# Medication Image Library (MIL) Service Interface Control Document (ICD)

# 1.          Introduction

The VA Mobile Framework (VAMF) Prescription (Rx) Refill application requires a web service that will provide a medication image being provided from the Medication Image Library (MIL) Schema within the Corporate Data Warehouse (CDW).  This image will allow a Veteran to accurately match the medication being sent to them via Mail Order with that being delivered in hand via the delivery service (United States Postal Service (USPS)), FedEx and United Parcel Service. This service created, VAMF Medication Image Library Service, will support patient safety by ensuring the Veteran is taking the correct received medication with their prescribed medication using the VAMF RxRefill Application. The VAMF Architecture team also directed that the VAMF MIL Service be a common service as it provides data that could be used by all applications within the VAMF.

# 2.          Identification of Interfacing Systems/Sub-systems

The following architectural diagram is provided as a reference so that the proceeding subsections can be easily interpreted. This document will only focus on the VAMF Medication Image Library (MIL) Service swimlane of the diagram.  The other swimlanes are provided to help the reader understand how the service sits within the enterprise.

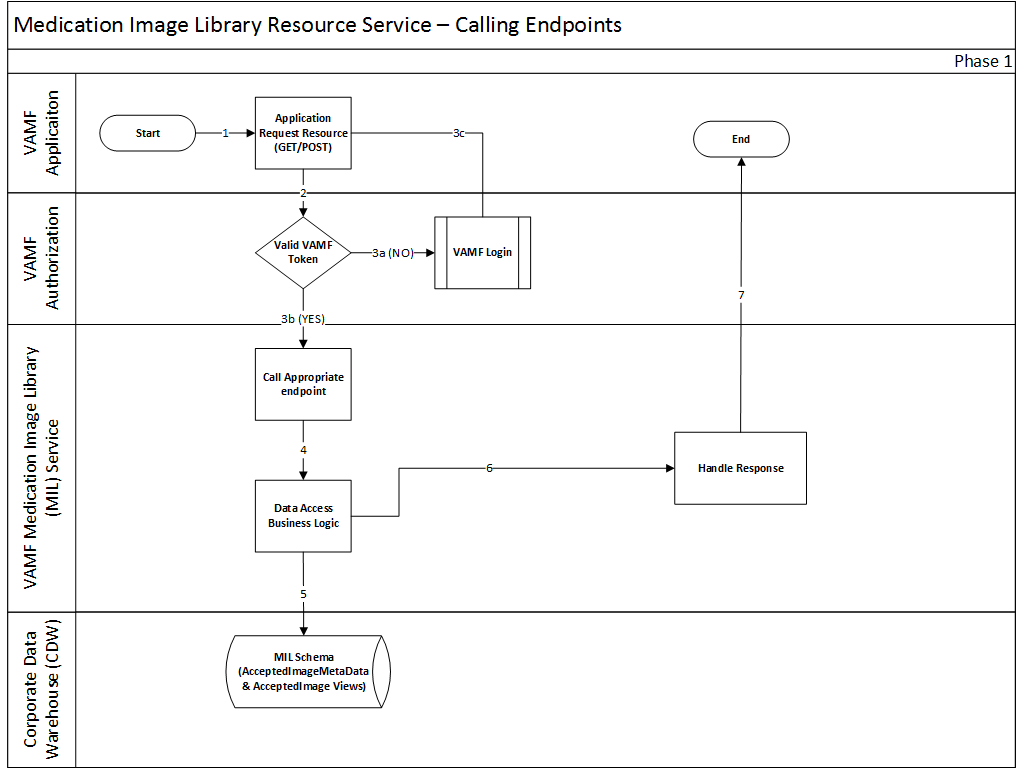


Figure 1: VAMF Medication Image Library Resource Flow

## 2.1.        Medication Image Library (MIL) Image Metadata

### 2.1.1.        Interface Description

This RESTful interface provides an endpoint within the VAMF for retrieving AcceptedImageMetadata from the Medication Image Library (MIL) Schema within the Corporate Data Warehouse (CDW) by providing a National Drug Code (NDC) to the endpoint. The endpoint will handle all business logic and exception handling including calls to CDW and transformation of MIL Data into JSON objects.  If the service all encounters an error an exception will be created and a Fault will be return to the end user. All VAMF MIL Resource Services are protected by VAMF security in the form of an oAuth token so that it can only be called by VAMF authentication users.

