 18-Oct-2021 End Date: 18-Oct-2021 Active	Covid-19 Vaccination for covid-19 Start Date: 02-May-2021 End Date: 14-Jan-2022 Active	Polio abc Start Date: 05-Sep-2021 End Date: 02-Oct-2021 Active
--	---	---

2. Add the program name, program description, program logo, start and end dates, and select vaccine. Click on **SAVE**. You will see a list of all vaccine programs currently active in your country.

Facilities Vaccinators Vaccines **Vaccine Programs** Pre-Enrollment

Register New Vaccine Program BACK

Program Name* <input type="text"/>	Program Logo <input type="text"/>	Select Vaccine* Select...
Program Description* <input type="text"/>	Start Date* 03-01-2022 <input type="text"/>	End Date* 03-01-2022 <input type="text"/>

SAVE

B. Vaccine registration

1. Click on **Vaccines**. You can register a new vaccine, as well as existing ones by clicking on **REGISTER NEW VACCINE**.

The screenshot shows a navigation bar with 'Facilities', 'Vaccinators', 'Vaccines' (selected), 'Vaccine Programs', and 'Pre-Enrollment'. Below the navigation bar, there is a section titled 'Active Vaccines' with a '+ REGISTER NEW VACCINE' button. Four vaccine cards are displayed, each with a name, manufacturer, and an 'Active' toggle switch:

- Covishield** (Serum Industries of India) - Active
- Test Vacc** (test man) - Active
- Vaccine** (vaccineee) - Active
- Zyco D** (Zydus) - Active

2. Fill in details such as the name of the vaccine, manufacturer, administration type, price, duration dose (if there are multiple doses), and vaccine validity. Next, click on **SAVE**. It will show all the vaccines active in your country.

The screenshot shows the 'Vaccines' registration form. The navigation bar is the same as in the previous screenshot. The form fields are:

- Manufacturer***: Text input field.
- Administration Type**: Dropdown menu with 'muscular injection' selected.
- Approximate Price (INR)***: Text input field.
- Validity of Vaccine (last dose)**: Text input field and a dropdown menu with 'Days' selected.

A '+ REGISTER NEW VACCINE' button is visible at the top right of the form area. A 'SAVE' button is located at the bottom left of the form.

C. Facility setup

1. Click on **Facilities**. Create a list of vaccination centres as per the given CSV template and save it on your laptop/desktop. You can add details such as facility code, facility name, contact, email, operating hour (start/end), category, type, status, address, website URL, admin name, and admin mobile.

2. Click on **UPLOAD CSV** to upload this list.

The screenshot shows a navigation bar with 'Facilities' (selected), 'Vaccinators', 'Vaccines', 'Vaccine Programs', and 'Pre-Enrollment'. A 'DOWNLOAD TEMPLATE' button with a download icon is visible in the top right corner. At the bottom of the page, there is a footer with '20 Records in the DIVOC Facility Registry' and an 'UPLOAD CSV' button.

****223	Krishna Reddy	27-Oct-2021
****223	Vaidya Acharya	27-Oct-2021
****223	Nayan A	27-Oct-2021
****223	Narayan Reddy	27-Oct-2021
***AN	sonu	25-Oct-2021
*****212	Vaccinator One	16-Sep-2021

vaccinator.csv	09-Aug-2021	15:42	1	0
vaccinator.csv	09-Aug-2021	15:41	0	1

Rows per page: 10 ▾ 1-4 of 4 < >

2. Controller

The controller user role can be utilised by a program administrator who manages facility enrollment and oversees the facility operations aligned with the program objective. The person would be responsible for setting up per day facility vaccination rate, and activating/deactivating the facilities, etc.

Use the following URL: <https://demo-divoc.egov.org.in/portal>. Log in using 1111111170 and OTP 1234

Please Enter your Mobile Number and OTP

+91 1111111170

OTP

Login to Portal →



A. Facility activation/deactivation

Go to **Facility Activation**. Select Program, Region, and Type of Facility. Select the facilities you want to activate from the list. Click on **Make Active**. To deactivate a facility, follow the same steps and select the facilities you want to deactivate. Click on **Make Inactive** to deactivate a facility.

All Facilities
Facility Activation
Adjusting Rate

Program

Polio

Region

All

Type of Facility

Government

Private

Status

Active

Inactive

16 Facilities

CODE	NAME	TYPE	PROGRAM STATUS	
BLR1	Banglore Hospital	Government	Inactive	●
BOM11	Mumbai Hospital 11	Government	Inactive	○
BOM14	Mumbai Hospital 14	Government	Inactive	●
BOM13	Mumbai Hospital 13	Government	Inactive	●
BOM15	Mumbai Hospital 15	Government	Inactive	○
BOM12	Mumbai Hospital 12	Government	Inactive	○
DEL12	Delhi Hospital 12	Government	Inactive	○

Make 3 facilities active for the Polio

MAKE ACTIVE

B. Adjusting vaccination rate

Go to **Adjusting Rate**. Select Program Name, Region, Type of Facility. Select one or more facilities to set/modify daily vaccination rates. Click on **SET RATES**.

C. Notify Facilities

1. Go to **All Facilities**. Select Program, Region, Type of Facility. Select the facility. Click on **NOTIFY**.

All Facilities Facility Activation Adjusting Rate

Program
Covid-19

Region
All

Type of Facility
 Government
 Private

Status
 Active
 Inactive

13 Facilities

CENTRE ID	CENTRE NAME	LAST SYNCED ON	
BLR1	Banglore Hospital	18-Oct-2021	<input type="checkbox"/>
BOM11	Mumbai Hospital 11	18-Oct-2021	<input type="checkbox"/>
BOM14	Mumbai Hospital 14	18-Oct-2021	<input checked="" type="checkbox"/>
BOM13	Mumbai Hospital 13	18-Oct-2021	<input type="checkbox"/>
BOM111	bombay	18-Oct-2021	<input type="checkbox"/>
BOM15	Mumbai Hospital 15	18-Oct-2021	<input type="checkbox"/>
BOM12	Mumbai Hospital 12	18-Oct-2021	<input type="checkbox"/>

Notify 1 facilities for the Covid-19

NOTIFY

2. Write the subject matter and the message. Click on **SEND**.

All Facilities Facility Activation Adjusting Rate

Program
Covid-19

Region
All

Type of Facility
 Government
 Private

Status
 Active
 Inactive

Notify Facility Administrator

Subject

Enter Message

CANCEL **SEND**

Notify 1 facilities for the Covid-19

NOTIFY

BOM12 Mumbai Hospital 12 18-Oct-2021

3. Facility Admin

Use the following URL: <https://demo-divoc.egov.org.in/portal>. Log in using 3333333341 and OTP 1234.

Please Enter your Mobile Number and OTP

+91 3333333341 OTP

Login to Portal →



A. Set up appointment schedules

1. Go to **Program Overview**. Click on **CONFIGURE SLOTS**.

Cov

Covid-19

Vaccination for covid-19

Start Date: **02-May-2021**

End Date: **14-Jan-2022**

[CONFIGURE SLOTS](#)

Program Medicines

Covishield

Serum Industires of India

Validity N/A

650

2. Select **Appointment Hours** to set/change the timings, and set up/change the **Maximum number of appointments allowed**. Select **Walk-in Hours** to set up /change the timings, and set up/change the **Walk-in Days**. Click on **SAVE**.

Program: Covid-19 / Config Slot BACK

Vaccination Days

Mon
Tue
Wed
Thu
Fri
Sat
Sun

Appointment Hours

09:00 AM

to

02:00 PM

+

Maximum number of appointments allowed

20

20

20

20

20

20

20

Walk-in Hours

02:00 PM

to

04:00 PM

Select Walk-in Days

SAVE

B. Add/Remove Vaccinators

1. Go to **Vaccinator Details**. Click on **ADD NEW VACCINATOR**.

Upload Vaccination Details
Role Setup
Vaccinator Details
Program Overview
Beneficiaries

+ ADD NEW VACCINATOR

OPERATOR NAME	ALL PROGRAMS ▼	CERTIFIED	STATUS
Vaccinator One	Covid-19	✓	● Active

2. Add details such as name, mobile number, email id, license number, and certification, if any. Click on **ADD**.

Mobile *

National Identifier *

License Number *

Training & Certification

Certification (if any)

Certified

[ADD](#)

C. Setup facility staff role

1. Go to **Role Setup**. Mention role type, name, mobile number, and employee id. Select Enabled to activate status. Click on **SAVE**.

