Product Configuration Guide

Dimagi Vaccine Solution

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Purpose of the Document

This document acts as a configuration guide for the Dimagi vaccine solution project. This document contains the components that can be configured in each module/micro-application in order to deploy them successfully and the components that remain out of scope as part of this template.

Modules/Micro-application

1. <mark>Client Registry</mark>

- **Feature flags used:**
  - Shadow modules
  - Save-to-case
  - Turn.IO integration (for Self-registration workflow only)
- **Application Caveats:**
  - The template solution does not allow editing of the following demographic information once added to the application through the registration workflow:
    - dob
    - beneficiary_lmp
    - beneficiary_edd
  - This micro-application supports both case structures - registration of households (and clients within households) and clients registered individually. The delivery teams, in collaboration with partners, can take a decision which case structure to adopt - either one of the household**(and clients within households)** or **individual clients**, or **both**.

Client Registration Through SMS/Chatbot

- To enable Chatbot components through WhatsApp, the delivery team should acquire a WhatsApp line through Turn.io first.
- Steps to setup Turn.io backend [here](#).
- Enabling self-registration on Commcare outline [here](#).

CAVEATS & POINTS TO NOTE:

- Multiple registration of clients through a single number is currently not possible on Commcare. Therefore, a client registration is done from a single unique phone number having WhatsApp enabled.
- WhatsApp works on a user opt-in model i.e the message initiation should always be started by the user and the system can reply to it unlimited times in a 24 hour time period/session (if it needs to be started by the system first or outside the 24 hour session period then WA have additional charges for that and those are called template messages). More info [here](#). This important to note if the delivery team wants to add Conditional alerts into their solution (For eg. For appointment reminders and vaccine administered related messages)
  - For a client to receive an instant message/alert on whatsapp, there needs to be an initiation of interaction/connection from the client's side with the WA bot. For this purpose, we have added a note to the beneficiary content question in the registration and edit details forms, which prompt the user to send a hi on whatsapp on the respective chatbot number if they provide consent to receiving messages. This basically means that we can't send proactive messages to clients, the client needs to initiate first.

- Conditional alerts can be thought of as session messages over WA. WA has a 24 hour rule for session messages which becomes a restriction for conditional alerts over WA. This 24 hour rule means that when a user initiates a conversation with you on your chat service, you're allowed to respond with any type of content within 24 hours. It won't cost anything, and no rules apply. However, once the 24-hour chat window has expired, you can only reconnect with users by using paid-for message templates (or in our case for alerts, if the 24 hour window is re initiated). More information can be found here.
- Reasons for not using WA template messages are that one they are paid for, and two, and more importantly, they cannot be customized; we won't be able to use case properties from commcare to customize the template messages.
- Alternatives to achieve better notification/alert mechanisms for clients could be one, to identify if there are any ways to bypass the 24 hour rule on WA and two, to use SMSes to send alerts/notifications to clients instead of WA.

ALERTS CONFIGURED IN THE SOLUTION

1. [VACCINATION RECEIVED ACKNOWLEDGEMENT CCHQ ALERT](): This alert has been set up to send out a message to the clients once they have received a vaccination dose. After each dose of vaccination, this message is sent out immediately.
   a. The rules for this alert are as follows:
   Client must have a phone number
   Client must consent to receiving messages
   Client should have received a dose
   Last Vaccination date should not be blank

Can be sent over Whatsapp?	Is WA notification subject to caveats?	Can be sent over SMS?	Is SMS notification subject to caveats?
Yes	Yes	Yes	No

2. [NEXT FOLLOW UP REMINDER CCHQ REPORT](): This alert has been set up to send a visit reminder to the clients 2 days before their scheduled follow up vaccine appointment. This message is sent at 12:00 pm, 2 days before the next followup date.
   a. The rules for this alert are as follows:
   Client must have a phone number
   Client must consent to receiving messages
   Client should have a scheduled appointment in future
   Schedule dose due should not be blank

Can be sent over Whatsapp?	Is WA notification subject to caveats?	Can be sent over SMS?	Is SMS notification subject to caveats?
Yes	Yes	Yes	No

2. Vaccine Delivery

MINIMUM CASE PROPERTIES

- This micro-app is dependent on a Registration workflow. In case this micro-application is integrated with an external Client Registration system, following case properties are at minimum needed for functioning of this micro-application.
  - beneficiary_full_name
  - dob
  - all_conditional_vaccines
  - beneficiary_lmp (if the solution is administering vaccines for pregnant women)
  - covid_19_vaccine (if the solution is administering Covid-19 vaccines)
  - next_followup_date
- **NOTE**: This set of minimum case properties is applicable if the integration is done for clients having no vaccination history (and the very first vaccine is delivered to the client through CommCare DVS solution) . If the integration is done at a point where clients have vaccination history(or clients receive vaccinations outside CommCare), there will be additional case properties that need to be populated on CommCare.

LOOKUP TABLE CONFIGURATION

The template application consists of 3 configurable lookup tables:

a) **vaccine_schedule** - This lookup table defines the schedule of vaccine doses a client should receive. Each row in this lookup table corresponds to a vaccine dose.