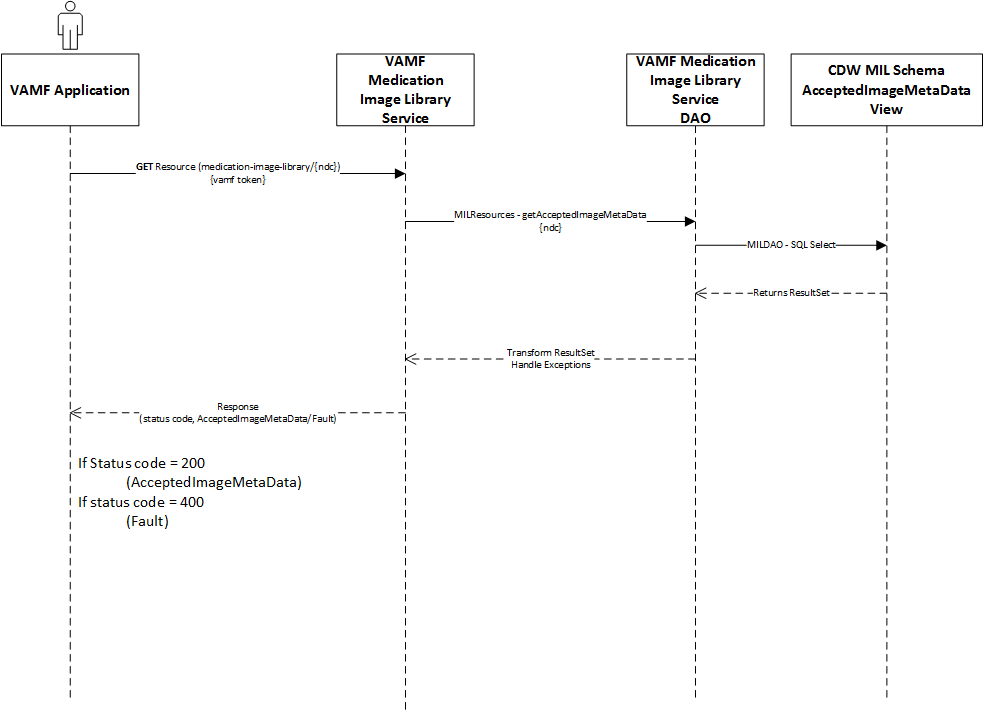


Figure 2: VAMF MIL Image Metadata Sequence Flow

### 2.1.2.        Specification for Information to be Exchanged

|  |  |  |  |
| --- | --- | --- | --- |
| **URI** | **HTTP Method** | **Produces** | **Source of Data** |
| /medication-image-library/{ndc} | GET | application/json | Corporate Data Warehouse (CDW) MIL Schema |

Table 1: MIL Image Metadata - Specification for Information to be Exchanged

#### ****2.1.2.1.           Request****

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Header** | | | |  | |  |
| Content-type | | Required | | | | application/json |
| Accept | | Required | | | | application/json |
| Authorization | | Required | | | | Value is Bearer <space> “VAMF oAuth Token” (Key:Authorization Value:Bearer “token”) |
|  | | | |  | |  |
| **Parameters** | | | |  | |  |
| ndc | | Required | | | | National Drug Code (NDC) of the medication |
|  | |  | | | |  |
| **Body** | | |  | |  | |
| None |  | | | |  | |
|  |  |  |  |  |  |  |