Upload Vaccination Details **Role Setup** Vaccinator Details Program Overview Beneficiaries

Role Type * **Name *** **Mobile Number *** **Employee Id *** **Status** Enabled

[SAVE](#) [SET RATE](#) [DELETE](#)

Disabled users cannot login

D. Create recipient vaccination details

1. Go to **Upload Vaccination Details**. Create a list of recipients as per the given CSV template and save it on your laptop/desktop. You can add details such as pre-enrollment code, recipient name, mobile number, age, gender, identity, address, vaccination batch, vaccination date, vaccination dose, vaccination name, vaccinator name, facility name, and address, among others.

2. Click on **UPLOAD CSV** to upload this list.

Upload Vaccination Details Role Setup Vaccinator Details Program Overview Beneficiaries

[DOWNLOAD TEMPLATE.CSV](#)

[UPLOAD CSV](#)

FILE NAME	DATE	TIME	RECORDS	ERRORS
UploadVaccinationDetails.csv	29-Nov-2021	18:48	2	0

E. Check beneficiary list (past, current and upcoming)

Go to **Beneficiaries**. Select Program, Start Date, and End Date. Click on **SEARCH**.

Upload Vaccination Details Role Setup Vaccinator Details Program Overview **Beneficiaries**

Past Today **Upcoming**

Program * Start Date * End Date *

Covid-19 08-12-2021 08-12-2021 **SEARCH**

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Facility App

Who would typically use this?

It will be typically used by facility staff, including vaccinators and registration desk users, to carry out day-to-day tasks around a particular vaccination program. The app can be used both in **offline and online mode**. This is a multilingual application and the staff can choose the language according to their convenience.

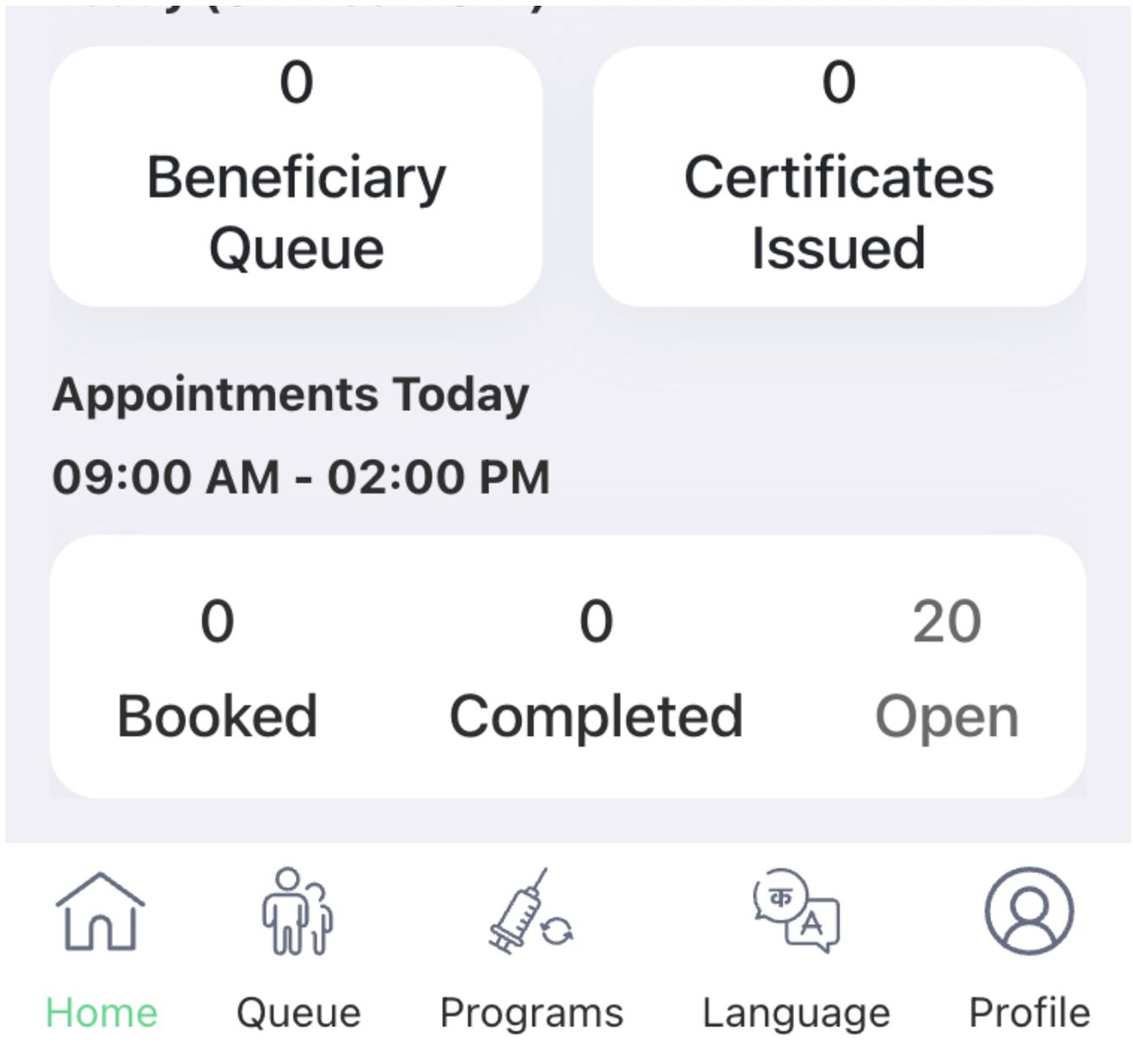
The image shows a mobile application interface with a green header and a light blue footer. The main content area is white with rounded corners. At the top, there is a green bar with a white rounded rectangle containing a sync icon (three vertical bars of increasing height) and the text "Sync upto date". Below this, there are two white rounded rectangles side-by-side. The left one has a green icon of a person with a checkmark and the text "Verify Beneficiary". The right one has a blue icon of a clipboard with a plus sign and the text "New Beneficiary". At the bottom, there is a light blue bar with the text "Today (07-Dec-2021)".

Sync upto date

Verify Beneficiary

New Beneficiary

Today (07-Dec-2021)



What does this app allow?

1. Verify Beneficiary

This function can be used to verify a beneficiary against the photo/national ID proof submitted by the beneficiary at the time of registration. If a country has an online ID system (such as Aadhaar in the case of India), the module can be integrated with the national ID system and can perform an online verification.

Step 1: Log in

Click on the following URL to use the facility app: https://demo-divoc.egov.org.in/facility_app/. Log in using 9876543210 and OTP 1234. Next, click on **Verify Beneficiary**.

Mumbai Hospital 11

Nagpur, Maharashtra

Covid-19



Sync upto date



Verify
Beneficiary



New
Beneficiary

Today (07-Dec-2021)



Home



Queue



Programs



Language



Profile

Step 2: Verify

Scan the QR code or enter the enrolment number. Press **Continue** to complete the verification process.

← **Verify Beneficiary**

SCAN QR CODE

OR

Enter enrolment number

CONTINUE



Home



Queue



Programs



Language



Profile

2. Add new beneficiaries

The facility app supports the registration of walk-in patients who may or may not have booked an appointment before the visit.

