

CalSAWS

California Statewide Automated Welfare System

Design Document

CA-209485

DDID #1783 - Architecture Normalization: Replace EWS API
with Microsoft Graph API

CalSAWS	DOCUMENT APPROVAL HISTORY	
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1 OVERVIEW

This SCR will replace the Microsoft Exchange Web Services (EWS) API for sending calendar emails with the Microsoft Graph API.

1.1 Current Design

The CalSAWS application currently sends calendar emails using the EWS API. This API uses Basic Authentication scheme to access Office 365. The basic authentication will be decommissioned starting October 13th, 2020. The EWS API gets used only if the county has opted for Outlook/Groupwise calendar.

1.2 Requests

The EWS API should be replaced with the Microsoft Graph API, to use Oauth 2.0 for authentication and authorization.

1.3 Overview of Recommendations

The architecture framework for sending calendar emails will be updated to use the Microsoft Graph API.

2 RECOMMENDATIONS

1. The CalSAWS application will be registered with the Microsoft identity platform, and will be issued a refresh token to make requests to Microsoft Graph. The Microsoft Graph Java SDK will be used to replace the existing EWS architecture code to make calls to Microsoft Graph.
2. Create a table to store refresh tokens (which will be used to obtain access tokens)
3. Update the code_detl table to substitute the implementation class referenced for Outlook Exchange emails from the existing EWS class to a new Microsoft Graph class.
4. A task will be scheduled to run every 24 hours to store a new refresh token in the oauth_cred table.
5. A JMS message listener container will be created to consume messages from the connector-queue and send appointment emails for each message.

2.1 Customer Appointment Detail

2.1.1 Description of Changes

When adding a new appointment to the Customer Schedule Search, if user county is configured for the Outlook/Groupwise calendar invite, the Microsoft Graph API will be used instead of the EWS API to send the meeting invite.

2.1.2 Page Location

- **Global:** Eligibility
- **Local:** Customer Schedule
- **Task:** Appointments

2.2 Contact Detail

2.2.1 Description of Changes

If a case has opted in for E-notifications, whenever a form is posted to YBN, an email with HTML content will be sent using the Microsoft Graph API instead of the EWS API.

2.2.2 Page Location

- **Global:** Case Info
- **Local:** Case Summary
- **Task:** Contact

2.3 Batch Change - Outbound Email

2.3.1 Description of Change

The EWSConector used to send batch notification emails will be replaced with a MicrosoftGraphApiConnector.

2.4 Batch Change - Undeliverable Email Reader

2.4.1 Description of Change

The EWSConector used to get notification inbox emails and transfer emails to the deleted folder will be replaced with a MicrosoftGraphApiConnector.

2.5 Batch Change - C4Y Email Customers

2.5.1 Description of Change

The EWSConector used to send batch notification emails will be replaced with a MicrosoftGraphApiConnector.

2.6 Batch Change - Outbound Call WS

2.6.1 Description of Change

The EWSConector used to send batch notification emails will be replaced with a MicrosoftGraphApiConnector.

2.7 Data Change – New Table oauth_cred

2.7.1 Description of Change

A new table called oauth_cred will be created which will store Oauth tokens to authenticate to different cloud services, including Office 365.

2.7.2 Estimated Number of Records Impacted/Performance

The number of records in oauth_cred will be very small.

2.8 Data Change – Update to table code_detl

2.8.1 Description of Change

The code_detl table will be updated so that the implementation class associated with the code number OE (Outlook Exchange) is updated from 'org.civ.architecture.connector.EWSMeeting' to 'org.civ.architecture.connector.MicrosoftGraphApiMeeting'

2.8.2 Estimated Number of Records Impacted/Performance

1 record will be updated in code_detl.

CalSAWS

California Statewide Automated Welfare System

Design Document

SCR CA-213976 – Convert to Stream
Architecture – MEDS EW25, EW05, EW45, EW12
Transactions

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1 OVERVIEW

Medical Eligibility Data System (MEDS) transactions listed below will be rearchitected to leverage the "Stream Processing Architecture".

- The MEDS-Modify Case Name (EW25) – Sends transaction for Case name or case worker change
- MEDS Inter-County Transfer (EW05) – Sends Intercounty transfer (ICT) participant's program status change and eligibility information after the county transfer
- The MEDS-Request Replacement ID Card (EW45) – Sends a request to issue BIC (Benefits Identification Card) when participants apply for a BIC
- The MEDS Update Client Non-Eligibility Information (EW12) - Sends transaction when there is a change to an active or pending participant's demographic or Medicare information

1.1 Current Design

Currently, all MEDS transactions run nightly on the batch framework. The data changes are made through the CalSAWS online application during the day. However, the same data changes are captured, processed into EW25, EW05, EW45, and EW12 transaction records, and sent to MEDS as part of an outbound file during the nightly batch process.