#### ****2.1.2.2.           Response****

|  |  |  |  |
| --- | --- | --- | --- |
| **Header** | |  |  |
| None |  | |  |
|  | |  |  |
| **Body** | |  |  |
| AcceptedImageMetadata | Required | | (See A.1 – AcceptedImageMetadata) |
| Fault | On Error | | (See A.4 – Fault) |
|  |  | |  |
| **Codes** |  | |  |
| 200 |  | | **Successful retrieval of Accepted Image Metadata** |
| 400 |  | | 150 - Unauthorized access  151- Missing VAMF token  152 - Invalid VAMF token  153 - Expired VAMF token  160 - Missing NDC Code  161 – NDC Code not found    117 – Data Integrity Error  99 – Unknown Application Error |
|  |  |  |  |

### 2.1.3.        Timing and Sequencing Constraints

All VAMF MIL Resource Services are protected by VAMF security in the form of an oAuth token so that it can only be called by VAMF authentication users. A token must be present in order to make calls to this endpoint.

## 2.2.        Medication Image Library (MIL) Image

### 2.2.1.        Interface Description

This RESTful interface provides an endpoint within the VAMF for retrieving a JPEG from the Medication Image Library (MIL) Schema within the Corporate Data Warehouse (CDW) by providing an imageId to the endpoint. The endpoint will handle all business logic and exception handling including calls to CDW and transformation of MIL binary data into a JPEG.  If the service all encounters an error an exception will be created and a Fault will be return to the end user. All VAMF MIL Resource Services are protected by VAMF security in the form of an oAuth token so that it can only be called by VAMF authentication users.

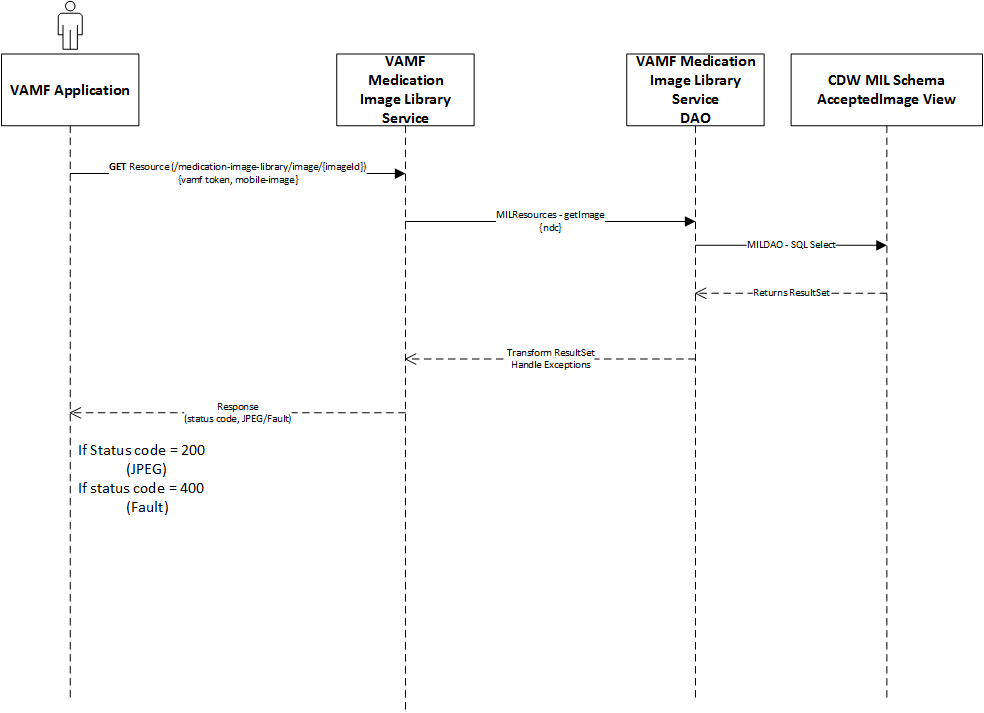


Figure 3: VAMF MIL Image Sequence Flow

### 2.2.2.        Specification for Information be to Exchanged

|  |  |  |  |
| --- | --- | --- | --- |
| **URI** | **HTTP Method** | **Produces** | **Source of Data** |
| /medication-image-library/image/{imageId} | GET | image/jpeg | Corporate Data Warehouse (CDW) MIL Schema |