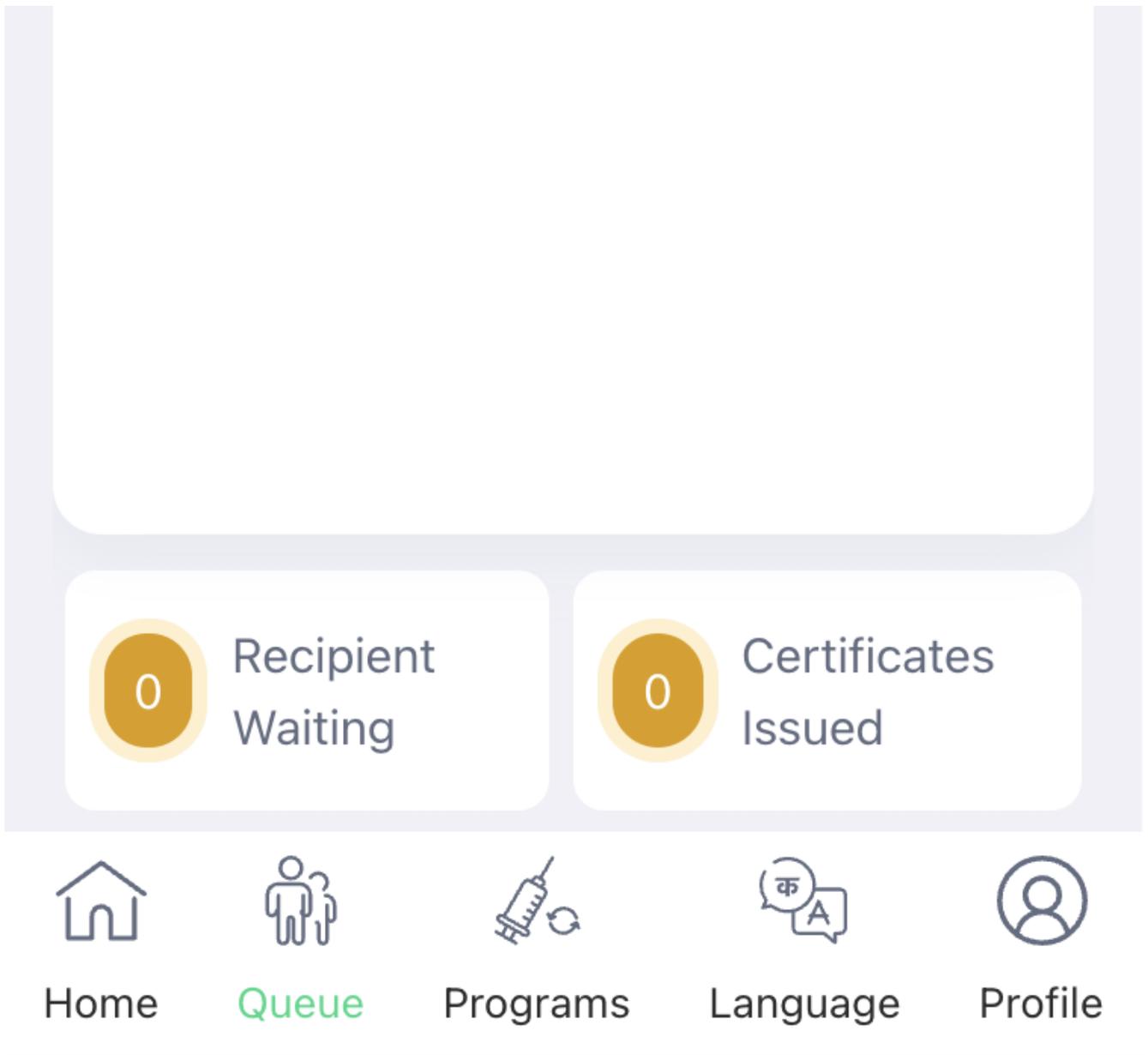
Click on **New Beneficiary**. Follow the same steps as outlined for users of the [Citizen Portal](#) to add members.

3. Recipient waiting

All the beneficiaries who have been registered and verified, and are waiting to be vaccinated, will be seen in the recipient queue.

Click on **Beneficiary Queue** to check how many patients are in queue for vaccination.

No Patient in Queue



4. Issue/ Distribute Certificates

After a vaccination event, the facility app generates a digital certificate in real-time.

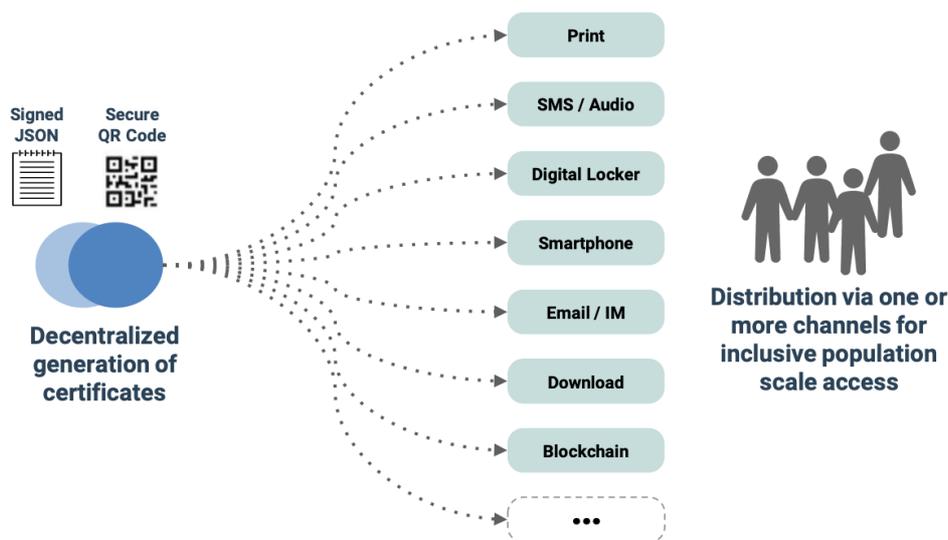
- Countries that have their own vaccination systems can use the DIVOC certification module to issue certificates that will be auto-generated and stored in DIVOC's certificate registry.
- If configured, the issued certificates will be seen under the "certificate issued" section on the app. They can also be distributed to vaccinated beneficiaries at a facility after they are printed by the facility staff.

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Issue and Verify Certificates

What this module allows:

- Countries can use this module to issue **digitally verifiable certificates** to the entire population at speed and scale in a controlled manner post-vaccination.
- This module is responsible for issuing a QR code-based digital certificate for any registered health event. It can be adapted to other areas too where there is a requirement for secure and tamper-proof documents, such as educational certificates. Click [here](#) if you want to understand how a normal QR code that you may see on a food menu is different from a **verifiable QR code**.
- The certificates can be issued in both digital and physical forms, which includes print, pdf, and other formats.
- Certificates can be verified using the [citizen portal](#).
- Certificates can also be downloaded by citizens via the [citizen portal](#).
- If the country has an authorised third-party app, it can be integrated with DIVOC's credentialing module to fetch certificates from the certificate registry and view/download them.



Once the certificate is issued, multi-channel distribution and print schemes should work to ensure users and countries have a choice.

- The module supports multilingual vaccination certificate templates.
- Generates WHO-DDCC (World Health Organisation- Digital Documentation of COVID-19 Certificates) compliant digital vaccination certificates with a W3C (World Wide Web Consortium) JSON schema, for every resident after successful inoculation.
- To aid travel into other countries, the certificate module supports on-demand services for travellers to export their vaccination certificates to other formats (e.g. EU-DCC, SmartHealthCard), used in the destination countries.
- The module supports additional services, including certificate verification, certificate update/correction, and certificate revocation.
- The public key of the adopter country can be published using DIVOC's verification page that can be embedded into the country's vaccination program-specific website/portal.

Verifiable QR Code

You have likely seen a lot more QR codes over the last year due to the pandemic. At many restaurants, for example, which are keen not to share physical menus, customers scan a QR code with their phone camera to open a website for the online menu.

What is a QR code?

- Short for Quick Response, a QR code stores all kinds of information that can be scanned and accessed by a digital device such as your smartphone.
 - The machine-readable format can also be printed on a piece of paper.
 - While barcodes are one-dimensional, which means that information can be scanned only horizontally, QR codes are two-dimensional. Hence, information on a QR code can be read both horizontally and vertically, allowing it to store more data.
 - QR codes allow you to download applications, join WiFi networks without having to key in any password, scan coupons, and much more. They can be embedded on a company's website to gather feedback, facilitate registrations, collect customer data, and order details. QR codes can be used on physical products as a way to provide more information.
 - QR codes are also used for document verification to check if a credential is genuine. This has gained popularity during the pandemic with some countries opting for QR code-based vaccination certificates to open up travel and business.
-

Normal QR Code vs Signed QR Code

- A normal QR code contains information that can be read and understood by any QR code viewer. They typically carry a URL and a scan of such QR codes reroutes to a separate site.
- In a normal QR code, information can be edited and altered, making the verification process untrustworthy and vulnerable to hacking. To address this issue, a signed or verifiable QR code is used, particularly in the case of sensitive information. Sensitive data could be your bank details, educational details, and medical information, among others.
- A signed QR code encodes the verifiable data set or information within the QR itself, rather than on any website.
- The information is secure and cannot be altered or tampered with, nor can it be scanned and accessed

by everyone. This is because the original data/information in the QR code is digitally signed.

- In the case of COVID-19 vaccination certificates, for example, data identifying the vaccination event and the beneficiary is encoded within a QR code and then digitally signed, making it tamper-proof. Only a verifying authority with a secure key can validate this information accurately by matching it with the signing key of the QR code.
-

What information goes into a QR code?

Click [here](#) to know more.

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Citizen Portal

Who would typically use this?

Citizens can use this portal before and after a vaccination event.

What this module allows

- [Self-registration](#)
- [Appointment booking](#)
- [Downloading a certificate](#)
- [Verifying a certificate](#)
- [Side-effects reporting \(Feedback module\)](#)

Steps to follow

1. For self-registration and appointment -

Step 1: Log in to the portal

Use the following URL for the citizen portal: <https://demo-divoc.egov.org.in/citizen>. Log in using your own mobile number and OTP 123456. Click on **Verify**.