Field	Description
dose_unique_id	A user-defined ID that uniquely identifies each dose in this lookup table. The delivery team must ensure that values in this column are unique for each new dose added to the system.
vaccine_dose_name	Name of the dose.
dose_number	Number of doses in the vaccine series.
vaccine_id	A user-defined ID that uniquely identifies each vaccine being given as part of the vaccination program. The delivery team must ensure that they maintain one unique ID for each vaccine being rolled out as part of the program.
vaccine_name	Name of the vaccine.
vaccine_manufacturer	Name of the manufacturer of the vaccine received. e.g. Serum institute of India, AstraZeneca.
disease_or_agent_targeted	Name of disease vaccinated to protect against (such

	as COVID-19).
country_of_vaccination	The country in which the individual has been vaccinated.

type	Used to determine if a client is eligible to receive a particular dose. Template application provides 2 values:
	    a) Routine - means that the dose can be administered to the entire population.
	    b) Conditional - means that the vaccine can only be administered to a selective population. If a dose is conditional, the application looks at additional criteria (explained further in definition for vaccine_elig_criteria and eligible_populations lookup table) before incorporating the dose in the client's vaccination schedule.
	
	It is recommended that this field is configured to a common value for all the doses belonging to a particular vaccine.

pivot	Specifies a date input like date of birth, last menstrual period etc. to calculate eligibility window for a dose. Once a person is deemed eligible to receive a dose through screening questions on the app, the application uses the date specified in the pivot column to calculate the date of eligibility and expiry of a dose.
eligible_from_days	The integer present in this field is added to the date specified in the 'pivot' field to calculate the date a client is eligible to receive a dose from.
expires_on_days	The integer present in this field is added to the date specified in the 'pivot' field to calculate the date a client stops being eligible to receive the dose.
predecessor_dose_id	If a dose is a follow-up dose and their eligibility date is dependent on the administration of a predecessor dose, specify the dose_unique_id of the predecessor dose here. The template application is tested to support a dose to be set as the predecessor for only one dose in the entire vaccine schedule. That means, this column must always hold unique dose_unique_id's. Furthermore, doses belonging to the same vaccine series can be set as a predecessor to a follow-up dose.

days_after_predecessor	Specifies the number of days post administration of the predecessor dose, the current dose can be administered. The app calculates the maximum of (pivot+eligible_from_days) and (date of administration of predecessor_dose_id+days_after_predecessor) to determine the recommended eligibility date for a followup dose.
expires_days_after_predecessor	Specifies the number of days post administration of the predecessor dose, the current dose expires. The app calculates the maximum of (pivot+expires_on_days) and (date of administration of predecessor_dose_id+expires_days_after_predecess or) to determine the recommended eligibility date for a followup dose.

b) **eligible_populations** - This lookup table has been developed to make the solution modular. During registration or screening of clients for vaccines, the application presents a series of questions to the client (for instance, their gender, whether they are pregnant etc.). Upon answering these questions, different population categories the client falls in is determined and stored on a case property called beneficiary_category on the app level. The app further uses this lookup table to determine conditional vaccines the client is eligible for, based on the population types they fall in.

Field	Description
beneficiary_category	Specifies configurable categories clients need to fall in to receive any conditional vaccine. (Eg. client must be above 18yr old to receive COVID-19 vaccine)
eligibility_indicator	Used to build a case property called unique_eligibility_indicator on the application based on the population categories the client is part of.

This lookup table is designed to support many-to-many relationships between different population categories and eligibility indicators.

c) **vaccine_elig_criteria** - This lookup table is used to populate a case property called conditional_vaccines which specifies the conditional vaccines client is eligible to receive. All conditional vaccines which are part of the vaccine schedule must be defined in this lookup table. No two rows in this lookup table can have the same vaccine_id.

Field	Description
vaccine_id	User-defined ID of the vaccine. This should be the same as the ID defined in vaccine_schedule lookup table. Every row in this lookup table must have a

	unique vaccine_id.
eligibility_indicator	Reference to map eligible_populations table with conditional vaccines the client should receive. This should be the same as the value used in the eligibility_indicator field of eligible_populations lookup table.

ADDING A NEW VACCINE TO THE SOLUTION

To add a new vaccine to the solution, following scoping questions could be asked to the partners to understand the specifics of the particular vaccine. The points below also discuss technical configuration of the vaccine based on responses to the scoping questions.