Table 2: MIL Image - Specification for Information to be Exchanged

#### ****2.2.2.1.           Request****

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Header** | | | |  | |  |
| Content-type | | Required | | | | application/json |
| Accept | | Required | | | | image/jpeg |
| Authorization | | Required | | | | Value is Bearer <space> “VAMF oAuth Token” (Key:Authorization Value:Bearer “token”) |
| mobile-image | | Optional | | | | Optional boolean flag to represent if the caller wants an image optimized for mobile (max of 320px width). If true resized image will be returned if not provided or false the original image is returned. |
|  | | | |  | |  |
| **Parameters** | | | |  | |  |
| imageId | | Required | | | | The ImageId within the CDW MIL AcceptedImage View |
|  | |  | | | |  |
| **Body** | | |  | |  | |
| None |  | | | |  | |
|  |  |  |  |  |  |  |

#### ****2.2.2.2.           Response****

|  |  |  |  |
| --- | --- | --- | --- |
| **Header** | |  |  |
|  |  | |  |
|  | |  |  |
| **Body** | |  |  |
| JPEG | Required | | JPEG of image selected |
| Fault | On Error | | (See A.4 – Fault) |
|  |  | |  |
| **Codes** |  | |  |
| 200 |  | | **Successful retrieval of medication image** |
| 400 |  | | 150 - Unauthorized access  151- Missing VAMF token  152 - Invalid VAMF token  153 - Expired VAMF token  160 - Missing image id  161 – Image Id not found  162 – No image exists for ImageId xxx    117 – Data Integrity Error  99 – Unknown Application Error |
|  |  |  |  |

### 2.2.3.        Timing and Sequencing Constraints

All VAMF MIL Resource Services are protected by VAMF security in the form of an oAuth token so that it can only be called by VAMF authentication users. A token must be present in order to make calls to this endpoint.

## 2.3.        Medication Image Library (MIL) Images

### 2.3.1.        Interface Description

This RESTful interface provides an endpoint within the VAMF for retrieving AcceptedImages from the Medication Image Library (MIL) Schema within the Corporate Data Warehouse (CDW) by providing a National Drug Code (NDC) to the endpoint.  The endpoint will handle all business logic and exception handling including calls to CDW and transformation of MIL Data into JSON objects.  If the service all encounters an error an exception will be created and a Fault will be return to the end user. All VAMF MIL Resource Services are protected by VAMF security in the form of an oAuth token so that it can only be called by VAMF authentication users.