Step 2: Add a member

Click on **+Member** to add members (you can register yourself and 3 more with a single mobile number).

Registered Beneficiaries (You can add upto 4 members)

[+ Member](#)

Eligibility: For Covid-19, you can register beneficiary who have comorbidity or aged between 50 and 120.

No members have enrolled yet.

Step 3: Register to a program

Select the program for which you want to register (if there are multiple programs listed). Click on **Continue**.

Please select vaccination program



[Back](#)

[Continue →](#)

Step 4: Check eligibility

Enter the beneficiary's year of birth and mention if the person has any commodities from among those listed. Click on **Continue**.

Check beneficiary's eligibility for Covid-19

Enter beneficiary's year of birth

Year of birth *

Select



Does the beneficiary have any of the following comorbidities?

Yes No

[Back](#)

[Continue →](#)

Step 5: Add details

Mention ID type, ID number, name, gender, residence details, contact information, and email ID among others. Once you have added all the details, click on **Continue**. You can book your appointment once you have registered yourself.

Nationality *

Select Nationality



Locality

Enter your locality

Pin code

Enter your pin code

Contact information for vaccination certificate

Mobile

9999999999

Beneficiary Email ID

Enter Email ID

Verify Beneficiary Email ID

Confirm Email ID

[Back](#)

[Continue →](#)

2. For Downloading a Certificate -

Step 1: Log in

Click on the following URL to log into the citizen portal: <https://demo-divoc.egov.org.in/>. Go to **Download your Vaccination Certificate** section. Click on **Download**.



Download your Vaccination Certificate

You would need your unique id and Mobile number to verify OTP in order to access your digital certificate.

Download

Log in with 1234567890 and OTP 1234.

Please Enter your Mobile
Number and OTP



Number and OTP



Step 2:

Select the person whose certificate you want to download or print.

Vaccination certificate

There are multiple certificates associated with phone : 1234567890

Please choose the certificate for

- abcd ascv
- Pinky
- kittu

Step 3:

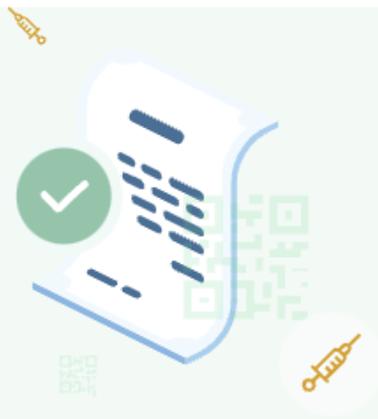
Once the certificate is displayed, click on **Download / Print**.

3. For Certificate Verification -

Step 1:

Click on the following URL: <https://demo-divoc.egov.org.in/>. Go to **Verify your Vaccination Certificate**

section. Click on **Verify**.



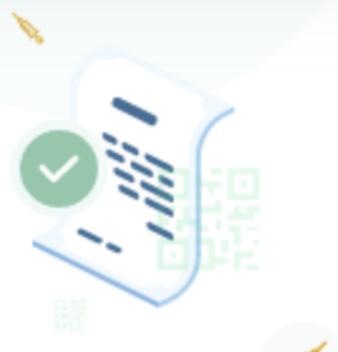
Verify your Vaccination Certificate

Ensure that your vaccination certificate is a authentic by digitally verifying it here.

Verify

Step 2:

Click on **SCAN WITH QR** to verify the certificate.





Verify a vaccination certificate

SCAN WITH QR



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Feedback

Who would typically use this?

DIVOC has a feedback module that can be configured by countries to receive feedback on facilities that are running health campaigns. It can also configure a list of side-effects that can be reported by beneficiaries with a single click after authenticating themselves with a user ID password or mobile OTP via the “Citizen Portal.”

Citizen portal to report symptoms

A citizen interface via the DIVOC’s citizen portal has been enabled that can be used to provide feedback against the facility or report side-effects experienced after leaving the facility.

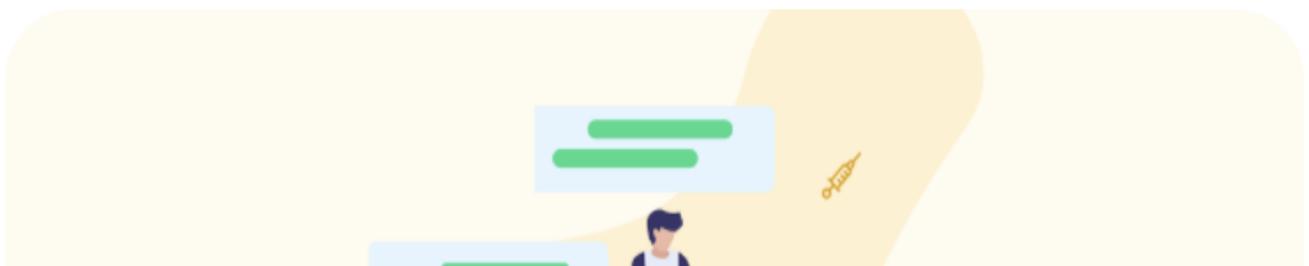
Steps to follow

Step 1:

Click on the URL to open the feedback page: <https://demo-divoc.egov.org.in/>

Step 2:

Go to the **Report symptoms** section, and click on **Report Side-effects**.





Report symptoms

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

Step 3:

A page will be displayed with a list of symptoms that users can choose from. After selecting the symptoms, click on **Confirm Symptoms**.

Headache	<input checked="" type="checkbox"/> Yes
Migraine	<input type="checkbox"/> No
Nausea	<input checked="" type="checkbox"/> Yes
Paralysis	<input type="checkbox"/> No
Rapid Heartbeat	<input type="checkbox"/> No
Swollen Glands	<input type="checkbox"/> No
Muscle/Joint Pain	<input checked="" type="checkbox"/> Yes
Pain Scale	<input type="text" value="0"/>

0 10



Step 4:

Log in with 1234567890 and OTP 1234.

Please Enter your Mobile
Number and OTP

Login to Portal →

**Step 5:**

On successful login, a patient verification page will be displayed. Select the patient who has these symptoms and click on **Submit**.

Can you help us identify the patient with these symptoms

Please choose the patient

- abcd ascv
Male, 92
- Pinky
Female, 85
- kittu
Male, 12

Submit

Step 6:

Click on **Confirm Patient** after verifying the details.

Name

abcd ascv

Age

92

DOB	NA
Gender	Male
Certificate ID	276040099
Vaccine Name	Covishield
Vaccine Type	NA
Date of Issue	2021-10-03
Valid Until	2022-01-01
Dose	1
Total Doses	2
Vaccination Facility	Mumbai Hospital 11

I confirm that this patient is having the identified symptoms

Confirm Patient

Note:

Once the feedback is submitted, a notification is sent to the healthcare facility where the patient was vaccinated. The screen will also display details of the nearest health facility that the patient can visit if the symptoms worsen. Click on **Continue** if you want to report the symptoms of another person.

The healthcare facility has been notified. You will receive a call back soon.
If the symptoms worsen, please visit the facility so that the doctors can attend to at the earliest.

[If you need to contact the facility immediately](#)

Mumbai Hospital 11
No 23, Nagpur, Maharashtra, IN

Continue

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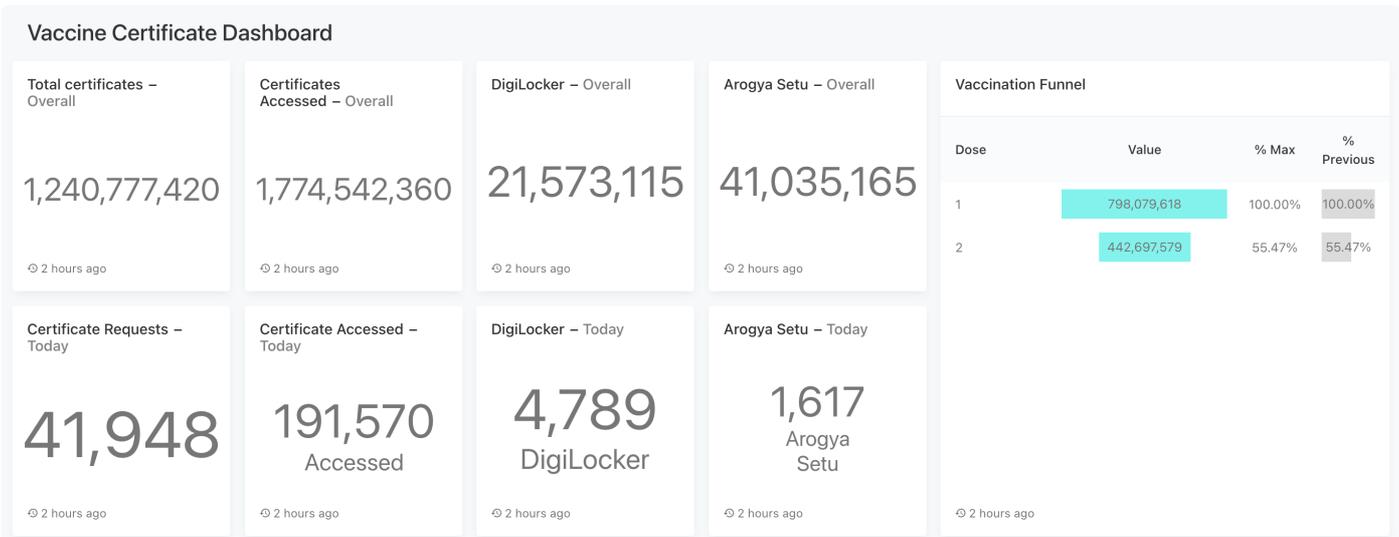
Analytics

Who would typically use this?

