**Interface Specifications for Accuity to IBS & Maeve Integration**

**11/4/2020**

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# 

# **Integration Overview**

|  |  |
| --- | --- |
| **Integration Overview** | |
| Integration Description | This integration is to gather the account details and balances from IBS and Maeve DB based on the request we received from Accuity. In this interface, Accuity will send the request to MuleSoft Experience API and MuleSoft transforms the requests, collects the data from IBS and Maeve DB based on the Customer SSN and send the response back to Accuity |
| Application Area | Account Information |
| Current And Future Architecture Scope | * Short Term   ☒ Long Term |

# **Document Control**

## **Contacts**

|  |  |  |  |
| --- | --- | --- | --- |
| **Role** | **Name** | **Email** | **Phone** |
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## **Document History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Version No.** | **Date**  **(MM/DD/YYYY)** | **Version Description** | **Author** |
| 1.0 | 10/26/2020 | Document created & Initial Draft | Haritha Thokala - PwC |

# **EIP Interface**

## **Purpose**

The purpose of this document is to provide EIP Design and Architecture for Accuity to IBS & Maeve interface. In this interface, Accuity will send the request to MuleSoft Experience API and MuleSoft transforms the requests, collects the data from IBS and Maeve DB based on the Customer SSN and send the response back to Accuity

## **General Description of Interface**

This integration is to gather the account details and balances from IBS and Maeve DB based on the request we received from Accuity.

## **Use Cases**

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case #** | **API to be used#** | **Transport Method** | **Description** |
| 1 | Validating the Request | Http(s) | API call is made to the IBS by passing SSN in the URL to retrieve the following details   * First Name * Last Name * Customer Number * Zip Code   Following validations will be performed  - If Accounts Found then update responseType as 'Yes';  - If No Accounts then update responseType as 'Yes'  - If Name is incorrect then update responseType as 'No'  (Validate First 3 letters of first name & last name) |
| 2 | Retrieve Account Details from IBS | Http(s) | Retrieve the following details from IBS for a given Customer Number for all the available Accounts (a single call)   * Joint Account * Account Number * Account Type Code * Account Type Desc * Account Open Date * Account Close Date |
| 3 | Retrieve Account Balances from Maeve DB | Http(s) | Retrieve the following details from Maeve DB for a given SSN and date range for all the available accounts (a single query)   * Account Number * Account Open Date * Account Close Date * Balance Date * Balance * Interest |

# **Document Sign-Off**

|  |  |  |  |
| --- | --- | --- | --- |
| **Role** | **Name / Signature** | **Title** | **Date** |
| **Technology SME** | Chris Zupko |  |  |
| **Business SME** | Devon Smith |  |  |

# 

# **Integration Details**

## **Basic Information**

|  |  |  |
| --- | --- | --- |
| **Basic Settings** | | |
| **Integration System Name** | | EIP - MuleSoft |
| **Real Time/ Batch** | | * Real time * Batch |
| **Integration Direction** | | * Inbound * Outbound |
| **Batch Mode** | | * Delta (Changes Only) * Full Data * NA |
| **API/Protocol** | | ☒ SOAP  ☒ REST   * Bulk * Connector * Other |
| **Data Source Type** | | * Custom Report * Rest URL   ☒ Web Service   * File * Cloud Connect Template |
| **Data Source Name** | | Accuity - SOAP Web Service |
| **Input Parameters** | | NA |
| **Output Parameters** | | NA |
| **Integration Schedule** | **Frequency** | * Ad-hoc * Daily * Weekly * Monthly * Semi-Monthly * Annually * Bi-Weekly * Other |
| **Day of the Week /**  **Date & Month** | NA (Real time) |
| **Time** | NA (Real time) |
| **Expected Data Volume** | | ~75 requests per day; 1 request per call |
| **payload type** | | XML |
| **Caching Enabled** | | N/A |
| **Data Classification** | | Account Information |

## 

## **Data Transformation**

|  |  |
| --- | --- |
| **Data Transformation** | |
| **Transformation Type** | * Predefined Transformation * Custom Transformation * None |
| **Transformation Name** | Refer data mapping sheet for transformation |