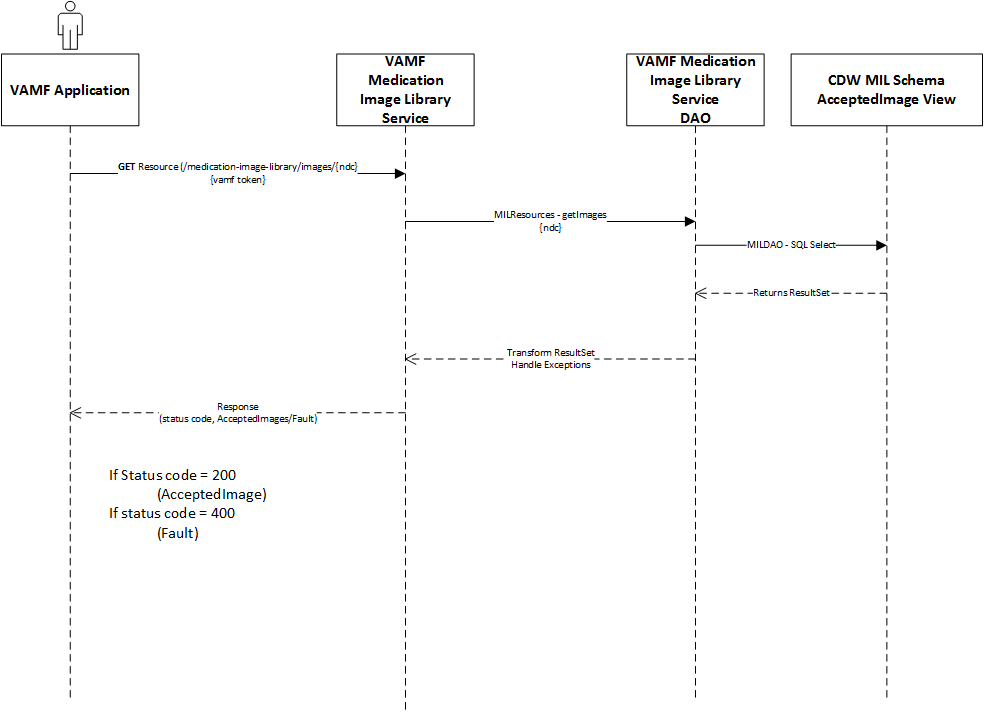


Figure 4: VAMF MIL Images Sequence Flow

### 2.3.2.        Specification for Information to be Exchanged

|  |  |  |  |
| --- | --- | --- | --- |
| **URI** | **HTTP Method** | **Produces** | **Source of Data** |
| /medication-image-library/images/{ndc} | GET | application/json | Corporate Data Warehouse (CDW) MIL Schema |

Table 3: MIL Images - Specification for Information to be Exchanged

#### 2.3.2.1.           Request

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Header** | | | |  | |  |
| Content-type | | Required | | | | application/json |
| Accept | | Required | | | | application/json |
| Authorization | | Required | | | | Value is Bearer <space> “VAMF oAuth Token” (Key:Authorization Value:Bearer “token”) |
|  | | | |  | |  |
| **Parameters** | | | |  | |  |
| ndc | | Required | | | | National Drug Code (NDC) of the medication |
|  | |  | | | |  |
| **Body** | | |  | |  | |
| None |  | | | |  | |
|  |  |  |  |  |  |  |

#### 2.3.2.2.           Response

|  |  |  |  |
| --- | --- | --- | --- |
| **Header** | |  |  |
| None |  | |  |
|  | |  |  |
| **Body** | |  |  |
| AcceptedImages | Required | | (See A.2 – AcceptedImages) |
| Fault | On Error | | (See A.4 – Fault) |
|  |  | |  |
| **Codes** |  | |  |
| 200 |  | | **Successful retrieval of AcceptedImages (List<AcceptedImage>)** |
| 400 |  | | 150 - Unauthorized access  151- Missing VAMF token  152 - Invalid VAMF token  153 - Expired VAMF token  160 - Missing NDC Code  161 – NDC Code not found    117 – Data Integrity Error  99 – Unknown Application Error |
|  |  |  |  |

### 2.3.3.        Timing and Sequencing Constraints

All VAMF MIL Resource Services are protected by VAMF security in the form of an oAuth token so that it can only be called by VAMF authentication users. A token must be present in order to make calls to this endpoint.

## 2.4.        Medication Image Library (MIL) Image Properties

### 2.4.1.        Interface Description

This RESTful interface provides an endpoint within the VAMF for retrieving AcceptedImageMetadata from the Medication Image Library (MIL) Schema within the Corporate Data Warehouse (CDW) by providing an imageId to the endpoint. The endpoint will handle all business logic and exception handling including calls to CDW and transformation of MIL Data in JSON objects.  If the service all encounters an error an exception will be created and a Fault will be return to the end user. All VAMF MIL Resource Services are protected by VAMF security in the form of an oAuth token so that it can only be called by VAMF authentication users.