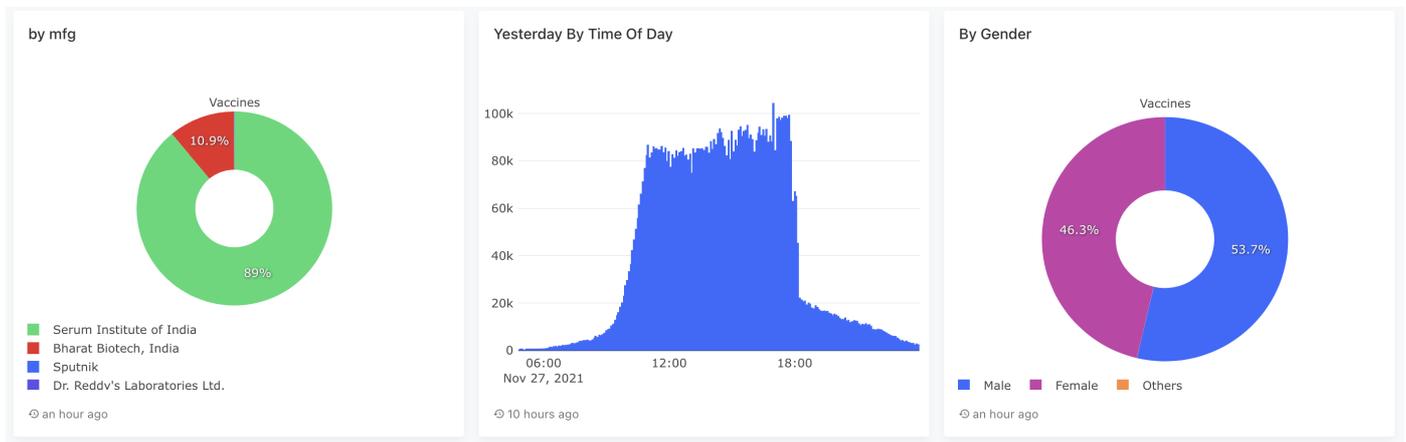
During any major health event, countries need powerful visual analytics to manage the rollout, distribution, certification, and other processes. DIVOC’s analytics dashboard empowers health departments of countries to harness their data and find insights that are required to manage future challenges.

Real-time analytics oversee the entire process

- It uses an open-source visualisation dashboard called “Redash,” which can be configured by countries.
- It is integrated with DIVOC’s **certificate module**. Redash can be configured for other modules of DIVOC as well as per a country's requirements.
- Countries can generate customised analytical reports without hampering the actual production database via ClickHouse, an open-source database management system that has been implemented by DIVOC.



- You can also see details on certificate generation and its distribution for further analysis on parameters such as geographical region, age, gender, type of facility, type of fund, and other customised indicators.



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Developer Documents

This section includes the following:

1. [Admin API \(swagger\)](#)
2. [Vaccination API \(swagger\)](#)
3. [Certificate Access API \(swagger\)](#)
4. [Registration API \(swagger\)](#)

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Implementing DIVOC

Setting up DIVOC in your country to orchestrate a new health program? The guide covers everything you need to know to implement DIVOC. The different sections are meant for people who are involved in planning and managing the various aspects of the implementation process, as well as those involved in the technical work. The documents cover the various steps and configurations required.

What will it cover?

A. Skills needed to set up DIVOC

B. Certificate and Verification component

Each country will have its own set of requirements in line with globally accepted standards for issuing certificates. The guides will walk you through:

- [How to configure the certificate component?](#)
- [How to set up the verification portal for your implementation?](#)
- [How to set up update certificates API?](#)
- How to integrate with the SMS/Email gateway to notify beneficiaries?
- How to configure revocation services?

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Skills needed to set up DIVOC

The technical skills required by DIVOC adopters vary and are based on the level of changes they intend to make to the core DIVOC platform.

What does this section cover?

- Skills needed for a simple setup scenario
- Skills needed for a complex setup scenario

Simple setup: Only setup and configuration

This includes:

1. Setting up infrastructure on cloud or on-premise.
2. Deployment of application components/services.
3. Configuration of components to connect to work as a single system:
 - Configure templates, such as data import templates for facility registry.
 - Keycloak to change OTP-based login in keycloak to password-based login.
 - Configuration of certificate templates.

Skills the team should have:

- Experience in setting up Kubernetes cluster / Docker-based deployment.
 - Experience in setting up and configuring platforms such as Kafka, Redis, Postgres, and Keycloak.
 - Experience in HTML templates design.
-

Complex setup: Setup, configuration, and customisation

Customise DIVOC as per the country-specific requirements and its implementation need, such as:

1. Changes in registry schema: This includes changes in the type of information being captured on various events.
 2. UI: This includes applying country-specific branding on the various UI pages of the portal.
 3. Add and Update APIs: This includes the introduction of new API calls within as well as with third-party applications, such as integration with the supply chain system to provide updates on the stock used at the facility level. It also involves updating existing APIs, such as changing mandatory fields to non-mandatory in API payloads and changing response structure, among others.
-

Skills the team should have:

- Experience in technologies such as HTML, JQuery, React, JavaScript for UI level changes.
- Experience in technologies such as Go for API-related changes.
- Experience in OpenSaber and Postgres for registry-related changes.
- Experience in integrating platform services used in selected components for customisation and implementation.

DIVOC's Certification and Verification component

DIVOC's certificate module has been adopted for the ongoing COVID-19 vaccination programs in multiple

countries. The guide and its different sections describe the various steps that you have to follow when implementing one or more features of the certification and verification component, depending on your country's needs.

Country-specific requirements may include the following:

1. Certificate Component -

- Generate certificates
- Update certificates
- Revoke fake or incorrect certificates
- Fetch certificate
- Fetch QR Code
- Notify beneficiaries

2. Verification component

What will the sections cover?

1. [How to configure the certificate generation component?](#)
2. [How to set up the verification portal for your implementation?](#)
3. [How to set up update certificates API?](#)
4. How to integrate with the SMS/Email gateway to notify beneficiaries?
5. How to configure revocation services?

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Configuring certificates

Overview

This document will help an implementer configure a certificate (template and QR code) for a health event such as vaccination. This section includes configuring:

1. [Certificate generation request](#)

2. [QR code section](#)
 3. [Certificate template](#)
-

API

The DIVOC platform provides API services for generating digitally verifiable QR code-based vaccination certificates. The API for certificate generation has 6 sections:

1. **PreEnrollmentCode:** This section is linked to the “dose” in the vaccination section to uniquely identify the event. For example, beneficiary registration number (R101) and dose number (1) as (R101-1) will be used to identify the first dose event uniquely. Similarly, beneficiary registration number (R101) and dose number (2) as (R101-2) will be used to identify the second dose event uniquely.
 2. **Recipient:** It contains information about the beneficiary.
 3. **Vaccination:** It contains details about the vaccination event such as name, batch, and vaccination date.
 4. **Vaccinator:** It contains details about the vaccinator.
 5. **Facility:** It contains details about the facility where beneficiaries will get vaccinated.
 6. **Meta:** It contains additional information, which is not part of the QR code, such as the number of past doses taken.
-

