FUNCTIONAL DESIGN



H2OA - CCS FD - CM073 - Send Account Balances To VX Engage

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**Approvals:**

|  |  |
| --- | --- |
| Jonathan Baltazar |  |
| Deborah Mager |  |

# Document Control

## Change Record

| **Date** | **Author** | **Version** | **Change Reference** |
| --- | --- | --- | --- |
|  |  |  |  |
| 2025-08-20 | Joriel Punzalan | 0.1 | Initial Draft |
| 2025-09-07 | Yash Yeolekar | 1.0 | Completed review and created version 1.0 for H2OA review and approval |
| 2025-10-02 | Yash Yeolekar | 1.1 | As per review comments Updated below:  2.1 Business Process Description: Added more details related to VertexOne-VXEngage  2.2 Business Requirement: Added more details related to VertexOne-VXEngage  2.3 Risks and Limitations  2.4 Assumptions: Added details related to batch scheduler and batch run book. Referenced OIC related RICE ID and FD on how inbound/outbound file handling will be taken care of in CCS  3.4 Process Diagrams: Updated Process flow to have similar format across all EY documents for process flows |
| 2025-10-03 | Joriel Punzalan | 1.2 | Retained account balance calculation from the java standalone program. |

## Reviewers

| **Name** | **Position** |
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## Related Documents

| **Version #** | **Related Documents** | **Release Date** |
| --- | --- | --- |
|  |  |  |
|  | H2OA - OIC FD - CM172 - CCS Outbound Files Integration.docx |  |

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# CM073 – Send Account Balances To VX Engage

## Business Process Description

**VertexOne – VX Engage** is a digital platform that enables San Jose Water Company (SJWC) to deliver a variety of services to customers through a self-service portal. The platform enhances transparency by displaying customer-owned assets directly on Customer Portal. To support this functionality, SJWC sends a daily *Current Balance File* to VertexOne – VX Engage. Currently, this process is handled by a standalone Java job that generates a CSV extract, which is then transmitted to the platform.

## Business Requirements

A batch process is needed to extract account balance information for each individual account from CCS to a csv file. This process, managed by the CCS batch, replaces a previously used standalone Java job that generated a CSV extract, maintaining the same purpose for the utility. The output csv file will be placed at object storage location to be picked up by VertexOne - VX Engage.

|  |  |  |
| --- | --- | --- |
| **Enhancement/Interface Id**  ***(Functional Design ID)*** | **Requirement Id** | **Requirement Description** |
| CM073 | RQ0672 | Integration - Send Account balances to VX Engage |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## Risks and Limitations

* NA

## Assumptions

* Only SJWC accounts will be considered for this extract.
* The batch job will be part of the nightly batch cycle and the batch job related details like submission time, batch job successor/predecessor will be maintained and managed separately from Batch Run Book [Project Elevate - Batch Run Book V1.xlsx](https://eyus.sharepoint.com/:x:/r/sites/EYD4NSru252N0IZ/Shared%20Documents/1.%20Enterprise%20Design/2.%20Confirm%20and%20Design/3.%20Technical/Project%20Elevate%20%20-%20Batch%20Run%20Book%20V1.xlsx?d=w530bceb52bd84d64bf9732db8ad2f308&csf=1&web=1&e=D4JsMl)
* This batch job will run once a day, and file will be placed in an object storage. H2OA file transfer process will then pick up this file and send it to VertexOne - VX Engage.

# Solution

## Design Overview

San Jose Water Company (SJWC) currently uses a standalone Java program (cm\_Extract) to execute a stored procedure (cm\_vo\_balance\_ext) that retrieves account balance information and generates a customer balance file. To modernize this process, an extract interface will be developed within CCS. This new interface will replicate the logic of the stored procedure to produce the customer balance file.

## Triggers

Primary: The custom batch job for this process will be triggered every day by a batch scheduler irrespective of holidays and weekends.

Secondary: Ad hoc/on-demand submission by operations for re-run or special cycles.

## Approach

A new Plug-in Driven Extract Batch Process will be created to retrieve balance information for all SJW accounts. Information will be stored on a csv-file using the format provided.

|  |  |
| --- | --- |
| Type of Interface | Batch |
| Frequency | Daily |
| Volume | TBD |
| Type of Execution | Job Scheduler |
| External Systems | VertexOne - VX Engage |

## Process Diagrams

A diagram of a company

AI-generated content may be incorrect.