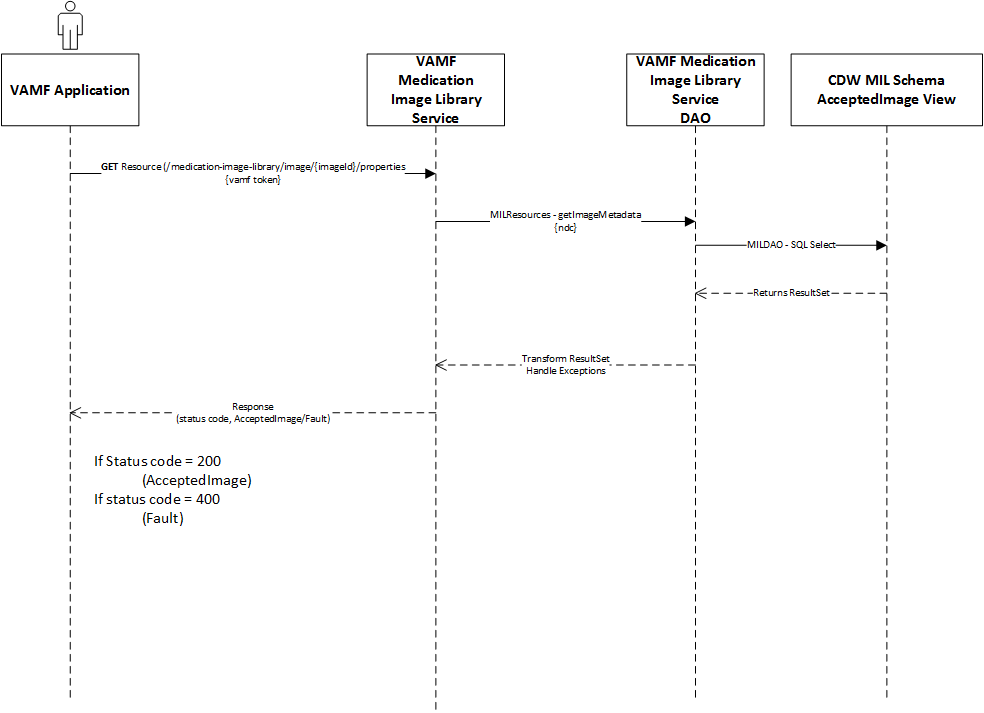


Figure 5: VAMF MIL Image Properties Sequence Flow

### 2.4.2.        Specification for Information to be Exchanged

|  |  |  |  |
| --- | --- | --- | --- |
| **URI** | **HTTP Method** | **Produces** | **Source of Data** |
| /medication-image-library/image/{imageId}/properties | GET | application/json | Corporate Data Warehouse (CDW) MIL Schema |

Table 4: MIL Image Properties - Specification for Information to be Exchanged

#### 2.4.2.1.           Request

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Header** | | | |  | |  |
| Content-type | | Required | | | | application/json |
| Accept | | Required | | | | application/json |
| Authorization | | Required | | | | Value is Bearer <space> “VAMF oAuth Token” (Key:Authorization Value:Bearer “token”) |
|  | | | |  | |  |
| **Parameters** | | | |  | |  |
| imageId | | Required | | | | The ImageId within the CDW MIL AcceptedImage View |
|  | |  | | | |  |
| **Body** | | |  | |  | |
| None |  | | | |  | |
|  |  |  |  |  |  |  |

#### 2.4.2.2.           Response

|  |  |  |  |
| --- | --- | --- | --- |
| **Header** | |  |  |
| None |  | |  |
|  | |  |  |
| **Body** | |  |  |
| AcceptedImage | Required | | (See A.3 – AcceptedImage) |
| Fault | On Error | | (See A.4 – Fault) |
|  |  | |  |
| **Codes** |  | |  |
| 200 |  | | **Successful retrieval of an AcceptedImage** |
| 400 |  | | 150 - Unauthorized access  151- Missing VAMF token  152 - Invalid VAMF token  153 - Expired VAMF token  160 - Missing image id  161 – Image id not found    117 – Data Integrity Error  99 – Unknown Application Error |
|  |  |  |  |

### 2.4.3.        Timing and Sequencing Constraints

All VAMF MIL Resource Services are protected by VAMF security in the form of an oAuth token so that it can only be called by VAMF authentication users. A token must be present in order to make calls to this endpoint.