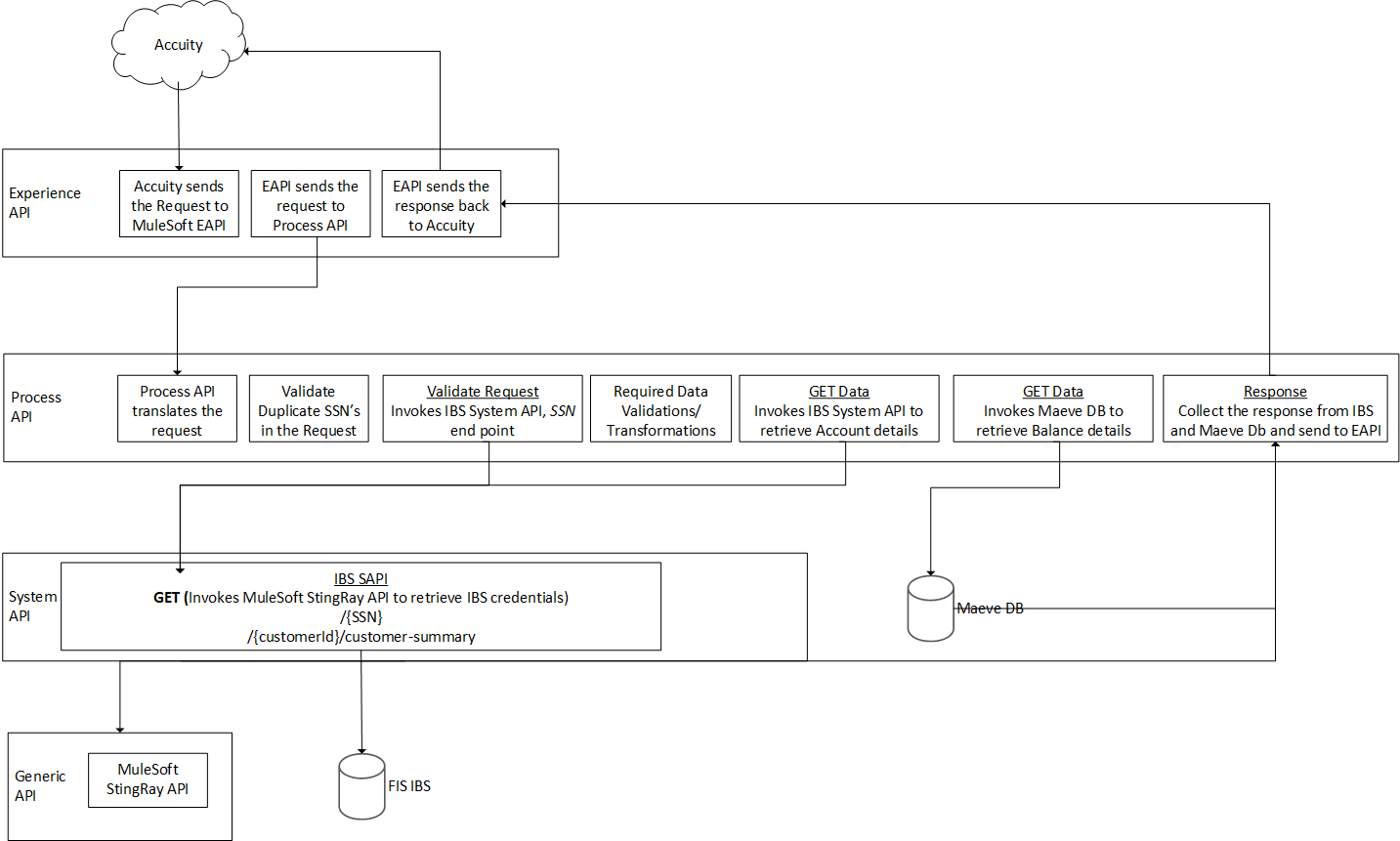
## 

## **Data Delivery/Retrieval Settings**

|  |  |
| --- | --- |
| **Data Delivery/Retrieval Settings** | |
| **Delivery/Retrieval Method** | * Email Attachment * FTP with PGP Encryption * SFTP over SSH * SFTP with Password * HTTP(S) |
| **Data Format** | ☒ XML   * CSV * Text – Fixed Width * Text – Pipe-Delimited * JSON |