***Note:***

**The sections below are intended for CCS team for internal design and coding.**

## Detailed Design

### Design Component – VertexOne – VX Engage Customer Balance Extract Batch

#### Algorithm Type: CMVOCBEXSR

##### Description: Select Records for VertexOne – VX Engage Customer Balance Extract

##### Plug-in spot: Batch Control – Select Record

##### Algorithm Type Soft Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Parameter Name** | **Description** | **Required (Y/N)** | **Validations** |
| 1 | SQL | Main Query | Y |  |
| 2 | Batch Strategy | Determines if it is either a Job-Level or a Thread-Level SQL Selection | Y |  |
| 3 | Key Field | Primary Field of the Main Query | Y |  |

##### Main Processing

* Set hard parameters
  + batchStrategy = Parameter 2
  + keyField = Parameter 3

##### Main Query

SELECT

    AC.ACCT\_ID

FROM

    CI\_ACCT AC

WHERE

AC.CIS\_DIVISION=’SJWC’

AND

    EXISTS (

        SELECT

            'X'

        FROM

            CI\_SA SA

        WHERE

            SA.ACCT\_ID = AC.ACCT\_ID

            AND SA.SA\_STATUS\_FLG IN ( 20, 30, 40, 50, 60 )

    );

#### Algorithm Type: CMVOCBEXPR

##### Description: Process Record for VertexOne – VX Engage Customer Balance Extract

##### Plug-in spot: Batch Control – Process Record

##### Algorithm Type Soft Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Parameter Name** | **Description** | **Required (Y/N)** | **Validations** |
|  | N/A |  |  |  |

##### Output File Definition

###### Record Types

|  |  |  |
| --- | --- | --- |
| **Record Type** | **Description** | **Notes** |
|  | N/A |  |

###### Record Definition

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Format** | **Source/Value/Description** |
| account\_number | A10 | The unique utility account number  Value: Account Id |
| customer\_code | A10 | A unique utility identifier representing the payee, person, or entity  Value: Main Person Id |
| total\_due |  | The total amount of the current balance  Value: Account Current Balance |
| due\_date | Date | The due date of the current balance  Format: MM/DD/YYYY  Value: Latest Bill Due Date |

##### Main Processing

* Create and open file
* Write Header: Write a single header line (the fixed list of column names in the expected VX Engage order), separated by the tab delimiter.
* Write Record data:

For each **Account**

* + Get latest completed **Bill** on the **Account**

[Note: Use Get Latest Completed Bill method]

* + Write the record (separated by **Delimiter**)
    - accountNumber = **Account Id**
    - customerCode = **Account** **Main Person Id**
    - totalDue = **Account Current Balance**

[Note: Sum up all FTs]

* + - dueDate = **Bill Due Date**

##### Queries

* Existing Query used in standalone java program:

*--list all current accounts*

*SELECT sa.acct\_id account\_number,*

*ap.per\_id customer\_code,*

*SUM (ft.cur\_amt) total\_due,*

*(SELECT TO\_CHAR (MAX (b.due\_dt),*

*'yyyy-mm-dd')*

*FROM ci\_bill b*

*WHERE b.acct\_id = sa.acct\_id) due\_date*

*FROM ci\_ft ft*

*JOIN ci\_sa sa ON sa.sa\_id = ft.sa\_id*

*JOIN ci\_acct acct ON acct.acct\_id = sa.acct\_id*

*JOIN ci\_acct\_per ap*

*ON ap.acct\_id = sa.acct\_id AND ap.main\_cust\_sw = 'Y'*

*WHERE --05 - Incomplete, 70 - Cancelled, 10 - pending start, 20 - active, 30 - pending stop, 40 - Stopped, 50 - reactivate, 60 - closed*

*sa.SA\_STATUS\_FLG IN ('20',*

*'30',*

*'40',*

*'50',*

*'60')*

*GROUP BY sa.acct\_id, ap.per\_id;*

#### Batch Control: CMVOCBEX

##### Description: VertexOne – VX Engage Customer Balance Extract

##### Background Process Properties

|  |  |
| --- | --- |
| **Property** | **Value** |
| Type | Extract |
| To Do Type | N/A |
| Processing Type | Loop |
| Unit of Processing | Account |
| Restartable | N |
| Rerunnable | N |
| Multi-threaded | N |
| Records between Commits | N/A |
| Minutes between Cursor Re-initialization | N/A |
| Frequency | Nightly |
| Pre-requisites | None |
| Special Notes | None |
| Selection Algorithm | CMVOCBEXSR |
| Processing Algorithm | CMVOCBEXPR |