- Vaccine Name and No. of doses in the vaccine series. Configure the vaccine_name, vaccine_dose_name, dose_number, vaccine_id, dose_unique_id, vaccine_manufacturer, disease_or_agent_targeted, country_of_vaccination fields in the vaccine_schedule lookup table based on this information.
- Is the vaccine administered to the entire population or is it only administered to clients who meet a specific eligibility criteria. Configure the **type** field(routine or conditional) in the **vaccine_schedule** lookup table based on this information.
  - If the vaccine is administered to a selective population, add relevant **screening questions** in **Register Client/Edit Client Details** forms that decide whether a client is eligible to receive the particular vaccine or not.
  - Set up a keyword for the client's category on the **Register Client/Edit Client Details** forms. Append this keyword to a space-separated list that forms **beneficiary_category** case property.
  - Add the **beneficiary_category** keyword to the **eligible_populations** lookup table in the beneficiary_category column. Corresponding to the beneficiary_category, define a **unique_eligibility_indicator** in the **eligible_populations** lookup table.
  - Add the **unique_eligibility_indicator** to the **vaccine_elig_criteria** lookup table along with the **vaccine_id** of the vaccine.
  - **Example of a conditional vaccine** - If only clients below the age of 18 are supposed to receive Zydus Cadila Covid-19 vaccine, add a screening question to the app that determines whether client is under 18. Set beneficiary_category as client_under_18. Add this beneficiary_category to eligible_populations lookup table. Set unique_eligibility_indicator as eligible_covid_19. Add it to both eligible_populations and vaccine_elig_criteria lookup tables. Add a unique ID for the vaccine (vaccine_id) to both vaccine_schedule and vaccine_elig_criteria lookup tables.
- Anchor/pivot date based on which the eligibility window for the doses in a vaccine series can be calculated (for example dob, lmp. If the eligibility window for doses in a series depends upon the date the first dose was administered, current_date can be set as

anchor/pivot date. Configure the **pivot** field in the **vaccine_schedule** lookup table based on this information.

● Number of days after pivot date a client is eligible to receive a particular dose, Number of days after pivot the dose expires. Configure the **eligible_from_days** and **expires_on_days** in the **vaccine_schedule** lookup table based on this information.

● Predecessor dose (i.e. dose that must be administered before a follow-up dose to become eligible for administration). Additionally, the number of days post administration of predecessor dose the current dose is eligible for administration and number of days post administration of predecessor dose the current dose expires. Configure the **predecessor_dose_id, days_after_predecessor, expires_days_after_predecessor** in the **vaccine_schedule** lookup table based on this information.

● **Country_of_vaccination_iso_code** (ISO code of country) is added in **Administer Vaccine Doses (Form)** for all the users that captures the 2 digit ISO code of the country of vaccination that can be used in Vaccine certificates. To add this, it needs to be updated manually in the location fields in the location hierarchy, before the application is being launched. This can be done from: User→Organization Structure→Edit (in country)→**Country ISO Code** (under Additional information) → update information (Use this given link to find the ISO code (Alpha-2 code) of your country).

FEATURE FLAGS USED

● Syncing extension cases
● Shadow modules
● Save-to-case
● Turn.IO integration (for Chatbot use cases only)

3. Adverse Events Following Immunization

- At present, the AEFI form enables recording of dose because of which side-effects were faced, type of side-effects faced, date each side effect was first observed and intensity of each side-effect. The app would need customization if additional investigation factors are required to be introduced.
- **Feature flags used:**
  - Shadow modules
  - Turn. IO integration (for AEFI reporting via Chatbot only)

MINIMUM CASE PROPERTIES

- This micro-app is dependent on Client Registration and Vaccine Delivery workflows. In case this micro-application is integrated with external systems, following case properties are at minimum needed for functioning of this micro-application.
  - beneficiary_full_name
  - dob
  - last_dose_received
  - last_dose_received_date

4. Community Mobilization and Counseling

- This micro-application offers a form for capturing details of community-based events organized. Additionally, it offers a form that can be used to capture details for clients lost to follow up.
- As part of this module, the template solution offers two menus:
  - Pregnant Women
  - Children and Adolescents
- These menus can be used by users to perform community mobilization activities and do targeted counselling for specific type of clients.
- **Feature flags used:**
  - Shadow modules
  - Save-to-case

5.   Health Worker Training

The Health Worker Training menu contains a set of sub-menus and forms that form an E-learning repository containing content and materials on skills, knowledge of each type of user. The module exists both on the application as well as on the Chatbot (WhatsApp - Turn.io) platform.

- The delivery team can adapt the content (add/update/remove) based on the local requirements while deploying the solution (customizable).
- List of topics can be found here

6. Facility Management and Stock Monitoring

- **To add a new vaccine to stock management micro-application**, add a row where dose number=1 to vaccine_schedule lookup table.
- The stock management micro-application is designed as an end-of-day stock management solution, hence it's recommended the users record stock status for a vaccine not more than once a day. If needed, the Delivery team can customize the stock monitoring workflow to allow recording stock for a vaccine more than once a day.
- **MOH-issued Unique ID:** This field captures the unique identification number of the facility issued by MOH (It is an optional question), and the validation of the unique id can be modified/configured based on the local requirements.
- **Feature flags used:**
  - Syncing extension cases
  - Save-to-case

Add-On Integrations

As part of our design add-on integrations are available that could add value to our partners. One of these is an [Integration with DDCC: VS compliant version of DIVOC](#), which is added to the Dimagi Vaccine Solution to enable the ability to create, edit and remove vaccine certificates via commcare application. DIVOC uses DHIS2, an open source product that enables countries to digitally orchestrate large scale vaccination and public health programs using open source digital infrastructure, which integrates well with the commcare system, to enable case sharing & allocate data in vaccination certificates on need.