1.2 Requests

Refactor MEDS transactions to leverage "Stream Processing Architecture" to run during business hours. This will eliminate the number of processing batch jobs and reduces the number of batch jobs running during the batch window to accommodate all 58-counties in CalSAWS.

1.3 Overview of Recommendations

The MEDS transactions EW25, EW05, EW45, and EW12 will be rearchitected to leverage the "Stream Processing Architecture".

Changes made through online application will be retrieved and the corresponding IDs will be published to a source topic for downstream processing by a consumer processing application. No PII data will be stored in the source topic.

A consumer application will take data from the source topic, generates MEDS transactions using the existing logic, and stage them in the MEDS transaction table for the final job to create an outbound file. In alignment with existing implementation, no duplicate records will be sent to MEDS.

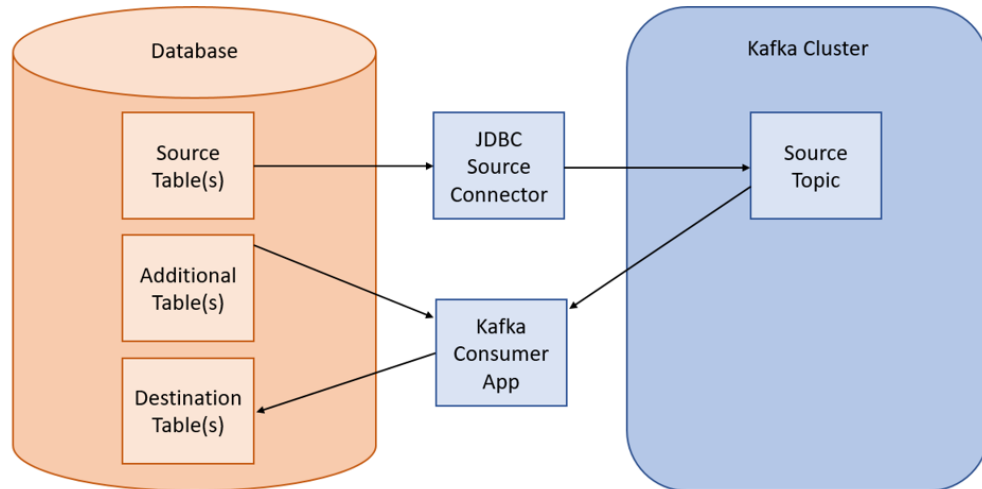


Figure 1. Streams Processing Architecture for MEDS Transaction

1.4 Assumptions

1. The new streaming application will have no functional differences from the existing EW25, EW05, EW45 and EW12 batch jobs
2. Data volume and data format should exactly match the current interface
3. Existing MEDS batch jobs will not be modified
4. As per current implementation, all the transactions will still be sent to MEDS in the nightly outbound file

2 RECOMMENDATIONS

2.1 MEDS Transaction – EW25

2.1.1 Overview

MEDS-Modify Case Name (EW25) Transaction Background

Daily MEDS transactions are generated during a nightly batch process. The MEDS-Modify Case Name (EW25) transaction, which is generated to report a case when there is a change in the case name or case worker.

Current Architecture

Currently, there exist nightly batch jobs that capture the case name and case worker changes in the change detection tables in the CalSAWS.

The MEDS-Modify Case Name (EW25) transaction job queries these change detection tables, processes the case name and worker changes, and generates EW25 transactions. These transactions are staged in the MEDS transaction table for the final job to create an outbound file with all the transactions.

2.1.2 Description of Changes

1. Case name and case worker changes from the online application will be retrieved and the corresponding case ID will be published to a source topic for downstream processing by a consumer processing application. No PII data will be stored in the source topic.
2. A consumer application will take data from the source topic, generate EW25 transactions using the existing logic, and stage them in the MEDS transaction table for the final job to create an outbound file. In alignment with existing implementation, no duplicate records will be sent to MEDS.

2.2 MEDS Transaction – EW05

2.2.1 Overview

MEDS Inter-County transfer (EW05) Transaction Background

The MEDS Inter-County transfer (EW05) transaction, which is generated to report a transfer of responsibility for a client's case from one county to another. ICT participants will be reported to MEDS when the program is approved after the transition.

Current Architecture

Currently, there exist nightly batch jobs that capture the change in a participant's program status for inter-county transfers. When the program is made Active, changes are captured in the change detection tables in the CalSAWS.

The MEDS Intercounty transfer (EW05) transaction job queries the change detection tables to process the program status changes for inter-county transfers and generate EW05 transactions. These transactions are staged in the MEDS transaction table for the final job to create an outbound file with all the transactions.