##### Additional Batch Parameters

|  |  |  |
| --- | --- | --- |
| **Field** | **Description / Values** | **Required (Y/N)** |
| filePath | File Path  Value: TBD | Y |
| fileName | File Name  Value: current\_balance\_sjw\_yyyymmdd | Y |
| fileExtension | File Extension  Value: csv | Y |
| fileDelimiter | File Delimiter  Value: , <comma> | Y |

## Custom Messages

|  |  |  |
| --- | --- | --- |
| **#** | **Message Text** | **Detailed Description** |
| N/A |  |  |

## Testing Considerations

|  |  |  |
| --- | --- | --- |
| **#** | **Test Scenario** | **Expected Result** |
| 1 | Account with only a pending start SA | Account is NOT included on the output file |
| 2 | Account/s with SA on status Active, Pending Stop, Stopped, Reactivated, Closed | Account/s is/are included on the output file |
| 3 | Account with active SA but no completed Bill | Due Date column is blank |
| 4 | Account with active SA, completed Bill, but with zero balance | Total Due column is set to 0 |

# Impact of Solution

## Interdependencies

|  |  |  |
| --- | --- | --- |
| **Dependency**  ***(name of Interface, Enhancement, Table etc)*** | **Functional Design**  ***(Where is this dependency defined?)*** | **Comments** |
| N/A |  |  |

## Conversion

N/A

## Interface

This solution replaces the existing standalone Java program (cm\_Extract.java) using stored proc cm\_vo\_balance\_ext use case. The interface impact includes:

* **File Format Compatibility**: The new CCS batch produces the same tab-delimited CSV format as the legacy program, ensuring VX Engage can continue processing files without modification.
* **Filename Convention**: Maintains the existing naming pattern (\_.csv) for consistency with downstream processes.
* **Scheduling Integration**: The batch can be integrated into existing job scheduling workflows, replacing the current standalone execution.
* **Error Notification**: Changes from email-based error notifications to CCS To Do entries, requiring updates to operational monitoring procedures.
* **Archive/Purge Behavior**: Preserves the legacy archive-before-run and purge-after-run functionality to maintain file management consistency.
* **File Transfer**: For OIC we have a RICE ID CM172 that will handle outbound file transfer. FD associated with it is [​docx icon H2OA - OIC FD - CM172 - CCS Outbound Files Integration.docx](https://eyus.sharepoint.com/:w:/r/sites/EYD4NSru252N0IZ/Shared%20Documents/1.%20Enterprise%20Design/2.%20Confirm%20and%20Design/2.%20Functional/Functional%20Designs/Integration/H2OA%20-%20OIC%20FD%20-%20CM172%20-%20CCS%20Outbound%20Files%20Integration.docx?d=wc40a10ecbb164701880d26e57fee0b78&csf=1&web=1&e=UAjLjj&xsdata=MDV8MDJ8WWFzaC5ZZW9sZWthckBleS5jb218OWI0MWEyZDZjNWFmNGJiYTRhM2EwOGRlMDBmZTdjMmZ8NWI5NzNmOTk3N2RmNGJlYmIyN2RhYTBjNzBiODQ4MmN8MHwwfDYzODk0OTI5MDE1NzY0MjkyOHxVbmtub3dufFRXRnBiR1pzYjNkOGV5SkZiWEIwZVUxaGNHa2lPblJ5ZFdVc0lsWWlPaUl3TGpBdU1EQXdNQ0lzSWxBaU9pSlhhVzR6TWlJc0lrRk9Jam9pVFdGcGJDSXNJbGRVSWpveWZRPT18MHx8fA%3d%3d&sdata=NWRKQkw1WWZ6cityMk1oNnF5OXdxWVRxWGJ2bUtpWks1aVRsWGE5WDB5az0%3d)

# Tasks Summary

## Development Components

|  |  |
| --- | --- |
| **Task Description** | **Category** |
| Select Records for VertexOne – VX Engage Customer Balance Extract | Algorithm |
| Process Record for VertexOne – VX Engage Customer Balance Extract | Algorithm |
| VertexOne – VX Engage Customer Balance Extract Batch | Batch |

## EY Responsibilities

* Develop and unit test all components listed above
* Delivery of all custom components
* Provide testing support and defect resolution

## Client Responsibilities

* Deploy delivered components
* System testing of delivered components
* Re-test any defect fixes
* Sign-off when system testing is completed successfully
* Design and update the job scheduler if necessary

# Appendix

## Sample Output File



## File Specifications