# **Design Diagrams**

## **API-Led Design**



# **Processing Details**

## **Pre-conditions:**

* + 1. Accuity sends the SOAP request to MuleSoft Experience API

## **Post-conditions:**

* + 1. Experience API translates the request to REST and sends it to Process API
    2. Process API validates whether the SSN is duplicated within the transmittal Id
       1. One transmittal Id can have upto 20 requests
       2. During this validation, MuleSoft confirms if there is a duplicate SSN requested within that transmittal Id and if there is a duplicate found then we will update the responseIndicator as ‘No’ and nonResponseReasonCode as ‘DUPLICATE\_REQUEST’ in the Response
    3. Process API calls IBS System API, SSN end point by passing SSN to validate the request. MuleSoft IBS System API has to pass Vendor Id whenever calling IBS APIs. Following fields are sent in the response
       1. *ElmntFrstNme*: First Name of the Customer
       2. *ElmntLstNme*: Last Name of the Customer
       3. *CICustRtnNbr*: Customer Number
       4. *ElmntZip*: Zip Code
    4. MuleSoft StingRay API will be created to store and retrieve the credentials for IBS. MuleSoft IBS System API will call this API in order to retrieve the IBS credentials
    5. This API may receive multiple customer numbers in the response. By matching and validating the Zip Code field between the Request and IBS, we will get to a single customer number per SSN
    6. Process API then validates the following details
       1. Validate if the zip code matches with the zip that was sent in Request payload, if it doesn’t match we can ignore that Customer Number
       2. Next, validate the first 3 letters of first name and last name from the Request payload. In case of mismatch, update the ‘responseIndicator’ field in Response as False
       3. If you receive the response as ‘Null’, then query Maeve Db with the given date range. If there are accounts available then update the reponseIndicator as ‘True’
          1. Validation - first 3 letters of First name. There is a possibility that name and zip code can change over the years, hence the decision to only validate the first name
          2. Since these account details will not be available in IBS, following fields will be added to the BIC report to sync to Maeve Db

Joint Account,

Account Type Code,

Title Owner

* + 1. Upon successful validation of Name, Process API will query Maeve DB by passing Date Range and Customer’s SSN specified in the request to retrieve the following fields (single query)
       1. *Account Number:* List of accounts from Maeve based on the SSN
       2. *Account Open Date:* Date when account was opened
       3. *Account Closed Date:* Date when account was closed
       4. *Balance Date:* Year and month for balance and interest information
       5. *Balance:* Account balance for each month (per date range specified in the request)
       6. *Interest:* Account interest for each month (per date range specified in the request)
    2. Parallely, Process API makes a call to IBS System API by passing Customer Number in the URL to retrieve the following fields
       1. *CIEnt2ToEnt1RltCde:* Lists whether the account is a Joint Account or not
       2. *DPAcctNbr:* List of accounts from IBS based on the SSN
       3. *DPAcctTyp:* account code type
       4. *DPStmtMrktNme*: Description of Account code type, this field is mandatory when ‘DPAcctType’ is ‘OTHER’
       5. *DPNmeAndAddrLne1:* The account title. Contains the list of account owner names
       6. *DPOpenDte:* Date when account was opened
       7. *DPClosDte:* Date when account was opened
    3. Upon retrieving account details from IBS and Maeve, Process API will send the response to Experience API
    4. Experience API will translate the response to SOAP format and sends it to Accuity

## **Design Considerations:**

1. In case of an error with the single request in the transmittal Id, MuleSoft can ignore that single request and can send the response back to other requests
   1. For Example, if Accuity or SSA sends 15 requests within a transmittal Id and we have an internal error with 2 requests. We can send the 13 success responses back and ignore the 2 failed ones
2. Title Owner: We can include the entire address lines, not just the owner name for the ‘title’ field in the Response
3. We are not planning to include ‘ssiDirectDeposit’ field in the Response since it is not a mandatory field
4. ABA field in the Response will be hardcoded to Bank’s routing number (031100102) at all times
5. If "DPClosDte"/accountCloseDate = "0000-00-00" in IBS/Maeve DB then we will update the field in response as Null else update the actual value
6. If the Account is closed during the middle of the month, then we need to send the balance as of the beginning of that month
   1. For Example, if the account was closed on 10/15 with the balance $10000. When Accuity requests the balance for the same account, we are supposed to send the balance as of 9/30
7. If the TIN doesn’t exist in IBS, then MuleSoft will look in Maeve DB and the if the TIN doesn’t exist in Maeve db either then update the responseIndicator as ‘Yes’ and the reason is ‘No Accounts Found’
8. MuleSoft will always ignore if the acctTypeCd is ‘E’. For example, if you get only ‘E’ account code for a respective SSN in IBS then you should ignore this account in IBS and go to Maeve and check if there are any accounts other than ‘E’ are available
9. If the Account exists but balances for that date range specified in Request doesn't exist in Maeve then update the response as ‘No Accounts Found’
10. If the Account exists in IBS but that account doesn't exist in Maeve then update the response as ‘No Accounts Found’

