

Vahana Components Document

Version No: 1.1

Approved By: Decimal Technologies

Decimal Technologies

8th Floor, Tower D Pioneer Urban Square,
Golf Course Ext Rd, Sector 62, Gurugram, Haryana-122102

Document Control

This document contains proprietary information of Decimal Technologies Pvt. Ltd. No part of this document may be reproduced, stored, copied, or transmitted in any form or by means electronic, mechanical, photocopying or otherwise, without the explicit written permission of Decimal Technologies.

Document Control

S.No	Type of Information	Document Data
1.	Title	Vahana Components Document
2.	Document No	VCD_01
3.	Document Version No	V1.0
4.	Document Owner	Decimal Technical Team
5.	Document Author(s)	Nihit Bhardwaj/Vikas Dhillon/Kumar Saurabh
6.	Document Approver	N/A

Document Update Summary

Version No	Revision Date	Nature of Change	Reviewer	Date Approved
v1.0	09/Jun/2020	1st Draft	Nihit/Yogesh/Vikas	N/A
v1.1	18/Jun/2020	Description of few components were added/updated.	Vikas/Nihit/Yogesh	18/Jun/2020

Table of Contents

- 1. Introduction 5
 - 1.1 Document Purpose 5
 - 1.2 Document Scope 5
 - 1.3 Intended Audience..... 5
 - 1.4 Acronyms and Abbreviation..... 5
 - 1.5 Reference Document 6
- 2. Vahana Platform Overview 7
- 3. Vahana Platform Components..... 7

Vahana Components Document

1. Introduction

1.1 Document Purpose

This document briefly describes each component that is deployed on the Vahana platform. The document covers each component on the definition level by elucidating the component on the functional level. It is not meant to describe the products on the sub-component, features level.

1.2 Document Scope

The functional scope of this document contains two following sections:

Section1:- This section is the current section of the document, which provides general information about the document as follows:

- **Purpose of the document**
- **Functional scope of the document (Current heading section)**
- **Audience that can access the content of document**
- **List of abbreviated terms along with their full description, and**
- **Reference document (If any)**

Section2:- This section simply covers the different products that are deployed on the Vahana platform. To briefly know and observe about the product (Vahana component type), the document only includes the brief definition of the respective component.

1.3 Intended Audience

This document is mainly written for Decimal technologies' banking customers. To gain comprehensive overview and knowledge about each product and component type that is deployed on the Vahana platform, the engineering, product development, and technical support teams of the client organizations can access this document.

1.4 Acronyms and Abbreviation

The following table contains the list of abbreviated terms that have been repeatedly used in the document, in addition to their description.

Term	Description
UI	User Interface
API	Application Programming Interface
SDK	Software Development Kit
RDBMS	Relational Database Management System
SSA	Self Service Application
JSON	Java Script Object Notation

MDM	Master Data Management
------------	------------------------

1.5 Reference Document

In reference to the functional definitions of Vahana platform's components, this document does not refer any other Decimal proprietary or any other third party document.

Document Name	Version	Date	Company/Organization
N/A	N/A	N/A	N/A

2. Vahana Platform Overview

Before discussing different Vahana components on the definition level, let's discuss Vahana platform. Vahana is a full-fledged advanced AWS (Amazon Web Service) based cloud platform, which hosts multiple Decimal proprietary applications such as vDesigner, vConnect, vFlow, vEnable, and others. Vahana platform enables organizations to create feature-rich digital assets that include IOS/Android applications, web application, digital operation workflows, and others. It strictly follows low-code rapid application development model that in turn allows the user to instantly create effective and low-cost UI based robust applications.

Built on a Lego block model, VAHANA provides agile data modeling, and UI-enabled configurable system to rapidly develop enterprise scale digital solutions. All solutions are designed and developed by using reusable components and following a micro service architecture.

3. Vahana Platform Components

S.No	Component Name	Description
1.	vDesigner	<p>vDesigner is a web based application that allows you to design and develop interactive mobile apps. It incorporates multiple common controls and pre-defined templates to design app layout and screens. You can efficiently use it to place and manage multiple UI (User interface) objects and controls across different screens.</p> <p>The main advantage of using the vDesigner application is that it requires minimal coding efforts to design a mobile app. By using simple PnP (Plug and Play) types of features, you can design robust mobile apps and implement complex and most prevalent features instantly and cost-effectively.</p>
2.	vConnect	<p>vConnect is a web based portal that is deployed on the Vahana platform. On the Vahana platform, it serves as a robust, scalable, and intelligent middleware that allows multiple mobile apps, web applications and other enterprise level systems and entities to communicate over single platform. vConnect smartly provides a service passage to integrate front-end application and mobile apps with the back-end databases, external databases via API calls. vConnect's workflow is based on micro-services architecture that allows you to orchestrate multiple APIs call to backend.</p> <p>Conclusively, vConnect serves as an aggregator platform that hosts multiple native and third party API(s), databases, and lambda services. It works as a resident API manager. By using high-level RSA and AES encryption mechanism, vConnect manages the flow of data between bank's core services and third party systems, which allows maintaining</p>