Sample for default certificate generation request

- You can refer to the API service call with sample data below:

```
1 [
2   {
3     "preEnrollmentCode": "62",
4     "recipient": {
5       "name": "Sam",
6       "uhid": "abc2232",
7       "dob": "1990-09-14",
8       "age": "31",
9       "gender": "Male",
10      "nationality": "India",
11      "identity": "did:in.gov.uidai.aadhaar:11112222334",
12      "contact": [
13        "tel:1111111313"
14      ],
15      "address": {
16        "addressLine1": "123, Koramangala",
17        "addressLine2": "",
18      }
19    }
20  }
```

```

18         "district": "Bengaluru South",
19         "state": "bihar",
20         "pincode": "560033"
21     }
22 },
23     "vaccination": {
24         "name": "covaxin",
25         "batch": "AB348FS",
26         "manufacturer": "Bharat Biotech",
27         "date": "2021-07-12T19:21:19.646Z",
28         "effectiveStart": "2021-07-12",
29         "effectiveUntil": "2021-08-12",
30         "dose": 2,
31         "totalDoses": 2
32     },
33     "vaccinator": {
34         "name": "Sooraj Singh"
35     },
36     "facility": {
37         "name": "ABCD Medical Center",
38         "address": {
39             "addressLine1": "123, Koramangala",
40             "addressLine2": "",
41             "district": "Bengaluru South",
42             "state": "Karnataka",
43             "pincode": "560033"
44         }
45     },
46     "programId": "6ce74c0f-b1b5-4b20-9fa2-084acbbd857a",
47     "meta": { //Meta section stored as an Object and it can contain information in
48     }
49 }
50 ]\

```

- Refer to the `/v3/certify` service [here](#) for details.
- Click [here](#) if you want to understand the mandatory and non-mandatory information that should be there in a vaccination certificate, according to global standards.

Key Functionalities

- Generate configured QR code
- Generate configured certificate template

Prerequisite: Get details on API request and field validations

a. Please refer to the existing service details in the 'certification' section (*v3/certify*):

<https://egovernments.github.io/DIVOC/developer-docs/api/admin-api.html#.../india/interfaces/vaccination-api.yaml>

b. The detailed field validations are mentioned here:

<https://github.com/egovernments/DIVOC/blob/4076e69cf152fd76dafa8a0565777895f55b1245/interfaces/vaccination-api.yaml>

```
1 // /v3/certify:
2   post:
3     tags:
4       - certification
5     summary: Certify the one or more vaccination
6     description: >-
7       Certification happens asynchronously, this requires vaccinator
8       authorization and vaccinator should be trained for the vaccination that
9       is being certified. The payload for this API is compliant with DDCC core
10      data set prescribed by WHO
11     operationId: certifyV3
12     parameters:
13       - in: body
14         name: body
15         required: true
16         schema:
17           type: array
18           items:
19             $ref: '#/definitions/CertificationRequestV2' //Refer Line 722 in same file
20     responses:
21       '200':
22         description: OK
23       '400':
24         description: Invalid input
25         schema:
26           $ref: '#/definitions/Error'
```

Making the changes

Click the following to see how you can make the changes:

1. [Create a certification generation request](#)
2. [Update the QR code content](#)
3. [Update the certificate template](#)

Step 1: Create a certification generation request

Example

Include the beneficiary's parent name in the certificate. The parent's name is "Sam Mandosa". This is a mandatory field.

Steps

Step 1: Create a certification generation request

a. Open this file:

https://github.com/egovernments/DIVOC/blob/main/backend/vaccination_api/pkg/certify_handler.go

b. Add a parameter in the function "convertToCertifyUploadFields" called RecipientParentName.

```
1 func convertToCertifyUploadFields(data *Scanner) *db.CertifyUploadFields {
2     return &db.CertifyUploadFields{
3         PreEnrollmentCode:      data.Text("preEnrollmentCode"),
4         RecipientName:            data.Text("recipientName"),
5 RecipientParentName:      data.Text("recipientParentName"),
6         RecipientMobileNumber:   data.Text("recipientMobileNumber"),
7         RecipientDOB:            data.Text("recipientDOB"),
8         RecipientGender:         data.Text("recipientGender"),
9         RecipientNationality:    data.Text("recipientNationality"),
10        RecipientIdentity:       data.Text("recipientIdentity"),
11        RecipientAge:            data.Text("recipientAge"),
12        RecipientAddressLine1:   data.Text("recipientAddressLine1"),
13        RecipientAddressLine2:   data.Text("recipientAddressLine2"),
14        RecipientDistrict:       data.Text("recipientDistrict"),
15        RecipientState:          data.Text("recipientState"),
16        RecipientPincode:        data.Text("recipientPincode"),
17        VaccinationBatch:        data.Text("vaccinationBatch"),
18        VaccinationDate:         data.Text("vaccinationDate"),
19        VaccinationDose:         data.Text("vaccinationDose"),
20        VaccinationTotalDoses:   data.Text("vaccinationTotalDoses"),
21        VaccinationEffectiveStart: data.Text("vaccinationEffectiveStart"),
22        VaccinationEffectiveEnd: data.Text("vaccinationEffectiveEnd"),
23        VaccinationManufacturer: data.Text("vaccinationManufacturer"),
24        VaccinationName:         data.Text("vaccinationName"),
25        VaccinatorName:         data.Text("vaccinatorName"),
26        FacilityName:           data.Text("facilityName"),
27        FacilityAddressLine1:    data.Text("facilityAddressLine1"),
28        FacilityAddressLine2:    data.Text("facilityAddressLine2"),
29        FacilityDistrict:        data.Text("facilityDistrict"),
30    }
```

```

30
31         FacilityState:      data.Text("facilityState"),
32         FacilityPincode:    data.Text("facilityPincode"),
33     }

```

c. Add RecipientParentName in the function “createCertificate” to make the field mandatory.

```

1 recipient := &models.CertificationRequestRecipient{
2     Name: &certifyData.RecipientName,
3     Age: recipientAge,
4     Address: &models.CertificationRequestRecipientAddress{
5         AddressLine1: &certifyData.RecipientAddressLine1,
6         AddressLine2: certifyData.RecipientAddressLine2,
7         District:     &certifyData.RecipientDistrict,
8         Pincode:      &certifyData.RecipientPincode,
9         State:        &certifyData.RecipientState,
10    },
11    Contact:    contact,
12    Dob:        dateAdr(strfmt.Date(dob)),
13    Gender:     &certifyData.RecipientGender,
14    Nationality: &certifyData.RecipientNationality,
15    ParentName: &certifyData.RecipientParentName,
16    Identity:   &certifyData.RecipientIdentity,
17 }

```

d. If the data is uploaded via CSV, then add this column to the CSV template for this field. Open “[application-default.yml](#)” and update the certificate section in this file.

```

certificate:
  upload:
    columns:
      "preEnrollmentCode,recipientName,recipientMobileNumber,recipientDOB,recipientAge,recipientGender,recipientNationality,recipientParentName,recipientIdentity,recipientAddressLine1,recipientAddressLine2,recipientDistrict,recipientState,recipientPincode,vaccinationBatch,vaccinationDate,vaccinationDose,vaccinationTotalDoses,vaccinationEffectiveStart,vaccinationEffectiveEnd,vaccinationManufacturer,vaccinationName,vaccinatorName,facilityName,facilityAddressLine1,facilityAddressLine2,facilityDistrict,facilityState,facilityPincode"
    required_fields:
      "preEnrollmentCode,recipientName,recipientMobileNumber,recipientDOB,recipientAge,recipientGender,recipientNationality,recipientParentName,recipientIdentity,recipientAddressLine1,recipientDistrict,recipientState,recipientPincode,vaccinationDate,vaccinationDose,vaccinationTotalDoses,vaccinationEffectiveStart,vaccinationEffectiveEnd,vaccinationManufacturer,vaccinationName,vaccinatorName,facilityName,facilityAddressLine1,facilityDistrict,facilityState,facilityPincode"

```

Note:

- As a standard practice, we recommend you to update the informative files mentioned in Step 1 of this section.
- Make sure the name matches exactly with the name convertToCertifyUploadFields function that you edited in step 1.

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Step 2: Configure the QR code content

The template for the QR code generation is provided [here](#) under vaccination-context. The QR code structure must match the vaccination-context. Any updates made in the QR code content must reflect in the vaccination-context.js file.