# **Sample Maeve DB Schema Structure:**

{

"\_id" : ObjectId("5fa1be48324aaf0c7858a539"),

"tin" : 999458762,

"firstName" : "Amanda",

"lastName" : "Tester",

"customerTypeIndicator": "F",

"accounts" : [

{

"accNum" : 210696480,

"accountType" : "38",

"accountRelationship" : "22",

"title" :{

"nameAndAddressLine1" : "Mickey Mouse",

"nameAndAddressLine2": "Minnie Mouse",

"nameAndAddressLine3": "Tom Hanks",

"nameAndAddressLine4": "123 Main Ave",

"nameAndAddressLine5": "",

"nameAndAddressLine6": "",

"nameAndAddressLine7": "",

"nameAndAddressLine8": ""

}

"openDate" : {

"$date" : 1414555200000

},

"monthlyData" : [

{

"reportDate" : {

"$date" : 1604030400000

},

"balance" : 102991.84,

"accountStatus" : "X",

"interestBalance" : 2.04

},

{

"reportDate" : {

"$date" : 1601438400000

},

"balance" : 103005.37,

"accountStatus" : "X"

},

{

"reportDate" : {

"$date" : 1598846400000

},

"balance" : 103016.37,

"accountStatus" : "X"

}

]

},

{

"accNum" : 497095383,

"accountType" : "70",

"accountRelationship" : "22",

"title" :{

"nameAndAddressLine1" : "Mickey Mouse",

"nameAndAddressLine2": "Minnie Mouse",

"nameAndAddressLine3": "Tom Hanks",

"nameAndAddressLine4": "123 Main Ave",

"nameAndAddressLine5": "",

"nameAndAddressLine6": "",

"nameAndAddressLine7": "",

"nameAndAddressLine8": ""

}

"openDate" : {

"$date" : 1173157200000

},

"monthlyData" : [

{

"reportDate" : {

"$date" : 1604030400000

},

"balance" : 102991.84,

"accountStatus" : "X"

}

]

}

]

}

## **Mapping for Maeve Db**

* + 1. relatedCustomer to Title
    2. accountRelationship to JointAccount

# **Data Mapping link/Sheet:**

https://docs.google.com/spreadsheets/d/1pGXBppNh\_UKf8GX9yNRTZGW6weQthMVz3rHARMhnAck/edit#gid=1959914401

# **Design Assumptions & Decisions:**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Assumption/Decision** | **Description** |
| 1 | Assumption | Connect temporarily to on-prem Maeve Db in order to continue with the development and unit testing. Upon resolution of security concerns around Maeve Db in Azure, MuleSoft will connect to the DB in Azure |
| 2 | Assumption | Data Definition and Schema structure should be same for On-Prem Maeve Db and Azure Maeve Db |
| 3 | Assumption | Requests within a Transmittal Id from Accuity will be <20 |
| 4 | Assumption | There will be average of 2 - 3 Accounts per Customer Number available in IBS |
| 5 | Assumption | There will be a single call made to IBS based on Customer Number to retrieve all the account details |
| 6 | Assumption | A single query will be provided to retrieve the balance details from Maeve based on SSN and Date Range |
| 7 | Assumption | We assume that WSFS SMTP server will be available to send the email notifications from MuleSoft (SMTP Server details to be added) |
| 8 | Stingray | MuleSoft uses Stingray as the Credential management tool and the expectation is to have APIs available to call Stingray from MuleSoft |
| 9 | Decision | API orchestration will be done at Mulesoft layer. |
| 10 | Decision | Transformation logic provided in the Field Mapping template will be considered as a source of truth. |
| 11 | Decision | Retry IBS System API ‘3’ times with ‘20’ sec frequency in case of connectivity error |

# **Dependencies**

|  |  |  |
| --- | --- | --- |
| **Dependency #** | **Description** | **Owner** |
| 1 | DB Credentials for Maeve DB | WSFS Team |
| 2 | Credentials & APIs available to access in Test Environment | WSFS Team |
| 3 | Test data to be available in Maeve and IBS environments | WSFS Team |
| 4 | Test Environments for Accuity, Maeve DB, IBS | WSFS Team |

# **Security**

## **11.1. API Security Configuration Parameters**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Name of the Policy** | **Values** |
| 1 | Two Way SSL and IP Whitelisting | Work with Accuity to get details |
| 2 | Client Id Enforcement | Client Id:  Client Secret: |
| 3 | Oauth for IBS APIs | Token |