		<p>the level of abstraction between these two entities.</p> <p>When a user performs the action on the mobile app or web application, a user-request is generated. The request invokes the corresponding API of the vConnect platform. After the respective API is invoked, it accesses the database repository and returns response.</p>
3.	vFlow	<p>vFlow is a web based application that provides you interactive and feature-rich in-built layout engines to design and develop complex UI (User Interfaces). To design the web application, you can use simple Row and Column concept. It also provides the state-full UI Widgets such as forms, graph, carts, tree view, etc. You can also use powerful Action Manager module to incorporate task group based events and methods.</p> <p>In addition to the widgets, events and methods, and other powerful features, it allows you to configure business rule engines. These rule engines can be directly integrated with Action Manager to support rule-based events. The business rule allows you to successfully manipulate data in the run-time environment, calculate, date/string/number, etc. You can implement these rules to provide rule based access.</p>
4.	Access Policy	<p>Though “Access Policy” is a standalone component in the Vahana platform, it collaboratively allows you to build the access policy for the mobile app that you design in the vDesigner application. Before publishing a mobile app, you need to define the access policy for the respective app.</p> <p>While defining the access policy for the mobile app, you can define several session related timeframes, requirements of app related logs. These timeframes and logs are given as below:</p> <ul style="list-style-type: none"> ➤ User Session Expiry Time (In Minute) ➤ App Session Expiry Time (In Days) ➤ Is Multiple Session Allowed ➤ User Inactive Session Expiry Time ➤ Source IP Validation ➤ Mobile Application Log ➤ Server Audit Log
5.	Download APK	<p>This is also a standalone feature in the Vahana platform that allows you to publish the build of mobile app. Later, the mobile app can be installed on the mobile phone device. Here, it is one important point to note that you cannot publish the build of the mobile app if you do not define access policy. <u>First you need to define the access policy, only then you can publish the build of the mobile app.</u></p> <p>While publishing the (.apk) file of the mobile app, you can also</p> <ul style="list-style-type: none"> ➤ Upload the logo of the mobile app ➤ Upload the JSON ➤ Define the version name and the version number of the mobile app

		<ul style="list-style-type: none"> ➤ Define dashboard header ➤ Using specially designed client-specific SDK(s) such as Roadzen camera and video SDK(s), tata SDK, Tech5 SDK, and others
6.	vOps	<p>On the Vahana platform, vOps is a logical component that allows you to perform platform upgrade and patch deployment. All vOps related activities include infrastructure management and docker compose based installation that upgrades binary files along with the release version number.</p> <p>The vOps team uses the Jenkins tool to push the UI related changes in web applications and mobile apps. The vOps component also provides the UI to start new development initiatives, new screens development, etc.</p> <p>It also provides enhanced machine monitoring (Disc, IO, RAM, etc.), docker monitoring, API monitoring, etc. In vOps, you can perform instant dockerization and docker compose of the runtime environment. The docker-compose allows you to mount the development environment by using the <i>docker-compose up</i> command. Likewise, you can tear down the currently running development environment by using the <i>docker-compose up</i> command.</p>
7.	vEnable	<p>vEnable is a web based tool that allows you to integrate third party libraries with Vahana based native application environment. By using vEnable, you can integrate aadhaar authentication libraries, video KYC libraries, document management systems, and others.</p> <p>vEnable helps you design and integrate online questionnaire and submission form. Also you can integrate SSA (Self Service Application). By integrating SSA, you can enable end-customers to upload documents such as PAN number, ITR, aadhaar card details without using user credentials. After you create SSA, you need to publish it and then can integrate it with the client application environment.</p>
8.	Survey/Exam	<p>In the Vahana platform, “Survey” is a complete module that is incorporated into the vEnable application. The Survey module allows you to create online survey that you can publish as a progressive application.</p> <p>While creating a survey, you can add multiple pages. Under specific page, you can also add questions with the following options:</p> <ul style="list-style-type: none"> ➤ Single Select Option ➤ Multiple Select Option ➤ Single Line Option ➤ Start Rating, and others
9.	Email Engine	<p>Email engine is a Java based micro-service that is used to send email to different recipients. Before the mail is sent, the user can maintain dynamic email recipients in “To”, “CC”, “BCC” sections. In addition to the email body, it allows you to add email subject and attachment.</p>