2.2.2 Description of Changes

1. Program status changes from the online application will be retrieved and the corresponding Program person ID will be published to a source topic for downstream processing by a consumer processing application. No PII data will be stored in the source topic.
2. A consumer application will take data from the source topic, generate EW05 transactions using the existing logic, and stage them in the MEDS transaction table for the final job to create an outbound file. In alignment with existing implementation, no duplicate records will be sent to MEDS.

2.3 MEDS Transaction – EW45

2.3.1 Overview

MEDS-Request Replacement ID Card (EW45) Transaction Background

The MEDS-Request Replacement ID Card (EW45) transaction, which is generated to request a BIC (Benefits Identification card) whenever an active person applies for a BIC.

Current Architecture

Currently, there exist nightly batch jobs that capture the BIC replacement request made through online application and generate EW45 transactions. These transactions are staged in the MEDS transaction table for the final job to create an outbound file with all the transactions.

2.3.2 Description of Changes

1. BIC requests from the online application will be retrieved and the corresponding person ID will be published to a source topic for downstream processing by a consumer processing application. No PII data will be stored in the source topic.
2. A consumer application will take data from the source topic, generate EW45 transactions using the existing logic, and stage them in the MEDS transaction table for the final job to create an outbound file. In alignment with existing implementation, no duplicate records will be sent to MEDS.

2.4 MEDS Transaction – EW12

2.4.1 Overview

MEDS Update Client Non-Eligibility Information (EW12) Transaction Background

The MEDS Update Client Non-Eligibility Information (EW12) transaction is used to update client information in MEDS for active or pending participants. Whenever there is a change in the below-listed participant's information it will be sent to MEDS.

- DOB
- Last Name, First Name, Middle Name
- Gender Code
- Race Type Code
- Address
- Address Type
- Language Code
- Written Language Code
- Immigration and Naturalization Service (INS) Document type

- Participant's Date of Entry to the United States
- Active duty relationship code
- Battered Alien Indicator
- Active Duty Relationship code
- Alien Number Identifier
- Country of Origin Code
- Deceased Date
- Health Insurance Claim Number
- Medicare Benefit Identifier

Current Architecture

Currently, there exist nightly batch jobs that capture changes for the above list in the change detection tables in the CalSAWS.

The MEDS Update Client Non-Eligibility Information (EW12) transaction job queries the change detection tables to process the records and generate EW12 transactions. These transactions are staged in the MEDS transaction table for the final job to create an outbound file with all the transactions.

2.4.2 Description of Changes

1. The above changes made through online application will be retrieved and the corresponding ID(s) of PERS, PERS_RACE, CITZ, LANG, MEDICARE, OTHER_HLTH_COVRG, ADDR, PERS_ADDR will be published to a source topic for downstream processing by a consumer processing application. No PII data will be stored in the source topic.
2. A consumer application will take data from the source topic, generate EW12 transactions using the existing logic, and stage them in the MEDS transaction table for the final job to create an outbound file. In alignment with existing implementation, no duplicate records will be sent to MEDS.

2.5 Execution Frequency

Source Connector will be running 24X7. Consumer Application will be scheduled to run every hour.

2.6 Key Scheduling Dependencies

Consumer Application will set as a predecessor to the MEDS outbound writer job.

2.7 Counties Impacted

All counties.

2.8 Data Volume/Performance

N/A

2.9 Failure Procedure/Operational Instructions

Like the existing process, Batch\Tech Operation Support Team will evaluate errors, diagnose the issue, and work with the appropriate teams to resolve the failure.

2.10 Production Validation

After production deployment both new streaming application and existing batch jobs will be running parallel, after comparing the results existing job will be decommissioned.

Below is the production validation and comparison flow:

1. A separate MEDS file will be generated from the streaming application and will be made available in S3 to compare records with a nightly job.
2. Generated MEDS file from the streaming application will never be sent to meds till validation is complete.
3. Once the validation is complete, nightly batch jobs will be decommissioned gracefully, and streaming application will start sending transactions to MEDS through the nightly file.
4. In addition to file comparison, a new batch job will be scheduled to send an email with processed record counts of streaming and nightly job for comparison.

2.11 Enable Streaming Architecture/Operational Instructions

After validation, nightly meds job will be turned off and the streaming application will be configured to send transactions to MEDS through the nightly file. With client approval, these actions will be taken through separate SCRs(BPCRs/BSCRs).

3 SUPPORTING DOCUMENTS

Number	Functional Area	Description	Attachment

4 REQUIREMENTS

4.1 Project Requirements

REQ #	REQUIREMENT TEXT	How Requirement Met

4.2 Migration Requirements

DDID #	REQUIREMENT TEXT	Contractor Assumptions	How Requirement Met