## 

# **Parameters**

## **Non Functional Parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No** | **Name** | **Description** | **Values** |
| 1 | Maximum throughput | Provide highest expected volume in the shortest time frame | ~75 per day |
| 2 | Caching Enabled | Any in-memory Cache/Object-Store defined for the integration ? | N/A |
| 3 | vCores | No of vCores & size of vCores used for the integration | Experience API - 0.1  Process API - 0.1  IBS System API - 0.1 \*\*In UAT & Production this interface will be HA and uses 0.2 vCores\*\* |
| 4 | Data Classification | Describe the data classification assigned to the interface/payload | Retrieve Account and Balance Details from IBS and Maeve Db   * Sensitive data |
| 5 | Payload Size | Define the size & Maximum depth/nesting | TBD |
| 6 | Logging | Any restriction in logging PII/PCI data | Yes   * SSN * Account Number * First Name * Last Name |
| 7 | Anypoint Alerts | Review the system alerts available in Anypoint Platform & decide which one to implement | TBD |

## **System connection details**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No** | **System Name** | **Connection Parameters** | **Details** |
| 1 | Maeve DB | Host | [maeve-cosmos-db.mongo.cosmos.azure.com](http://maeve-cosmos-db.mongo.cosmos.azure.com/) |
| Port | 10255 |
| Transport Layer | Http(s) |
| 2 | IBS | Username | TBD |
| Password | TBD |
| Transport Layer | Http(s) |
| 3 | Accuity | IP to be Whitelisted | TBD |
| Certificate | TBD |
| Transport Layer | Http(s) |

# **Error Handling**

* 1. **MuleSoft APIs**

|  |  |
| --- | --- |
| **Error Description** | **Action** |
| IBS System API is unavailable | Application team would like to receive an email notification |
| Maeve DB is down | Application team would like to receive an email notification |
| Internal MuleSoft API error. Eg, dataweave transformation | Send an email notification to WSFS application team integration support |
| In case of any failure of requests within the transmittal Id | Send an email notification to WSFS application team integration support |

* 1. **Accuity SOAP Default**

|  |  |  |  |
| --- | --- | --- | --- |
| **Faultcode** | **Faultstring** | **Description** | **Automatic Retry?** |
| SOAP-ENV:Client | VALIDATION FAULT: Request Schema Validation | The Request XML was not valid according to the XSD. | No |
| SOAP-ENV:Server | VALIDATION FAULT: Response Schema Validation | The Response XML was not valid according to the XSD. | No |
| SOAP-ENV:Server | TIMEOUT FAULT: Request timeout | Timeout occurred, on the FI side, while the FI was performing data lookup. | Yes |
| SOAP-ENV:Client | VALIDATION FAULT: financialInstitutionId not valid | Sent if the financialInstitutionId is an unexpected value. Only applicable for FIs that need to validate that field | No |
| SOAP-ENV:Server | SERVICE FAULT: Response unavailable for current Request | Only used when the resendRequestId element is provided in the Request. This error indicates that the data is not available for resend. | No |
| SOAP-ENV:Server | SERVICE FAULT: Technical difficulties | Sent if an unanticipated kind of error occurs. Accuity prefers not to receive this, rather a more explanatory reason whenever possible | No |

# **Unit Testing & Sign-Offs**

## **Unit Testing Results**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test Case #** | **Test Case** | **Test Data** | **Expected Result** | **Actual Result** |
|  | | | | |

## **Client Sign Off**

*Embed the sign-off mail from the vendor in PDF format.*

# **Risk & Open Items**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No** | **Item** | **Owner** | **Expected Closure Date** |
|  | N/A |  |  |
|  |  |  |  |

# 

# **Glossary**

|  |  |
| --- | --- |
| **Acronym** | **Description** |
| CSV | Comma Separated Values |
| DSC | Data Supply Chain |
| FTP | File Transfer Protocol |
| HTTPS | Hypertext Transfer Protocol Secure |
| JSON | JavaScript Object Notation |
| PGP | Pretty Good Privacy |
| REST | Representational State Transfer |
| SFTP | Secured File Transfer Protocol |
| SME | Subject Matter Expert |
| SOAP | Simple Object Access Protocol |
| SSH | Secure Shell |
| SSN | Social Security Number |
| TIN | Taxpayer Identification Number |
| WSDL | Web Service Description Language |
| XML | Extended mark Language |
| Predefined Transformation | Data mapping between source fields and target fields without any transformation logic |
| Custom Transformation | Data mapping between source fields and target fields including any transformation logic |

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