Steps:

a. Open the file [main.js](#).

b. Go to the function transformW3 and add the fields according to your requirement. This function will read the data received from the certificate generation API call and convert it into QR code Json format.

```
1 function transformW3(cert, certificateId) {
2   const certificateType = R.pathOr('', ['meta', 'certificateType'], cert);
3   const namespace = certificateType === CERTIFICATE_TYPE_V3 ? CERTIFICATE_NAMESPACE_V2 : C
4   const recipientIdentifier = R.pathOr('', ['recipient', 'identity'], cert);
5   const preEnrollmentCode = R.pathOr('', ['preEnrollmentCode'], cert);
6   const recipientName = R.pathOr('', ['recipient', 'name'], cert);
7   const recipientGender = R.pathOr('', ['recipient', 'gender'], cert);
8   const recipientNationality = R.pathOr('', ['recipient', 'nationality'], cert);
9   const recipientParentName = R.pathOr('', ['recipient', 'parentName'], cert);
```

c. Add the newly-added field to the data variable

```
1 let data = {
2   namespace, recipientIdentifier, preEnrollmentCode, recipientName, recipientGender, rec
3   issuer, issuanceDate, evidenceId, InfoUrl, feedbackUrl,
4   certificateId, batch, vaccine, icd11Code, prophylaxis, manufacturer, vaccinationDate,
5   verifierName,
6   facilityName, facilityAddressLine1, facilityAddressLine2, facilityAddressDistrict, fac
7   };
```

Note:

Certain constant values are also listed in the [main.js](#). If you want to update any of the constant values such as “certificate controller,” please refer to the [DockerFile](#).

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Step 3: Configure the certificate template

Each country will have a separate certificate template with country-specific branding, and language.

Steps:

a. The DIVOC certificate template has been designed in the HTML format. To configure the HTML-based certificate template according to your country's requirement, open [certificate_template.html](#) and map the dynamic fields in the certificate template.

```
1 <tr>
2     <td><span class="d-flex pt-1 pb-1 font-bold">Beneficiary Name</span></td>
3     <td><span class="d-flex pt-1 pb-1 font-bold">Beneficiary Parent Name</span></td>
4 </tr>
5 <tr>
6     <td><span class="d-flex">{{name}}</span></td>
7     <td><span class="d-flex">{{parentName}}</span></td>
8 </tr>
```

b. Any modifications that you make (such as combining address fields as a single string) to the address value must be performed in `controller.js`. The dynamic values will be sent from [controller.js](#)

```
1 function prepareDataForVaccineCertificateTemplate(certificateRaw, dataURL) {
2     certificateRaw.certificate = JSON.parse(certificateRaw.certificate);
3     const {certificate: {credentialSubject, evidence}} = certificateRaw;
4     const certificateData = {
5         name: credentialSubject.name,
6         parentName: credentialSubject.parentName,
7         age: credentialSubject.age,
8         gender: credentialSubject.gender,
9         identity: formatId(credentialSubject.id),
10        beneficiaryId: credentialSubject.refId,
11        recipientAddress: formatRecipientAddress(credentialSubject.address),
12        vaccine: evidence[0].vaccine,
13        vaccinationDate: formatDate(evidence[0].date) + ` (Batch no. ${evidence[0].batch})`,
14        vaccineValidDays: `after ${getVaccineValidDays(evidence[0].effectiveStart, evidence[0].effectiveEnd)}`,
15        vaccinatedBy: evidence[0].verifier.name,
16        vaccinatedAt: formatFacilityAddress(evidence[0]),
17        qrCode: dataURL,
18        dose: evidence[0].dose,
19        totalDoses: evidence[0].totalDoses,
20        isFinalDose: evidence[0].dose === evidence[0].totalDoses,
21        currentDoseText: `(${getNumberWithOrdinal(evidence[0].dose)} Dose)`
22    };
23
24    return certificateData;
25 }
```

Note:

- To check the PDF/print version, which will be generated after an update, open the HTML file in the browser and check for the print preview.
- The page size should be A4 as the HTML is developed according to A4 dimensions.

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How to set up the verification portal for implementation

Overview

The document will help an implementer make changes to DIVOC's verification component in line with any changes made to the certificate. It could include changes in the QR code section of the certificate or the logo, among others.

This section will cover the steps to update the verification component by configuring:

1. Verification portal home page
2. Verification confirmation page

Prerequisite: Get details on on functions used for certificate verification

1. The user will be directed to the verification page according to the route defined in [this](#) file:

```
1 <div style={{paddingBottom: "3rem", paddingTop: "3rem"}}>
2   <Switch>
3     <Route exact path="/" component={Home}/>
4     <Route exact path={config.urlPath + "/login"} component={Login}/>
5     <Route exact path="/side-effects" component={SideEffects}/>
6     <Route exact path="/feedback" component={SideEffects}/>
7     <PrivateRoute exact path="/feedback/verify" component={SubmitSymptomsForm} role=
8     <Route exact path="/dashboard" component={Dashboard}/>
9     <Route exact path="/verify-certificate" component={VerifyCertificate}/>
10    <Route exact path="/learn" component={Learn}/>
11    <Route exact path="/not-found" component={PageNotFound}/>
12  </Switch>
13 </div>
```

2. You can configure the timeout period for the camera to read the QR code in

config.CERTIFICATE_SCAN_TIMEOUT.

3. If the camera is unable to read the QR code content, the timeout can be set to retry.

```
1 const onScanWithQR = () => {
2     setShowScanner(true);
3     setTimeout(() => {
4         if(!result) {
5             setShowTimeout(true);
6         }
7     }, config.CERTIFICATE_SCAN_TIMEOUT);
8 };
9
10
11 const onTryAgain = () => {
12     setShowTimeout(false);
13     setShowScanner(false)
14 };
```

4. The QR code scan is triggered from the 'VerifyCertificate' method. Once the QR code is read by the application, it is unzipped using the jsZip library.

Verification portal home page

How to update the verification page:

- The required UI changes, including messaging and branding, can be configured on [this](#) file.
- You can refer to [this](#) file as an example of a country-specific configuration (<https://verify.icmr.org.in/>).

Verification confirmation page

How to update the vaccination confirmation details:

Example: Include the beneficiary's parent name as a mandatory field in the verification confirmation page.

- Open this file: <https://github.com/egovernments/DIVOC/blob/main/vaccination-context/vaccination-context.js>.
- Add a parameter in the function "vaccinationContextV2" to set the schema. You can refer to the detailed list of parameters under schema [here](#).

```
1 "Person": {
2     "@id": "schema:Person",
3 }
```

```

3     "@context": {
4       "@version": 1.1,
5       "@protected": true,
6       "refId": "schema:id",
7       "uhid": "schema:id",
8       "name": "schema:name",
9       "age": "schema:Number",
10      "gender": "schema:gender",
11      "nationality": "schema:nationality",
12      "recipientParentName": "schema:name",
13      "address": {
14        "@id": "schema:PostalAddress",
15        "@context": {
16          "@version": 1.1,
17          "@protected": true,
18          "streetAddress": "schema:streetAddress",
19          "streetAddress2": "vac:addressLine2",
20          "city": "vac:city",
21          "district": "vac:district",
22          "addressRegion": "schema:addressRegion",
23          "postalCode": "schema:postalCode",
24          "addressCountry": "schema:addressCountry"
25        }
26      }
27    }
28  },

```

- Add recipientParentName in the certificate variable inside the function createCertificate.

```

1 "certificate": {
2   "Name": "Name",
3   "Age": "Age",
4   "DOB": "DOB",
5   "Gender": "Gender",
6   "recipientParentName": "Recipient Parent Name",
7   "Certificate ID": "Certificate ID",
8   "Vaccine Name": "Vaccine Name",
9   "Vaccine Type": "Vaccine Type",
10  "Date of Issue": "Date of Issue",
11  "Valid Until": "Valid Until",
12  "Dose": "Dose",
13  "Total Doses": "Total Doses",
14  "Vaccination Facility": "Vaccination Facility"
15 },

```

- Build and deploy your changes.

Note:

- The 'recipientParentName' should match with the key in the QR code Json file available in [main.js](#).

- To remove any value (such as “vaccine type”) from the UI screen, you can remove that parameter in the certification field.