# 3.          Capacity and Performance Requirements

The service will leverage My Health**e**Vet statistics for capacity planning.  Metrics show on average one million prescription refills using the Enterprise RxRefill and Tracking service.  This would require similar capacity planning due to Veterans needing to view a medication during the tracking of their prescription activity.

# 4.          Requirements for Communication Protocol Standards Compliance

Clients will exchange information with the VAMF RxRefill Resources service via REST.  All endpoints will  be able to transmit/receive JSON objects. Error recovery and guaranteed delivery are not part of the protocol. Any unexpected errors must be communicated using REST/HTTP Error codes and are defined within the Response Segments for each endpoint.  HTTP can provide compression of the information exchanged. HTTPS, or more precisely Secure Socket Layer (SSL)/ Transport Security Layer (TSL), shall be used to provide encryption of the information exchanged. HTTPS is used between the end-user’s browser and the web server. The following communication standards will be used: REST, JSON, WADL, SSL 3.0, and TLS 1.1.

# Appendix A. Data Elements

## A.1.       AcceptedImageMetadata

|  |  |
| --- | --- |
| **Field** | **Type** |
| acceptedImageMetadataSID | Integer |
| NDC | String |
| drugStyleChange | Integer |
| NDC9Digit | String |
| NDC10 | String |
| LBLCode | String |
| prodCode | String |
| PKGCode | String |
| VAProductID | String |
| packSize | String |
| packType | String |
| manufacturer | String |
| tradeName | String |
| VAProductName | String |
| VAGenericName | String |
| VAPrintName | String |
| nationalFormularyIndicator | Boolean |
| nationalFormularyName | String |
| drugClassificationCode | String |
| drugClassification | String |
| strength | String |
| unit | String |
| DosageForm | String |
| rx\_OTC | String |
| shape | String |
| color | String |
| imprintType | String |
| frontImprint | String |
| backImprint | String |
| score | String |
| coating | String |
| VADispenseUnit | String |
| lastModifiedDT | RFC1123 Date |
| lastModifiedUser | String |
| initialAddDT | RFC1123 Date |
| inNDF | Boolean |
| inFDA | Boolean |
| inFDB | Boolean |
| listingSEQNO | String |
| GCNSeqNO | String |
| VUID | String |
| IEN | String |
| UPN | String |
| inactivationDate | String |
| CSFederalSchedule | String |
| imageID | Integer |
| medImageID | Integer |
| packImageID | Integer |
| imageStatus | Integer |
| reviewDateTime | RFC1123 Date |
| verifiedDateTime | RFC1123 Date |
| Notes | String |
| verificationReason | String |
| drugID | String |
| newStyle | Boolean |
| unitofUse | Boolean |
| imageRef | String |
| medImageRef | String |
| packImageRef | String |

## A.2.       AcceptedImages

|  |  |
| --- | --- |
| **Field** | **Type** |
| acceptedImageList | List<AcceptedImage> |

## A.3.       AcceptedImage

|  |  |
| --- | --- |
| **Field** | **Type** |
| acceptedImageID | Integer |
| imageID | Integer |
| sourceID | String |
| NDC | String |
| drugImage | JPEG (byte[ ]) |
| acceptance | String |
| reviewDateTime | RFC1123 Date |
| verifiedDateTime | RFC1123 Date |
| imageRef | String |

## A.4.       Fault

|  |  |
| --- | --- |
| **Field** | **Type** |
| developerMessage | String |
| errorCode | Integer |
| message | String |