		The email engine module also maintains the history of previously “sent” mails.
10.	SMS Engine	<p>Like email engine module, the SMS engine is also a Java based micro-service that is used to send SMS to different recipients. Before the SMS is sent, this module allows you to add mobile numbers and message text/body dynamically. It also allows you to schedule the SMS.</p> <ul style="list-style-type: none"> ➤ A few salient features of this module are: ➤ SMS on demand ➤ Bulk SMS (messaging) support ➤ Scheduling of SMS ➤ Maintaining log of events along with the “request ID” (A unique identifier that denotes the message recipient/requester)
11.	Media Sync Engine(DMS)	<p>Media sync engine is a complete Java application to upload, update, and download the media. It allows you to transfer the media from user’s device to server or vice versa.</p> <p>By using this module, you can also update the location of earlier stored media.</p>
12.	dOps	<p>dOps is a web based rapid/instant application development platform. It is a cost-effective application development solution that allows you to develop robust software application timely.</p> <p>By using dOps tool, you can:</p> <ul style="list-style-type: none"> ➤ Create dynamic forms ➤ Apply validations, regex, and business rules ➤ Integrate with any pre-built native or external API ➤ Integrate with pre-built angular application
13.	Reporting Manager	<p>Reporting manager is a Java based module that is used to create and send reports on the basis of report-specific configuration. It generates the report in (.xls), (.xlsx), (.csv), and (.txt) formats.</p> <ul style="list-style-type: none"> ➤ On the database level, it stores the following details of report: ➤ Name of report ➤ Path of report (Storage location of report) ➤ Content of report ➤ Recipient of report (The name of user who the report has been sent), etc <p>On the basis of report configuration, the reporting manager can generate the report on the hourly, daily, weekly, and monthly basis.</p>
14.	MDM	MDM Stands for Master Data management. MDM allows you to upload excel data to database using MDM portal in secured way.

15.	Score Engine	<p>Score engine is a configurable utility, which is used to perform 360 degree scoring. It is an executable entity/file that takes the input in the form of JSON object and then executes mathematical algorithm to compute the score. The score is treated as final output.</p> <p>The score engine module can be used in the variety of functions such as credit risk assessment, lead assessment and thereby can improve the output.</p>
16.	Sync Engine	<p>It is very important tool in the Vahana platform. Sync engine syncs the un-synced data records between mobile app and database server. Complete sync engine mechanism works on the basis of the configuration.</p>
17.	ETL	<p>The term, ETL, refers to Extract, Transform, and Loading. In the business process workflow, the term, ETL, denotes the database procedures that transfer the data between client DB and staging master database server.</p> <ul style="list-style-type: none"> ➤ JSON to RDBMS converter ➤ RDBMS to JSON converter
18.	Batch Management Job	<p>The batch management job is a smart processing framework that is used to execute multiple jobs in parallel manner. It simply follows the standard batch architecture, in which the job repository manages the interaction and scheduling of the job.</p> <p>In the batch management job, a job reads the input data, process the input data, and then writes the output data.</p>
19.	Archival and Purge	<p>This module is used to archive and purge the old data. When this module executes, it archives the data on the basis of the followings:</p> <ul style="list-style-type: none"> ➤ Configurable rules ➤ Maximum number of days to retain the old files before they are deleted
20.	Notification Engine	<p>The notification engine is a Java based micro-service that sends the notification in the form of variety of messaging formats such as SMS, email, and push notification.</p> <p>The notification engine can send the following types of notification:</p> <ul style="list-style-type: none"> ➤ Normal Notification ➤ Timer based Notification ➤ Location Based Notification ➤ Event based Notification ➤ Non-Event based Notification, and others
21.	Access Control	<p>Access Control module is used to control the access to the business and enterprise-level data. The scope of the user-access to the business data depends on the read/write/update permissions that are assigned to the user-profile.</p>
22.	Data Enrichment Engine	<p>Data enrichment engine is a configurable tool, which is used to enhance, refine, and improve the raw data.</p>
23.	Workflow Engine	<p>Workflow engine is a configurable tool, which is used to manage the</p>

	business processes and their workflow.
--	--