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How to set up update certificates API

Overview

This document will help an implementer configure the following service:

- Update certificates
-

API

- The DIVOC platform provides API services for updating vaccination certificates. You can refer to the API service call ‘/v3/certificate’ for the method **PUT** [here](#).
 - The payload of the update service is the same as that of the certificate generation request. Click [here](#) to know more.
 - The platform provides flexibility to update values in the ‘recipient,’ ‘vaccination,’ ‘vaccinator,’ and ‘facility’ sections. Click [here](#) if you want to understand the mandatory and non-mandatory information that should be there in a vaccination certificate, according to global standards.
-

Key Functionality

- Update the existing certificate along with its QR code.
-

Prerequisite: Get details on the API request and field validations:

a. The update certificate request is processed in [this](#) function. The pre-enrollment code and dose-wise certificates will be searched in the system to make an update request. The function will trigger the subsequent process to update the certificates.

```

1  for _, request := range params.Body {
2  if certificateId := getCertificateIdToBeUpdated(request); certificateId != nil{
3  log.Infof("Certificate update request approved %+v", request)
4      if request.Meta == nil {
5          request.Meta = map[string]interface{}{
6              "previousCertificateId": certificateId,
7              "certificateType":      CERTIFICATE_TYPE_V3,
8          }
9      } else {
10         meta := request.Meta.(map[string]interface{})
11         meta["previousCertificateId"] = certificateId
12         meta["certificateType"] = CERTIFICATE_TYPE_V3
13     }
14     if jsonString, err := json.Marshal(request); err == nil {
15         kafkaService.PublishCertifyMessage(jsonString, nil, nil)
16     }
17 } else {
18     log.Infof("Certificate update request rejected %+v", request)
19     return certification.NewUpdateCertificateV3PreconditionFailed()
20 }
21 }
22 return certification.NewUpdateCertificateV3OK()

```

b. The platform provides the flexibility to restrict the number of update requests to avoid misuse of the functionality in generating multiple certificates.

Example:

Configure the limit of update certificate requests to only five where the user can only update a certificate five times.

Steps

Step 1: Open [this](#) file and check the function that will limit the number of certificates being updated.

```

1  if count < (config.Config.Certificate.UpdateLimit + 1) {
2      certificateId := doseWiseCertificateIds[int(*request.Vaccination.Dose)][count-1]
3      return &certificateId
4  } else {
5      log.Error("Certificate update limit reached")
6  }

```

Step 2: Open [this](#) file and update the limit by configuring `CERTIFICATE_UPDATE_LIMIT`.

```

1  UpdateLimit int `env:"CERTIFICATE_UPDATE_LIMIT" default:"5"`

```

What information goes into a QR Code?

A vaccination certificate is a proof that a person has received the shot to protect them from an infectious disease such as COVID-19 or the flu. We have given below the type of information (mandatory and optional) that should be there in a QR code-based COVID-19 vaccination certificate, as specified by the World Health Organisation (WHO).

Requirement status for proof of vaccination	DDCC label	DIVOC label	Description and definition	Data type/format	Examples
Mandatory	Name	recipientName	The full name of the vaccinated person.	String	John Tom Brown
Mandatory	Date of birth	recipientDOB	The vaccinated person's date of birth (DOB) if known. If unknown, use the assigned DOB for administrative purposes.	Date	1998-01-05
Mandatory	Unique identifier (primary identifier of the beneficiary)	preEnrollmentCode	Unique identifier for the vaccinated person, according to the policies applicable in each country. There can be more than one unique identifier used to link records (example: national ID, health ID, immunisation information system ID, and medical record ID). All the certificate IDs will be linked to the beneficiary's preEnrollmentCode.	UUID	

Optional		recipientIdentity	To be used only if there is a need to share/print an additional national ID. By default, it is set as 'null' in DIVOC's case. The above field covers this as well.	Alpha number	Driving license
Optional	Sex	recipientGender	Documentation of a specific instance of sex information for the vaccinated person.	Male/female/other	
Optional		recipientMobile Number		Numeric	1876777888
Mandatory	Vaccine type or prophylaxis	Need to incorporate in the payload.	Generic description of the vaccine or vaccine sub-type, such as COVID-19 mRNA vaccine, HPV vaccine.	Coding - ICD 11	
Mandatory	Vaccine brand	vaccinationName	The brand or trade name used to refer to the vaccine received.	String	Pfizer
Optional	Vaccine manufacturer	vaccinationManufacturer	Name of the manufacturer of the vaccine received, such as Serum institute of India, or AstraZeneca. If the vaccine manufacturer is unknown, a market authorisation holder is needed.	String	ABC company
Optional	Vaccine market authorisation holder		Name of the market authorisation holder of the vaccine received. If the market authorisation holder is unknown, a vaccine manufacturer is required. This is needed only if the manufacturer is not listed in the WHO EUL	String	

			(Emergency Use Listing Procedure) list.		
Mandatory	Vaccine batch number	vaccinationBatch	Batch number or lot number of the vaccine.	String	4121Z104
Mandatory	Date of vaccination	vaccinationDate	Date on which the vaccine was administered.	Date	2021-11-30
Mandatory	Dose number	vaccinationDose	Vaccine dose number.	Quantity	1, 2
Mandatory	Total doses	vaccinationTotalDoses	Total expected doses as defined by member state care plan and immunisation programme policies.	Quantity	For Pfizer and BioNTech, the total expected doses are two.
Mandatory	Country of vaccination	facilityCountry	The country where a person was vaccinated.	Code	JAM = Jamaica
Optional	Administering centre	facilityName	The name or identifier of the vaccination facility responsible for administering the vaccination.	String	Falmouth Health Centre
Optional	Health worker identifier	vaccinatorName/ID	If the country does not have a national identifier, you can share the name of the vaccinator.	ID	National ID of the vaccinator
Optional	Disease or agent targeted	Available as a certificate header and not as a data element in the current certificate API payload.	Name of the disease vaccinated against (such as COVID-19). We recommend that you can have it as a data element within the payload.	Coding	Certificate header: COVID-19 Vaccination Certificate.
Optional	Due date of the next dose		Only implemented for India.	Date - YYYYMM/DD	
			The authority or		

Mandatory	Certificate issuer	Issuer (available in the output)	authorised organisation that issued the vaccination certificate.	String	Ministry of Health & Wellness, Jamaica
Mandatory	Health certificate identifier	Certificate ID (available in the output)	Unique identifier used to associate the vaccination status represented in a paper vaccination card.	ID	378855845
Optional	Certificate valid from	vaccinationEffectiveStart	Date on which the certificate became valid. No health or clinical inferences should be made from this date.	Date	2021-11-30
Optional	Certificate valid to	vaccinationEffectiveEnd	Last date on which the certificate is valid. No health or clinical inferences should be made from this date.	Date	2022-11-30
Optional	Certificate schema version		Only if schema versions are maintained.		

DIVOC events

Upcoming Event

DIVOC Webinar

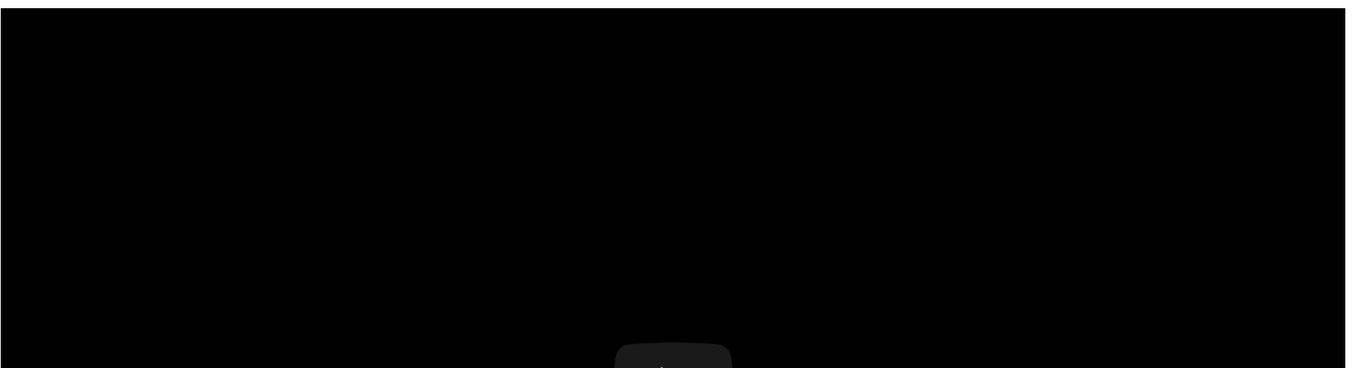
Join us for our first Webinar on **DIVOC Certificate Specifications**.

Announcement coming soon!

DIVOC in the Media

Videos, and Articles

Videos





Articles

1. [The challenge is we don't have adult vaccination system, must build it from scratch for Covid-19](#)
2. [Digital route to deliver Covid vaccine in India](#)
3. [Aadhaar model can help in vaccinating population quickly](#)
4. [Certificate of COVID Vaccination: Can We Do Better than the Yellow Card?](#)
5. [A COVID Vaccine Certificate: Building on Lessons from Digital ID for the Digital Yellow Card](#)

Tech Community

Useful links

DIVOC is an open source project (MIT license), and it is maintained by [eGov Foundation](#).

Documentation is available at <https://divoc.egov.org.in/> and source code is available at <https://github.com/egovernments/DIVOC>.

If you have questions, please visit our [Project Discussions Page](#).

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